European Society for Surgical Research Congress

LILLE FRANCE JUNE 29-30, 2023

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	Amphi B	Salle des Thèses	Amphi A	Salle des Conseils
June, 29, 2023				
08:00 am	Badge Withdrawal			
08:45 am 10:00 am		Case-Based Learning	Surgical Oncology	Urology
10:00 am 10:30 am	Coffee Break			
10:30 am 11:30 am	**OPEN CEREMONY AND LIFETIME ACHIEVEMENT (Amphi B)**			
11:30 am 12:45 pm	Colorectal Surgery	From Bedside To Classroom	Organ Preservation And Transplantation	Integrating New Technology Into Surgical Practice
12:45 pm 02:10 pm	Lunch Break			
02:15 pm 04:00 pm	Walter Brendel / Best Experimental Study Session			
04:00 pm 04:25 pm	Coffee Break			
04:30 pm 06:30 pm	Orthopaedic, Spine And Neurosurgery	Experimental Models In Research		Cardiac, Vascular And Thoracic Surgery
June, 30, 2023				
08:00 am	Badge Withdrawal			
08:45 am 10:30 am	Hepato-Pancreato- Biliary Surgery	Teaching Through Cases	Emergency And Trauma Surgery	Surgical Innovation And Education
10:30 am 10:55 am	Coffee Break			
11:00 am 12:30 pm		Obstetrics And Gynecological Surgery	Robotic Surgery With Trogs Society	Cell Therapy, Cell And Islet Transplantation
12:30 pm 01:55 pm	Lunch Break			
02:00 pm 03:30 pm		Surgical Video Session	Metabolic Bariatric And Upper Gi Surgery With Tugss Society	
03:30 pm 04:00 pm	AJCV And CNJC Session «My Research In 180 Sec»			
04:00 pm 04:25 pm	Coffee Break			
04:30 pm 05:45 pm	Best Clinical Study Session			
05:45 pm 06:15 pm	**AWARDS AND CLOSING CEREMONY (Amphi B)**			

JUNE, 29, 2023

08:45 am - 10:00 am — **Salle des Thèses**

Case-Based Learning (5 min + 2 min discussion)

Chairwoman and Chairman: S.EL KURDI, France - T.THEOLOGOU, Switzerland

The radiological outcomes of bi-planar, retrotubercle, medial opening–wedge high tibial osteotomies
JASON MAVROTAS, United Kingdom

Incarcerated incisional hernias should be managed surgically where possible, despite a high incidence of obesity and comorbidity: a 7-year experience in a district general hospital
ISLAM OMAR, Ireland

Hemiarthroplasty in unstable intertrochanteric fractures in elderly: a prospective study
ABHISHEK SHETTY, India

A morphological review of medial malleolar fractures - a large single center series
JASON MAVROTAS, United Kingdom

Outcomes of surgical repair of incisional hernia in the old patients ≥70 years
ISLAM OMAR, Ireland

Intraoperative variation of portal pressure is predictive of post-hepatectomy liver failure and mortality after major hepatectomy
RAMI RHAIEM, France

Proximalization is advancement - zone 2 vs. Zone 3 frozen elephant trunk clinical outcomes: a systematic review & meta-analysis
MATTI JUBOURI, United Kingdom

Acute aortic regurgitation post tavi: a case report
BOTHAYNA AMIEN, United Kingdom

08:45 am - 10:00 am — **Amphi A**

Surgical Oncology (10 min + 2 min discussion)

Chairwoman and Chairman: C.EVENO, France - J.VEZIANT, France

Value of frozen section examination for the management of small testicular tumors
JONATHAN OLIVIER, France

Can we predict long term mortality with elderly patients in colorectal cancer operations?
KASO ARI, England

Molecular characterization of esophageal adenocarcinomas (eac) and its prognostic impact
CONSTANCE HOULZE-LAROYE, France

Lynch syndrome - do we really screen for it?
KASO ARI, England

Clinico-pathological factors affecting lymph node yield (lny) and positivity (lnp) in left sided colon and rectal cancers
MUHAMMAD RAFAIH IQBAL, United Kingdom

08:45 am - 10:00 am — **Salle des Conseils**

Urology (10 min + 2 min discussion)

Chairmen: G.MARCQ, France - J.OLIVIER, France

Sedation vs general anesthesia in stone ureteroscopy: comparison of efficacy and safety
ANTOINE DAQUIN, France

Stent-free rates post rendezvous procedure for complex ureteric strictures; a 10-year experience
THRSHEGAN THEIVENDRAMPILLAI, United Kingdom

An audit of acute scrotal pain and scrotal exploration for suspected testicular torsion in the paediatric population at a district general hospital.
SHENTHIUIYAN THEIVENDRAMPILLAI, United Kingdom

The pact study: a prospective mixed-methods study of patient attitudes towards multiparametric magnetic resonance imaging-directed prostate cancer diagnosis
JOSEPH NORRIS, United Kingdom

Molecular landscape of prostate cancer topography: observations from the tcga
JOSEPH NORRIS, United Kingdom

Predictive factors of testicular cancer in small testicular tumors treated with partial orchiectomy: a retrospective study
JONATHAN OLIVIER, France

10:00 am - 10:30 am — **Coffee break**

10:30 am - 11:30 am — **Amphi B**

Open Ceremony
M.CHETBOUN, France and K.VAKALOPOULOS, Switzerland

Double arm transplant: the incredible reconstruction of Felix Gretarsson
M.CHETBOUN, France

Lifetime achievement of Prof. Yuzo Yamamoto, Japan
T.HUBERT, France and R.TOLBA, Germany

11:30 am - 12:45 pm — **Amphi B**

Colorectal Surgery (10 min + 2 min discussion)
Chairwoman and Chairman: P.ZERBIB, France - B.NOIRET, France

Review of management of perforated diverticular disease based on hinchey classification in modern practice
MOHAMED SALEM, United Kingdom

Lipopolysaccharide-binding protein (lbp) in assessing the risk of adverse outcomes in operated colorectal cancer patients
ALINA OGIZBAYEVA, Kazakhstan

Two-stage turnbull-cutait pull-through coloanal anastomosis in distal rectal cancer: our 7-year experience
PIRILTI ÖZCAN, Turkey

Latrogenic ureteric injury during colorectal surgery has a significant impact on patient outcomes. A French multicentric retrospective cohort study
DIANE MEGE, France

11:30 am - 12:45 pm — **Salle des Thèses**

From Bedside To Classroom (5 min + 2 min discussion)
Chairwoman and Chairman: T.THEOLOGOU, Switzerland - S.BENHALIMA, France

The safety and efficacy of day-case laparoscopic appendicectomies for acute appendicitis in adults: a two-year retrospective case study
GULZAR DHANOYA DHANOYA, England

Contained vascular hepatic injuries after liver trauma: a monocentric retrospective analysis.
SÉBASTIEN FREY, France

Cystic lymphangioma of the gallbladder in children: a case report
ARNAUD DELAFONTAINE, Belgium

Novel technique of chronic large parastomal hernia in emergency session
AHMED ZEID, United Kingdom

Severe ankle injury
MAXIME MATON, Belgium

Predictors of long-term survival after hip fractures-a 5 year results of a retrospective
ABHISHEK SHETTY, India

Active surveillance of low-risk prostate cancer: comparison of the oncological outcomes between men younger and older than 60 years old.
JONATHAN OLIVIER, France

A pla/pcl monofilament for transvaginal mesh knitting for pelvic organ prolapse treatment purpose: from the extrusion phase to the in vitro assessment of chemical and mechanical profile
ALESSANDRO FERDINANDO RUFFOLO, Italy

Biomechanical properties of each layer of porcine perineal tissues
MARINE LALLEMANT, France

11:30 am - 12:45 pm — **Amphi A**

Organ Preservation And Transplantation (10 min + 2 min discussion)

Chairmen: M.MAANAOUI, France - A.HAMROUN, France and E.BOLESLAWSKI, France

Keynote lecture «Target trial in observational studies in transplantation: the example of islet transplantation» (20 min)
Mehdi MAANAOUI, France

Preventive effect of adipose-derived mesenchymal stem/stromal cell line (ascl) sheets for rat liver ischemia-reperfusion injury model
KITA HIDENORI, Japan

N-acetylcysteine and curcumin reverse iec-6 cell damage in in vitro ischemia/reperfusion model
UNAI MONTEJO, Spain

A new organ preservation solution for cold storage and oxygenated organ preservation; first results from a clinically relevant porcine kidney transplantation model
RENE TOLBA, Germany

Organ Care System in cardiac transplantation
GABRIELLA RICCIARDI, France

11:30 am - 12:45 pm — **Salle des Conseils**

Integrating New Technology Into Surgical Practice (10 min + 2 min discussion)

Chairmen: T.HUBERT, France - R.TOLBA, Germany

A new three-dimensional fully bioresorbable mesh obtained by 3d printing for the reconstruction of the hypodermis - proof of concept
AMÉLIA JORDAO, France

Partially absorbable 60% poly-l-lactic acid/polypropylene copolymer (plla/pp) 4dventral® promotes an anti-inflammatory response in human macrophages and low susceptibility to bacterial adherence in vitro
DAOUDI MEHDI, France

Performance of an ambulatory digestive reinstillation device
JEAN ROBERT NZAMUSHE, France

A new gas exchange device and its low-flow application with special regard to co2 elimination
FOIVOS MOUZAKIS, Germany

3d printing significantly improves procedural understanding in aortic surgery patients - preliminary results of a prospective randomized cohort trial
ARASH MOTEKALLEMI, Germany

12:45 pm - 02:10 pm — **Lunch break**

02:15 pm - 04:00 pm — **Amphi B**

Walter Brendel / Best Experimental Study Session (10 min + 2 min discussion)

Chairmen: T.HUBERT, France - R.TOLBA, Germany - C.SAPORANO, France D.MOSZKOWICZ, France - R.CAIAZZO, France

Keynote lecture «Experimental research» (20 min)
RENE TOLBA, Germany

Innovative concepts towards intra-arterial photodynamic therapy
SABRINA HOUTHOOFD, Belgium

Pulmonary valve replacement under cardiopulmonary bypass in the juvenile sheep, tips and tricks in a fragile model
JEROME SOQUET, France

Long-term in-vivo study of the growth of a pedicled fat flap in a tissue engineering chamber
GUILLAUME LACROIX, France

Quantitative evaluation of the abdominal wall mechanical behavior by a new connected abdominal binder: a preliminary study
PIERRE GUEROULT, France

Feasibility of personalized tumor organoids culture from non-metastatic colorectal cancer and preliminary study of their interest in the management of adjuvant chemotherapy
CHARREAU QUENTIN, France

Evaluation of effectiveness of targeted photodynamic therapy using a vectorized photosensitizer coupled to folic acid in an ovarian cancer model
MARGAUX MERLIER, France

04:00 pm - 04:25 pm — **Coffee break**

04:30 pm - 06:30 pm — **Amphi B**

Orthopaedic, Spine And Neurosurgery (10 min + 2 min discussion)

Chairmen: H-A.LEROY, France - K.VAKALOPOULOS, Switzerland

Does the introduction of a daily middle-grade ward round improve mortality and length of stay in hip fracture patients? A large single-centre series at the United Kingdom's top performing trust
JASON MAVROTAS, United Kingdom

Management of neck of femur fractures in a UK major trauma centre, a difficult balance: patient outcomes and resource considerations
JASON MAVROTAS, United Kingdom

Infection after total knee arthroplasty: bilateral simultaneous vs bilateral staggered vs bilateral staged a prospective observational study
ABHISHEK SHETTY, India

Bacterial study in ruptured and unruptured intracranial aneurysm walls with pcr technique in a French population
TUONG LU, France

Prevalence of hands tumors in a city office practice
ROMAIN BAILLOT, Switzerland

Improving the burden of spinal trauma on orthopaedic services at a district general hospital
LUKE THORNTON, United Kingdom

CMC1 joint arthroplasty: so many implanted, so few documented
KONSTANTINOS VAKALOPOULOS, Switzerland

04:30 pm - 06:30 pm — **Salle des Thèses**

Experimental Models In Research (10 min + 2 min discussion)

Chairmen: P.GUERRESCHI, France - A.ABDERRAHMANI, France

Development of a model of neonatal analgesia throughout lactation in rats
ISABELLE DUTRIEZ-CASTELOOT, France

Vascular eptfe grafts in a porcine carotid artery model
JAROSLAV CHLUPAC, Czech Republic

Pharmacological prophylaxis of intestinal reperfusion damage
IGNACIO GARCIA-ALONSO, Spain

A simple method for ex vivo parathyroid procurement in mini-pigs
MEHDI MAANAOUI, France

Umbilico-placental hemodynamics and transplacental o2 exchanges during intact cord resuscitation in newborn lambs with congenital diaphragmatic hernia (cdh)
DYUTI SHARMA, France

Evaluation of the effectiveness of intra-articular injection of botulinum toxin type a and its comparison to hyaluronic acid in a rat model of temporomandibular joint osteoarthritis
FLORENT BARRY, France

Oral d-xylose plasma appearance as a biomarker for intestinal glucose absorption in minipigs and humans
RÉBECCA GOUTCHTAT, France

04:30 pm - 06:30 pm — **Salle des Conseils**

Cardiac, Vascular And Thoracic Surgery (10 min + 2 min discussion)

Chairmen: J.SOBOCINSKI, France - J.SOQUET, France

Driving technology for endovascular aortic arch repair: an international analysis of relay branched outcomes
MATTI JUBOURI, United Kingdom

Incidence of delirium & neurological events in cardiac surgery & tavi procedures at cardiothoracic centre ticino (cct). A six-year retrospective analysis
THOMAS THEOLOGOU, Switzerland

Identification of pre- intra- and post-operative predictive factors influencing the primary patency of femoro-popliteal autologous vein bypasses
WILLOT CLÉMENT, France
Type b aortic dissections in canton ticino. Twenty-year incidence & overall management
THOMAS THEOLOGOU, Switzerland
Mouse model of hindlimb ischemia: tips and tricks we learned
MARIE JUNGLING, France
Surgical management of carotid artery disease: a 10-year single center retrospective experience
AULARD DORCHE WILLIAM, France
Vietnam mission 10 years results
THOMAS THEOLOGOU, Switzerland

JUNE, 30, 2023

08:45 am - 10:30 am — **Amphi B**

Hepato-Pancreato-Biliary Surgery (10 min + 2 min discussion)

Chairwoman and Chairman: Y.YAMAMOTO, Japan - S.TRUANT, France - R.RHAIEM, France
5-Ala mediated photodynamic therapy in the treatment of hepatocellular carcinoma: an in vitro and ex vivo feasibility study
FLORIAN PECQUENARD, France
Anterior versus classical approach during right hepatectomy for hepatocellular carcinoma: inverse propensity score weighted analysis
RAMI RHAIEM, France
Mechanisms of liver regeneration in a rat model of liver venous deprivation technique and measurement of hypoxia
LAZARE SOMMIER, France
Prognostic indicators for disease-free and overall survival after surgical resection of pancreatic ductal adenocarcinoma
MARTA CHACON GARCIA, United Kingdom
Optimal timing of radiological interventions for abdominal collections during the late phase of the acute necrotizing pancreatitis
SHAHZAD AHMED, United Kingdom
Experience using thermography for evaluation of hepatic blood flow in hepatectomy
KEN TSUBOI, Japan

08:45 am - 10:30 am — **Salle des Thèses**

Teaching Through Cases (5 min + 2 min discussion)

Chairwoman and Chairman: J.CHLUPAC, Czech Republic - R.GOUTCHTAT, France

The safety and efficacy of day-case laparoscopic nissen fundoplication for the treatment of gerd in adults: a two year study from a university teaching hospital
GULZAR DHANOYA DHANOYA, England
Evidence-based frozen elephant trunk practice: a systematic review and meta-analysis
MATTI JUBOURI, United Kingdom
Sex-linked differences in acute liver failure induced by thioacetamid in lewis rats
EVA KOBLIHOVA, Czech Republic
A pla/pcl monofilament for transvaginal mesh knitting for pelvic organ prolapse treatment purpose: from the extrusion phase to the in vitro assessment of chemical and mechanical profile
ALESSANDRO FERDINANDO RUFFOLO, Italy
Dropped head syndrome: example of three-stage surgery
TUONG LU, France
Safety of surgical repair of incisional hernia in patients with morbid obesity
ISLAM OMAR, Ireland
Outcomes of elective and emergency surgical repair of incisional hernia - a comparative observational study
ISLAM OMAR, Ireland

Virtual consultations - barriers to application in clinical medicine
SHENTHIUIYAN THEIVENDRAMPILLAI, United Kingdom
Safety and oncological results of intraoperative microwave ablation with or without hepatic resection for colorectal liver metastases: preoperative chemotherapy and tumor location matter.
AMBROISE RAVANET, France

08:45 am - 10:30 am — **Amphi A**

Emergency And Trauma Surgery (10 min + 2 min discussion)

Chairwoman and Chairman: J-R.NZAMUSHE, France - E.AUBRY, France
Experimental education to damage control surgery in civil hospital: a model of multidisciplinary civil surgical team
ESTELLE AUBRY, France
May c-reactive protein levels anticipate complicated gallstone cholecystitis in the elderly patient?
GIULIANA R. PUGLISI, Italy
Surgical management of secondary peritonitis, an experience of 212 cases in five years
SALAH MANSOR, Qatar
Considering the role of general surgeons against major or mega-disasters, including nbc/cbrne hazards and the disaster medicine compendium
YOSHIKURA HARAGUCHI, Japan
Sending patients home with a nasal pack during covid 19 to reduce inpatient stay - can we still do this now?
KASO ARI, England
Importance of early diagnosis and treatment of acute mesenteric ischemia-wses guidelines and recommendations
SADAF HANIF, United Kingdom
Management of acute compartment syndrome - a 3 year retrospective series at a UK major trauma centre
JASON MAVROTAS, United Kingdom

08:45 am - 10:30 am — **Salle des Conseils**

Surgical Innovation And Education (10 min + 2 min discussion)

Chairmen: D.SHARMA, France - H-A.LEROY, France - A.DELAFONTAINE, France
Avoidable medical errors in invasive procedures: facts on the ground - nhs staff survey
ISLAM OMAR, Ireland
Mobility analysis of a posterior sacrospinous ligament fixation using a finite element model of the pelvic system
MARINE LALLEMANT, France
A novel evaluation tool for foundation doctor simulation courses in United Kingdom
MUHAMMAD RAFAIH IQBAL, United Kingdom
Does increased exposure to cardiothoracic surgery increase medical students' interest in the specialty? - A systematic review
NAJEEBA LALLMAHOMED, United Kingdom
Understanding UK medical students' perspectives on a career in cardiothoracic surgery
CHRISTOPHER GOULDEN, United Kingdom
Radiation risk of surgeons during vascular and trauma surgery
TEDDY S VIJFVINKEL, The Netherlands

10:30 am - 10:55 am — **Coffee break**

11:00 am - 12:30 pm — **Salle des Thèses**

Obstetrics And Gynecological Surgery (10 min + 2 min discussion)

Chairmen: C.GARABEDIAN, France - M.COSSON, France
Keynote lecture «Pelvic organ mobility a bio mechanical view» (20 min)
M.COSSON, France
An in-vivo rabbit-model comparison between a new synthetic resorbable mesh (probiomesh) and a polypropylene mesh for pelvic organ prolapse treatment purpose
ALESSANDRO FERDINANDO RUFFOLO, Italy

Hysterotomy during emergency cesarean section: comparison of cephalad-caudad versus transversal blunt expansion
PAULINE LESUR, France
Comparison of first versus second line sacrocolpopexies in terms of morbidity and mid-term efficacy
MARINE LALLEMANT, France
A comparison between the vaginal patch plastron associated with the sacrospinous ligament fixation and the uphold lite vaginal support system for the treatment of advanced anterior vaginal wall prolapse
ALESSANDRO FERDINANDO RUFFOLO, Italy

11:00 am - 12:30 pm — **Amphi A**

Robotic Surgery With Trogs Society (10 min + 2 min discussion)
Chairmen: A.ABOU MRAD, France - G.MARCQ, France
Keynote lecture «Troubleshooting in robotic surgery» (20 min)
ADEL ABOU-MRAD, France
Feasibility of two robotic colorectal cases in a day
MUHAMMAD RAFAIH IQBAL, United Kingdom
Intraoperative performance and outcomes of robotic and laparoscopic gastrectomy for gastric cancer: is it worth it?
RADEK POHNAN, Czech Republic
Is robotic ventral mesh rectopexy for pelvic floor disorders better than laparoscopic approach at the beginning of the experience? A retrospective single-center study
CLOTYLDE DUMAS, France
Intraoperative MRI and neuronavigation in neurosurgery
NICOLAS REYNS, FRANCE

11:00 am - 12:30 pm — **Salle des Conseils**

Cell Therapy, Cell And Islet Transplantation (10 min + 2 min discussion)
Chairwomen: J.KERR-CONTE, France - C.BONNER, France - M-C.VANTYGHEM, France
Renal evolution 10 years after islet transplantation in type 1 diabetes
MARIE-CHRISTINE VANTYGHEM, France
Dynamic assessment of human islet secretion: amount of insulin released after glucose stimulation
PRIYADARSHINI PANCHATCHARAM, France
Heterogeneity between donors following gaba administration to transdifferentiate human α-cells into insulin-secreting β-cells in vitro and in vivo
VALENTIN LERICQUE, France
Development of a parathyroid cell therapy adapted for allo- and xeno- transplantation for the treatment of hypoparathyroidism
MEHDI MAANAOUI, France
The role of pancreatic regenerative protein (psp/reg) in islet regeneration and diabetogenesis
ISALINE LOUVET, France

12:30 pm - 01:55 pm — **Lunch break**

02:00 pm - 03:30 pm — **Salle des Thèses**

Surgical Video Session
Chairwoman and Chairman: J.CHLUPAC, Czech Republic - S.EL KURDI, France
Middle colic artery first approach for benign subtotal colectomy using davinci x - a video vignette
MUHAMMAD RAFAIH IQBAL, United Kingdom
Contained rupture of lv ''an imminent death or an unlucky life saver? A rare case presentation
CAN KESKINASLAN, Switzerland
Acute fulminant myocarditis. Clinical dilemmas in unfortunate cases in medicine
CAN KESKINASLAN, Switzerland
Intutity modified avr technique
CAN KESKINASLAN, Switzerland

02:00 pm - 03:30 pm — **Amphi A**

Metabolic Bariatric And Upper Gi Surgery With Tugss Society (10 min + 2 min discussion)

Chairmen: A.ABOU MRAD, France - J.BRANCHE, France - G.PIESSEN, France

Keynote lecture *FLUID AI, Canada* (20 *min*)

Follow-up, safety, and satisfaction with tele-bariatric follow-up implemented during the covid-19 French lockdown: a 2-year follow-up study

AHMED GHAZOUANI, France

Analysis of the efficacy and long-term metabolic and nutritional status of sleeve gastrectomy with transit bipartition compared to roux-en-y gastric bypass in obese rats

CLEMENT BARATTE, France

Development of a göttingen minipig model of sleeve gastrectomy with transit bipartition and comparison of its metabolic effects with sleeve gastrectomy alone and single anastomosis duodeno-ileal bypass (sadi-s)

AGATHE REMOND, France

Day-case laparoscopic partial gastrectomies for the treatment of gists in adults: a two year study at a university teaching hospital

GULZAR DHANOYA DHANOYA, England

Immunotherapy in oesogastric cancer: ongoing trials and perspectives

GUILLAUME PIESSEN, France

03:30 pm - 04:00 pm — **Amphi B**

AJCV And CNJC Session «My Research In 180 Sec»

Chairmen: G.SAYDOUN, France - S.FREY, France - A.DELAFONTAINE, France

Communication selected during the congress by AJCV and CNJC jury

04:00 pm - 04:25 pm — **Coffee break**

04:30 pm - 05:45 pm — **Amphi B**

Best Clinical Study Session (10 min + 2 min discussion)

Chairmen: F.PATTOU, France - M.CHETBOUN, France - K.VAKALOPOULOS, Switzerland V.VANGELDER, France

Driving endovascular solutions for abdominal aortic aneurysms: a 9-year international experience with the fenestrated anaconda endograft

MATTI JUBOURI, United Kingdom

Impact of obesity on both surgical and oncological outcomes after gastric adenocarcinoma surgery

OPHÉLIE BACOEUR OUZILLOU, France

Conservative management versus systematic suture of isolated vaginal or first-degree perineal tears after delivery: a preliminary randomized efficacy trial

MARINE LALLEMANT, France

Comparison between thoracoscopy and thoracotomy for esophageal atresia with tracheoesophageal fistula: in term of morbidity during the first year of life

DYUTI SHARMA, France

Obesity increases the surgical complexity and risk of recurrence after midline primary ventral hernia repair: results on 2307 patients from the French society of hernia surgery (sfcp-ch) registry database

DAVID MOSZKOWICZ, France

Surgical management of retrorectal tumors: A French multicentric experience of 270 consecutives cases

Mathilde AUBERT, France

05:45 pm - 06:15 pm — **Amphi B**

AWARDS AND CLOSING CEREMONY

F. PATTOU, France - M.CHETBOUN, France - V.VANGELDER, France - G.SAYDOUN, France S.FREY, France

Title: **HEMIARTHROPLASTY IN UNSTABLE INTERTROCHANTERIC FRACTURES IN ELDERLY: A PROSPECTIVE STUDY**

Author: ABHISHEK SHETTY

Co-Author(s): MITHUN SHETTY , NIHAL RAI

Background: Grossly comminuted intertrochanteric fractures in osteoporotic bones are highly unstable and difficult to treat. Conservative treatment, such as traction and prolonged immobilisation, results in numerous problems and, in some cases, death. Several epidemiological studies have revealed that the incidence of proximal femur fractures is growing as the population's overall life expectancy has increased dramatically in recent decades. Internal fixation with dynamic hip screws has been reported to have a significant rate of failure, especially in osteoporotic bones. Revision osteosynthesis is a technically challenging procedure that can result in difficulties. Hemiarthroplasty is a popular choice because it provides stability and enables for immediate complete weight bearing. The goal of this trial was to see how effective cemented hemiarthroplasty was at treating proximal femoral fractures in older people with severe osteoporosis.

Material and Methods: Thirty patients (17 men and 13 women, all over the age of 60) who had bipolar hemiarthroplasty for unstable intertrochanteric fractures were studied prospectively. Moore's method was applied to all of the cases. In ten cases, greater trochanter encirclage was performed. The clinical evaluation was conducted using the Harris hip score.
Patients under the age of 60, who were not ambulatory prior to injury, and who had stable intertrochanteric fractures, pathological fractures, or cognitive impairment were excluded from the study. The Boyd and Griffin categorization system was used to classify the fractures. The posterior (Moore's) technique was used to treat all of the patients with cemented bipolar prostheses. The average time of follow-up was 12 months. The modified Harris hip score was used to evaluate the patients.

Results: The average age of the patients in our study was 74.4 years, with 24 cases of type 2 fractures, 4 cases of type 3 fractures, and 2 cases of type 4 fractures. Eleven individuals experienced limb shortening of less than two centimetres, whereas two had limb shortening of more than two centimetres. Abductor weakness was present in 5 of the individuals. At the 12-month follow-up, 21 cases (70%) had bad results, while three cases (10%) had poor results. The average length of stay in the hospital was 10.9 days. Excellent to fair results were observed in 24 patients, as measured by the modified Harris hip score. Two incidences of superficial surgical site infection were diagnosed and treated with intravenous antibiotics. There were no complications in our series, such as stem loosening, cement breakage, periprosthetic fractures, or prosthetic dislocations.

Discussion and Conclusion: In older individuals with significant osteoporosis, the therapy of unstable intertrochanteric fractures differs from the treatment of other proximal femoral fractures. Internal fixation is not as effective as cemented hemiarthroplasty in treating these fractures. This approach has a clear advantage in terms of early full weight bearing and recovery. Hips that have undergone cemented hemiarthroplasty are stable and mobile.

Weight bearing can begin earlier than with other treatment approaches, avoiding any recumbency-related problems.

Title: **INFECTION AFTER TOTAL KNEE ARTHROPLASTY: BILATERAL SIMULTANEOUS VS BILATERAL STAGGERED VS BILATERAL STAGED A PROSPECTIVE OBSERVATIONAL STUDY**

Author: ABHISHEK SHETTY

Co-Author(s): MOHAMMED MUSHEER HUSSAIN

Background: Total knee arthroplasty (TKA) is an orthopaedic procedure done to resurface the joint to reduce pain and restore function in patients with arthritic knees. This study aims to compare the unilateral and the bilateral TKA procedures in relation to the infection occurring following the procedure

Material and Methods: This is a prospective study conducted from the data collected between January 2018 to July 2021 on a total of 1012 patients with end stage knee disease. The data collected had information about patient characteristics, co-morbidities and diagnosis and the infection. Information on infection included the overall infection rate, superficial infection, and deep infection in unilateral TKA and bilateral TKAs and the results were compared

Results: The overall infection rate in unilateral TKA was 1.1% and among the bilateral TKAs, staged BTKA had the lowest overall infection rate followed by simultaneous and highest in staggered BTKA (p=0.015). Staged bilateral procedure demonstrated advantageous over the simultaneous and staggered groups of BTKAs

Discussion and Conclusion: This study showed superior results for staged total knee replacement surgery with minimal overall infection, in our region during 2018 to 2021, and further that the total knee arthroplasty is a reproducible procedure in which trained surgeons can achieve excellent and favorable results.

Title: **PREDICTORS OF LONG-TERM SURVIVAL AFTER HIP FRACTURES-A 5 YEAR RESULTS OF A RETROSPECTIVE**

Author: ABHISHEK SHETTY

Co-Author(s): MUSHEER HUSSAIN , I

Background: The most important fractures in this setting are hip fractures. The mortality declines during the following years after surgery. There are different studies with contrary conclusions regarding the long term mortality. Only little is known about predictable characteristics regarding the 5-year mortality. Furthermore, the already existing data present

inconsistent results. In order to identify the risk factors and predictors on long term survival this study was conducted in elderly patients with hip fracture

Material and Methods: The study is a Retrospective study. Patients aged above 60 years with fracture around hip in the year 2015 & 2016 was taken and analysed. The details of the patients are derived from MRD and patients are contacted through telephonic communication to find out the survival. We have excluded patients with age less than 60yrs, multiple fractures and malignancy related fractures. Parameters like age, sex, comorbidities, the day of presentation to hospital following fracture, hospital stay, whether patient was put on antiplatelets following surgery, years of survival after surgery or treated non operatively.

Results: A total of 150 patients attended to our Yenepoya Medical College during 2015 and 2016 were included in study and evaluated. The mortality was more than 40 % in less than two years after fracture. In the multivariate analysis, significant risk factors for dying were male gender (p = 0.188), comorbidities (p = 0.860), antiplatelet following surgery (p = 0.015), presenting to hospital after fracture (p = 0.003), operating day following admission (p = 0.033), dearranged blood markers (p = 0.020).

Discussion and Conclusion: Our results confirms poor results after hip fracture in elderly population. While better results might be influenced by optimal fracture care, patient's age, gender, day of presentation to hospital, day of undergoing surgery following admission, antiplatelet following surgery, dearranged blood markers before surgery. More prospective clinical studies are required to exactly predict the factors responsible for survival after fractures in elderly.

Title: **DEVELOPMENT OF A GÖTTINGEN MINIPIG MODEL OF SLEEVE GASTRECTOMY WITH TRANSIT BIPARTITION AND COMPARISON OF ITS METABOLIC EFFECTS WITH SLEEVE GASTRECTOMY ALONE AND SINGLE ANASTOMOSIS DUODENO-ILEAL BYPASS (SADI-S).**

Author: AGATHE REMOND

Co-Author(s): MARCINIAK , C , GMYR , V , GOUTCHTAT , R , QUENON , A , RABIER , T , LAPIERE , S , HUBERT , T , VANGELDER , V , MABOUDOU , P , LEROY , J , SENDID , B , PATTOU , F , CAIAZZO , R

Background: Surgery is the most effective treatment for obesity and associated metabolic diseases. The Diabetes Surgery Summit in 2016 recommends metabolic surgery even for patients with uncontrolled diabetes and class I obesity (BMI of 30.0–34.9 kg/m2). New surgical techniques are being evaluated in France, including Sleeve Gastrectomy with Transit Bipartition (BPT) and Single anastomosis duodeno-ileal bypass with sleeve (SADI-S). These techniques would provide significant weight loss and comorbidities improvement by adding malabsorption and incretin secretion, especially for patients who already had a sleeve gastrectomy (SG). However, physiological mechanisms underlying their efficacy remain not fully elucidated and have never been compared in a large mammal model.

The aim of this study was to reproduce a large mammal model of SG, BPT and SADI-S and analyze the mechanisms underlying weight loss and type 2 diabetes improvement after these interventions.

Material and Methods: Twenty-four adult, female minipigs were randomized into four groups (laparotomy): control, SG, BPT and SADI-S. Postoperative metabolic evaluation was performed during a standardized three hours mixed-meal test by repeated measurement of blood glucose, insulin, D-xylose, and GLP-1.

Results: No animals died prematurely during the study. At 1 month after surgery, only the BPT group showed a significant decrease in postoperative food intake ($p=0.04$), however the mean percentage of weight loss was 3.1%, with no statistically significant difference between the SG, BPT, and SADI-S groups ($p > 0.95$).
Fasting and postprandial blood glucose levels did not differ significantly between groups ($p=0.7$ and $p=0.3$ respectively) after surgery.
However, fasting GLP-1 secretion was significantly increased in the SADI-S group compared to the SG, BPT and control groups ($p<0.05$).
After a standardized mixed-meal, there was a similar increase ($p>0.99$) of postprandial GLP-1 in the BPT and SADI-S groups compared to the control and the SG groups ($p<0.01$ and $p<0.01$).
There was a significant decrease in D-xylose absorption in the BPT and SADI-S groups compared to the control and the SG group ($p<0.01$ and $p=0.03$ respectively) with no difference between groups.

Discussion and Conclusion: In a minipig model, we showed that short- term effects of the persistence of nutrient transit through the duodenum combined with intestinal diversion of BPT did not significantly decrease GLP1 secretion or malabsorption compared to SADI. Clinical validation of these results would allow a personalized surgical approach after SG failure and optimization of the benefit-risk balance.

Title: **FOLLOW-UP, SAFETY, AND SATISFACTION WITH TELE-BARIATRIC FOLLOW-UP IMPLEMENTED DURING THE COVID-19 FRENCH LOCKDOWN: A 2-YEAR FOLLOW-UP STUDY**

Author: AHMED GHAZOUANI

Co-Author(s): ARON WISNEWSKY , J

Background: The COVID-19 pandemic was initially responsible for a global restricted access to healthcare resources including the follow-up of at-risk populations such as bariatric patients. We substituted face-to-face bariatric follow-up outpatient
clinics (FTFC) with teleclinics (TC) during the lockdown

Material and Methods: We retrospectively reviewed data collected on all patients scheduled for TC during the French lockdown period (March 15 to May 15, 2020) (N=87). Our aims were to present the patients' outcomes at one and 2 years post-TC implementation and describe patient/practitioner satisfaction

Results: Seven (8%) patients required FTFC, and 80 (92%) underwent TC (study population) for preoperative bariatric assessment (N=3) and postoperative follow-up (N=77) after 23.6±29 months following surgery. TC was performed with video and audio (N=46; 57.5%) or audio alone when video was impossible (N=34; 42.5%). Sixteen (20%) patients presented at least one complication identifed at the frst TC and were managed accordingly. There were no readmissions at 30/90 days post-TC. At 1-year after the frst TC, overall follow-up rate was 94.9% (TC: 73% vs FTFC: 27%). Patients surveyed on the main advantages of TC over FTFC (N=46) cited: saving time (97.8%) at a mean 3.9±6.4 h saved per TC, work-advantages (94.3%), and comparable relevance of TC (84.8%). At 2 years post-TC implementation, follow-up rate was 93.5% and satisfaction rate was 80%, with 33% of patients preferring to return to FTFC.

Discussion and Conclusion: TC is a satisfactory substitute for FTFC, enabling continued bariatric follow-up during and beyond the pandemic setting without compromising patient safety. However, the modest satisfaction outcomes at 2 years highlight a need to discuss follow-up preferences in order to achieve optimal outcomes.

Title: **NOVEL TECHNIQUE OF CHRONIC LARGE PARASTOMAL HERNIA IN EMERGENCY SESSION**

Author: AHMED ZEID

Co-Author(s): MASRI , A

Background: Pt presented from A&E with obstructed parastomal hernia, that was confirmed with CT scan. Advise was taken from the prestigious surgeon Pauli for the best suitable technique, he advised not to operate and to follow up a conservative management.

Material and Methods: Reviewing the classical open and laparoscopic techniques and the new technique used.

Results: Pt was discharged after full recovery and followed up in clinic by 6 weeks

Discussion and Conclusion: comparison with open and laparoscopic techniques (Pauli's, Sugarbaker, others). Prescription of the surgical steps and approach of the technique that was followed. Utilization of transversus abdominis muscle and posterior sheath of rectus, creating plain for repair. Operative method can be used for open repair in emergency sessions for thin walled muscle patient with chronic large parastomal hernia.

Title: **A COMPARISON BETWEEN THE VAGINAL PATCH PLASTRON ASSOCIATED WITH THE SACROSPINOUS LIGAMENT FIXATION AND THE UPHOLD LITE VAGINAL SUPPORT SYSTEM FOR THE TREATMENT OF ADVANCED ANTERIOR VAGINAL WALL PROLAPSE**

Author: ALESSANDRO FERDINANDO RUFFOLO

Co-Author(s): LALLEMANT , M , LAMBERT , B , EL KHAIDI , S , BARTOLO , S , COSSON , M

Background: The anterior vaginal wall prolapse is the most common type of pelvic organ prolapse (POP), and it is associated to the highest relapse rate. In the last decade concerns about the safety related to synthetic non-absorbable transvaginal mesh (TVM) emerged, with TVM that were banned or paused for clinical practice worldwide. The aim of the present study was to compare the anatomical and functional outcomes, as well as the reoperation rate, of women affected by anterior prolapse who underwent native tissue repair (NTR), the vaginal patch plastron (VPP) associated to the anterior sacrospinous fixation (ASSLF) with a TVM procedure, the Uphold™ LITE support system.

Material and Methods: Single-center retrospective study. Women with symptomatic anterior prolapse ≥ III stage according to the POP quantification (POP-Q) system and submitted to surgery were included. The evaluated study procedures were the VPP associated with ASSLF and the Uphold procedure. Objective anterior relapse was defined as a cystocele ≥II stage. Objective central compartment relapse was defined as an apical prolapse ≥II stage. Subjective relapse was defined as the presence of bulge symptoms when anatomical relapse was identified. Post-operative complications were recorded in accordance with the Clavien-Dindo classification system. The primary outcome was to compare objective and subjective cystocele relapse and reoperation rate. The secondary outcome was to describe peri- and postoperative complications.

Results: Sixty women in the VPP group and 119 women in the Uphold group were included. No differences in the general characteristics of the study population were observed. Concerning previous surgeries, VPP group was submitted to a significantly higher rate of pelvic surgeries (hysterectomies and anterior vaginal repair). At baseline, median POP-Q system score was similar between the two groups for all evaluated points; III stage cystocele was the 88.2% (105/119) in the Uphold group and 86.7% (52/60) in the VPP group (p=0.76). At 3-month follow-up, objective anterior relapse rate in the VPP group (4/60, 6.7%) was like the Uphold group (5/119, 4.2%; p=0.47), as well as objective central relapse rate (0/60, 0% vs 3/119, 2.5%; p=0.47), and no statistically significant difference emerged in bulge symptoms (1.7%, 1/60 vs 5%, 6/119; p=0.37). At 12-month follow-up women were telephonically investigated and no changes emerged in bulge symptoms prevalence. Reoperation rate for the composite outcome POP relapse, stress urinary incontinence (SUI) and remotion of the TVM resulted higher in the Uphold group (13/120, 10.9% vs 1/60, 1,7%; p=0.02). Post-operative buttock pain (24/119, 20.2% vs 35/60, 58.3%; p<0.0001) and post-operative urinary retention (6/119, 5% vs 17/60, 28.3%; p<0.0001) resulted significantly more prevalent in the VPP group.

Discussion and Conclusion: The VPP associated with the ASSLF has been proved to be as effective as the TVM procedure (Uphold™ LITE support system) for both anterior and central compartment prolapse treatment at 3- and 12-month follow-up. The Uphold™ LITE support system group presented a higher reoperation rate for the composite outcome prolapse relapse repair, SUI, and removal of the mesh. Further studies are needed to evaluate these outcomes at long-term follow-up and with a wider sample size.

Title: **A PLA/PCL MONOFILAMENT FOR TRANSVAGINAL MESH KNITTING FOR PELVIC ORGAN PROLAPSE TREATMENT PURPOSE: FROM THE EXTRUSION PHASE TO THE IN VITRO ASSESSMENT OF CHEMICAL AND MECHANICAL PROFILE**

Author: ALESSANDRO FERDINANDO RUFFOLO

Co-Author(s): LALLEMANT , M , LAMBERT , B , EL KHAIDI , S , BARTOLO , S , COSSON , M

Background: Concerns emerged about safety of synthetic non-absorbable transvaginal mesh (TVM) for pelvic organ prolapse (POP) treatment and evaluation of materials' safety became crucial. Poly(e-caprolactone)-PCL presents optimal bio-reabsorption profile, ideal flexibility but low tensile strength. Poly(lactic acid)-PLA present extremely fast bio-reabsorption profile and excessive rigidity that does not allow an optimal adaptation to tissues. These two resorbable materials can be combined to create mono- or bi-component monofilament. Ideal monofilament presents long-lasting degradation and high tensile strenght. The objective of the current study was to describe the results of the preliminary extrusion process and to compare the characteristics of the derived monofilaments.

Material and Methods: This is a preclinical in-vitro study comparing chemical and mechanical profile of different resorbable monofilaments. After preliminary extrusion process, different types of PLA/PCL monofilament, which differed each other for structure and PLA-PCL composition, were compared.
Each monofilament was submitted to degradation through a solution composed by NaOH 0.5 M at a temperature of 37°C. Uniaxial tensile strength (σu) was evaluated by dynamometer. The effect of the degradation process during time was evaluated through the modification of the mean-molecular-mass (Mn), assessed by steric-exclusion-chromatography (SEM), and of the mean monofilament diameter, assessed by optical-microscopy (OM). The σu is the maximum stress that materials can withstand before breaking, evaluated in MPa. The constant t was the time needed to lose more of the 40% of monofilament proprieties.

Results: The monofilament characteristics derived from extrusion process were as follow: diameter 160 µm, toughness 25-30 cN/tex, 26-31% elongation, different rapports between core and envelope. Finally, a 100% PLA monofilament, a 100% PCL monofilament, the BLEND monofilament composed by a 50% PLA and 50% PCL mixture, and the BICO monofilament composed by a PLA core and a PCL or PLA/PCL envelope were produced. Three types of BICO were assessed; BICO 1 (67% PLA-core and 33% PCL-envelope), BICO 2 [50% PLA-core and 50% PLA-PCL envelop (30% PLA and 70% PCL)] and BICO 3 [50% PLA-core and 50% PLA-PCL

envelope (50% PLA and 50% PCL)]. Microscopically, decrease of Mn was observed to be faster for PLA in comparison with PCL monofilament. Similarly, PCL monofilament presented higher σu than the PLA one. Moreover, the envelope/core structure led to a lower degradation and a higher σu. The higher the PCL composition rate, the lower the monofilament degradation rate even when assessed through the decrease of the mean diameter size. The BLEND monofilament presented a linear proportional decrease of both Mn and σu, with a low t=8 days, such as BICO 1, BICO 2 and BICO 3 whose Mn and σu proportionally decreased with t=39, 55, and 12 days respectively. Macroscopically, BLEND monofilament resulted highly brittle, BICO 1 delaminated, BICO 2 scarcely damaged and BICO 3 highly thinned at t=21 days.

Discussion and Conclusion: While the absence of an envelope determined faster degradation and decreased σu, such as in BLEND monofilament, BICO 2 monofilament, through its 70/30% PCL/PLA envelope, led to the most adequate mechanical and chemical profile for the study purpose, with a slower degradation rate, a higher σu and a longer t.

Title: **FROM THE PLA/PCL MONOFILAMENT TO THE TRANSVAGINAL MESH FOR PELVIC ORGAN PROLAPSE TREATMENT: A STEP-BY-STEP IN VITRO PROCESS**

Author: ALESSANDRO FERDINANDO RUFFOLO

Co-Author(s): LALLEMANT , M , LAMBERT , B , EL KHAIDI , S , BARTOLO , S , COSSON , M

Background: In last decades, concerns about synthetic non-absorbable transvaginal mesh (TVM) safety for pelvic organ prolapse (POP) treatment emerged. A more careful evaluation of safety and efficacy profile of TVM material became crucial. The ideal absorbable TVM should presents several characteristics, such as long reabsorption time and a high tensile strength. New synthetic non-absorbable materials, the poly(e-caprolactone)-PCL and the poly(lactic acid)-PLA, were tested with the purpose of engineering new monofilaments for TVM creation. The aim of the current study was to describe the results deriving from each different step involved in the creation of the PCL/PLA TVM.

Material and Methods: This in-vitro study aims to describe the results deriving from each different step involved in the creation of the PCL/PLA TVM. The process is divided into 4 steps: 1) extrusion, 2) knitting, 3) thermofixation, and 4) degradation. The extrusion evaluated outcomes are the monofilament diameter (µm), toughness (cN/tex), elongation (%), different rapports between core and envelope (PCL/PLA rate). Concerning the knittimg process, TVM settings were adapted to previous available propylene mesh. Weft and warp knit fabric were compared. The ideal temperature for the optimal time allowing the thermofixation of the monofilaments that compose the TVM should avoid the PCL fusion, mantaining the flexibility of the monofilaments. The monofilament degradation was evaluated through the decrease of the mean molecular mass (Mn) and of the diameter, while the TVM degradation was evaluated through the modification of the TVM thickness (mm) and of the superficial mass (g/m2).

Results: After the extrusion process, PCL/PLA monofilament presented the following characteristics: diameter 160 µm, toughness 25-30 cN/tex, 26-31% elongation. The monofilament structure may be composed by an PCL-envelope and a PLA-core or by the PCL-PLA mix. A PCL-PLA envelope with a PLA core increases the adhesion between the envelope and the core. Different rapports between core and envelope, such as of PCL/PLA composition rate were evaluated. Weft knit fabric presented higher elongation rate but lower tensile strenght in comparison with warp one. Knitting parameters were adapted to a propylene mesh with a pore size of gauge 12 with spout needle. Concerning thermofixation, the ideal temperature avoiding the PCL fusion, mantaining the flexibility of the monofilaments and allowing the fixation resulted 57°C for 10 minutes. Concerning degradation, decrease of Mn and of monofilament diameter were observed to be faster for PLA in comparison with PCL monofilament. PCL or PCL/PLA envelope monofilament presented higher tensile strength compared to PCL-PLA monofilament. For TVM the first chemical reaction was the swelling of the structure with an increase of the TVM thickness and of the monofilament diameter. Subsequently, a progressive degradation (decrease TVM superficial mass and monofilament diameter) was observed.

Discussion and Conclusion: In this study we presented a well standardized 4-steps process to build the TVM for POP repair more similar to the ideal one. Pre in-vivo study have been conducted in order to try to predict the impact of the prothesis on vaginal tissues. Finally, an in-vivo animal study has been recently conducted to confirm the data analysis already recorded during the in-vitro assessment.

Title: **AN IN-VIVO RABBIT-MODEL COMPARISON BETWEEN A NEW SYNTHETIC RESORBABLE MESH (PROBIOMESH) AND A POLYPROPYLENE MESH FOR PELVIC ORGAN PROLAPSE TREATMENT PURPOSE**

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Co-Author(s): LALLEMANT , M , LAMBERT , B , EL KHAIDI , S , BARTOLO , S , COSSON , M

Background: Concerns emerged about the safety of synthetic non-absorbable transvaginal mesh (TVM) for pelvic organ prolapse (POP) treatment. After the interdiction of their use, the reaserch of new reasorbable materials with optimal mechanical, chemical and safety profile is crucial and reccomended. The aim of the current in-vivo study was to compare the Probiomesh characteristics with standard polypropylen mesh in a rabbit-model.

Material and Methods: This is an in-vivo study performed in a rabbit-model aiming to compare mechanical and histological characteristics of a new synthetic resorbable mesh (Probiomesh) in comparison with a standard polypropylene mesh (synthetic non-resorbable mesh). The study was conducted between October 2022-March 2023. The Probiomesh is composed by a monofilaments (named BICO 2) made by two main materials, the poly(e-caprolactone)-PCL and the poly(lactic acid)-PLA. Each BICO 2 monofilament is composed by a PLA core and a PCL/PLA 70/30% envelope with a 160 µm diameter, 25-30 cN/tex toughness,

and 26-31% elongation. BICO 2 monofilament presented a t (time needed to lose more of the 40% of chemical-mechanical proprieties) of 55 days while the Probiomesh presented an in-vitro degradation of the 60/70% of its mechanical characteristics in 12 days. Knitting parameters were adapted to a propylene mesh with a pore size of gauge 12 with spout needle. Twentyfour 6x6 cm Probiomesh and 24 6x6 cm standard polypropylene meshes were implanted in 12 rabbits' abdominal walls. Throug 4 abdominal incision and subcoutaneous dissection, 2 Probiomesh and 2 polypropylene standard mesh were implanted in each rabbit at subcoutaneous paramedian level, through 4 to 8 reasorbable stiches positionated at the edges of the meshes. The skin was then sutured with reasobable steaches. At 4-month follow-up, the rabbits were sacrified and submitted to soubcoutaneous dissection and to an all-thickness asportation of the abdominal wall conteining the implanted mesh. Probiomesh and polypropylene speciemens were than submitted to mechanical tests and hystological analysis. Results were then compared.

Results: At 4-month follow-up, 1 rabbit was lost for reason not related to the mesh implantation. The others 11 rabbits were included in the study analysis. Macroscopically, no abdominal signs of infection, inflammation or erosion were identified. Rabbit were then submitted to the abdominal dissection. As expected, all the polypropylene meshes were in place and completely intact. Macroscopically, all the Probiomesh devices were still in place and clearly identifible, presenting different degree of degradation. During dissection no macroscopic signs of acute inflammation or infection were identified, and the access to the Probiomesh resulted effortless.
Histological and mechanical analysis are ongoing and will be ready in a short-time.

Discussion and Conclusion: At 4-month follow-up, Probiomesh were still in place even if with different degree of degradation. Concerning safety, no sign of erosion or active infection were detected at time of dissection. Mechanical and histological comparison with polypropylene speciemens are still ongoing and will be ready in short time.
Our in-vitro and in-vivo results are promising, and may lead in a proximal future to new clinical studies on human subjects in order to evaluate safety and efficacy profile of these devices in women affected by POP.

Title: **LIPOPOLYSACCHARIDE-BINDING PROTEIN (LBP) IN ASSESSING THE RISK OF ADVERSE OUTCOMES IN OPERATED COLORECTAL CANCER PATIENTS**

Author: ALINA OGIZBAYEVA

Co-Author(s): TURGUNOV , YE , SHAKEYEV , K , MUGAZOV , M , AKHMALTDINOVA , L

Background: Despite the increase in the efficiency of diagnosis and treatment of colorectal cancer (CRC) over the years, today there are still high rates of postoperative complications (up to 50% of cases) and mortality (up to 32% of cases) in these patients. Today LBP is suggested as a reliable biomarker of microbial translocation and the development of infectious complications and sepsis. The main aim of this study is to analyze changes in the

lipopolysaccharide-binding protein (LBP) level in blood serum over time and assess it as a potential risk factor for the development of SIRS, infectious and inflammatory complications, organ dysfunction and mortality in operated CRC patients.

Material and Methods: 90 patients with CRC were divided into 2 groups: Group 1 – 50 patients operated on for CRC without ABO; Group 2 – 40 patients operated on for tumor ABO, caused by CRC. To determine LBP by ELISA method venous blood was taken 1 hour be¬fore surgery and 72 hours after it (3rd day).

Results: LBP level on the 3rd day after surgery was lower in CRC patients with SIRS, postoperative complications, organ dysfunction and in dead patients (p=0 .011, p=0.001, p=0.007 and p=0.018, respectively). With an LBP value on the 3rd day after surgery being at ≤821.95 ng/mL, the risk of SIRS occurrence is 3.5 times higher, that of the postoperative complications is 5.2 times higher and death is 12.9 times higher than with its higher level (OR 3.5, CI 1.46-8.4; OR 5.2, CI 1.80-15.12; OR 12.9, CI 1.54-108.21, respectively). If the LBP value on the 3rd day after surgery is ≤700.15 ng/mL, the risk of organ dysfunctions is 13.5 times higher than with its higher level (OR 13.5, CI 3.536-51.54).

Discussion and Conclusion: Several studies, which included the patients with sepsis and septic shock have shown that LBP is an important part of the antimicrobial defense system and its higher concentrations in the acute phase of inflammation can inhibit the binding of lipopolysaccharide (LPS) to monocytes in blood plasma, thereby reducing the production of cytokines. It should also be noted that in the study of Opal S.M., the septic patients with less elevated LBP had significantly worse outcomes. The authors suggested that the patients with rapidly progressive sepsis could not adequately synthesize LBP, thereby failing to adequately respond to any systemic microbial infection. In the operated patients with CRC and tumor ABO, a decrease in the LBP level is possible due to immunodeficiency and inability to develop an adequate immune response to infection, which can lead to infectious and inflammatory complications, organ dysfunctions, sepsis, and even death.
The present study demonstrated that in the patients with colorectal cancer, the LBP can be used as a predictive criterion for the development of SIRS, postoperative infectious and inflammatory complications, organ dysfunction, and mortality.
Funding: This research is funded by the Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan (Grant No. AP09260597).

Title: **SAFETY AND ONCOLOGICAL RESULTS OF INTRAOPERATIVE MICROWAVE ABLATION WITH OR WITHOUT HEPATIC RESECTION FOR COLORECTAL LIVER METASTASES: PREOPERATIVE CHEMOTHERAPY AND TUMOR LOCATION MATTER**.

Author: AMBROISE RAVANET

Co-Author(s): TASHKANDI , A , ZIMMERMANN , P , RACHED , L , MIMMO , A , PIARDI , T , KIANMANESH , R

Background: Parenchymal sparing liver surgery (PSLS) is the gold standard of surgical management of colorectal liver metastases (CRLM). Ablative techniques, in selected patients, are in perfect accordance with PSLS. The aim of the study was to Evaluate the postoperative and oncological results of intraoperative microwave ablation (MWA) associated or not to liver resection for colorectal liver metastases (CRLM); with analysis of in situ recurrence risk factors

Material and Methods: All patients had intraoperative MWA associated or not to liver resection. A prospectively maintained cohort of patients surgically treated for CRLM with intraoperative microwave ablation (MWA) was reviewed. Risk factors of in situ local recurrence after MWA were analyzed.

Results: From 2015 to 2020, among 370 patients who underwent surgery for CRLM, 166 had MWA with or without resection, representing 347 MWA-treated nodules. All MWA-treated nodules, except 2 (99%), were < 3cm in size. Postoperative course was uneventful in 125 patients (75.3%). MWA-related complication rate was 6% (10 patients) with 3% severe complications (Clavien-Dindo 3a). One hundred forty-eight (89.7%) received postoperative chemotherapy (median time to chemotherapy of 27 days). Median overall and liver disease-free survivals were 54 and 12.7 months respectively. The absence of preoperative chemotherapy (OR=0.34; 95%CI: 0.16-0.71; p=0.004) and location of nodules in S4a, S7, S8 (OR=0.45; 95%CI:0.25-0.78; p=0.006) were independent predictive factors of in situ recurrence.

Discussion and Conclusion: Intraoperative MWA, in perfect compliance with PSLS, in selected patients with CRLM, is safe and associated to encouraging oncological results. It seems to minimize postoperative complications, enabling patients to receive quicker adjuvant treatments.

Title: **A NEW THREE-DIMENSIONAL FULLY BIORESORBABLE MESH OBTAINED BY 3D PRINTING FOR THE RECONSTRUCTION OF THE HYPODERMIS - PROOF OF CONCEPT**

Author: AMÉLIA JORDAO

Co-Author(s): JORDAO , ZA , CLERET , D , DHAYER , M , DEKIOUK , S , LE REST , M , BLANCHEMAIN , N , PAYEN , J , GUERRESCHI , P , MARCHETTI , P

Background: The injection of non-vascularized autologous fat (lipofilling) is currently the only solution available to reconstruct the deep layer of the skin (hypodermis) damaged by trauma, surgery or a deep burn. Unfortunately, this technique is not very effective with a cell resorption rate of more than 80% due to the compression of the injected fat. The aim of this study is to present a new medical device that can promote the maintenance of adipocyte cells and angiogenesis in order to improve hypodermis reconstruction.

Material and Methods: We tested the use of a three-dimensional resorbable porous mesh obtained by 3D printing from PLCL (polylactide-co-caprolactone) co-polymer associated with adipose tissue to improve adipocyte survival. For this we used in vitro models to determine

the cytotoxicity of our device. Pre-adipocytes (3T3-L1) cells were culture with the degradation products of our device in order to measure the cell viability and differentiation after 7 days. An in vivo chicken chorioallantoic membrane model was used to study vascularization within our mesh. For this purpose, 3D devices were placed on the chorioallantoic membrane during 4 days and after explantation the mesh was analyzed to quantify vascular network. Finally, samples of 5 mm in diameter and 2 or 6 mm thick previously filled with adipose tissue were implanted dorsally and subcutaneously in a rat model. Each animal received 4 implant sites: (i) 2 mm thick mesh filled with adipose tissue, (ii) 6 mm thick mesh filled with adipose tissue, (iii) and (iv) control site without mesh but with a volume of adipose tissue equivalent to that injected in the 2 and 6 mm thick meshes. Eight animals were sacrificed after 1 month and eight animals after 2 months. At each timepoint, fat flaps were harvested for histomorphometry studies that included analysis of the adipose tissue, the vascular network and the connective tissue.

Results: Our in vitro results indicate that the 20-week degradation products of the PLCL co-polymer do not alter the viability (>70%) or differentiation of murine pre-adipocytes (3T3-L1). Moreover, the implantation of native or pre-degraded mesh on chicken chorioallantoic membranes allowed to observe in 4 days, their colonization by a dense network of new vessels.
After 4 or 8 weeks of implantation in rats, we did not observe any reduction in adipocyte density within the mesh while a significant reduction in fat volume is observed in the absence of mesh. Histological analysis indicates the presence of mature and viable adipoytes without significant fibrosis accompanied by a vascular network within the mesh. No evidence of necrosis was observed.

Discussion and Conclusion: This first proof of concept demonstrated in vitro and in vivo the safety and performance of our mesh on cells and small animal models. These first encouraging preclinical results allow us to consider the use of larger animal models, such as the minipig, and for the future, the use of the mesh for the reconstruction of the human hypodermis of deep wounds.

Title: **SEDATION VS GENERAL ANESTHESIA IN STONE URETEROSCOPY: COMPARISON OF EFFICACY AND SAFETY.**

Author: ANTOINE DAQUIN

Co-Author(s): MARCQ , G , VILLERS , A

Background: Ureterorenoscopy for ureteral or renal stones is traditionally performed under general anesthesia (GA). Sedation is an alternative to GA, allowing control of the level of consciousness, spontaneous ventilation and faster recovery. Our aim was to compare sedation and GA for patients undergoing ureterorenoscopy. Endpoints were stone-free rate (SFR) and complication rates.

Material and Methods: Monocentric comparative retrospective study including all consecutive ureterorenoscopies for ureteral or renal stone, performed over a 6-months period. Two periods: from January to July 2019 (GA) and from January to July 2021 (GA or sedation). Stone-free (SF) status was defined as the absence of stone or fragment > 4mm after the first ureterorenoscopy. Complication rates were assessed according to the SATAVA and CLAVIEN-DINDO classifications. Statistical analysis was performed by Chi-square test.

Results: A total of 185 patients were included for a total of 206 ureterorenoscopies; 82 underwent ureterorenoscopy under GA and 103 under sedation. The median stone size was 10 [7 - 16] mm. 150 (81%) patients had at least one intrarenal stone. The SFR was similar between the two groups (67% GA group, 69% sedation group, p=0.912). The SATAVA grade I, IIa and IIb complications were 5 (6%), 5 (6%) and 1 (1%) in the GA group and 6 (6%), 1 (1%) and 3 (3%) in the sedation group, respectively (p=0.214). The grade I, II, III and IV CLAVIEN complications were 6 (7%), 3 (4%), 0 (0%) and 2 (2%) in the GA group and 6 (6%), 4 (4%), 1 (1%) and 4 (4%) in the sedation group, respectively (p=0.928).

Discussion and Conclusion: Our study showed no difference in efficacy and safety between ureterorenoscopy under sedation and GA for patients with ureteral or renal stones. Our results confirm the interest of the sedation procedure, particularly in the context of outpatient surgery.

Title: **3D PRINTING SIGNIFICANTLY IMPROVES PROCEDURAL UNDERSTANDING IN AORTIC SURGERY PATIENTS – PRELIMINARY RESULTS OF A PROSPECTIVE RANDOMIZED COHORT TRIAL**

Author: ARASH MOTEKALLEMI

Co-Author(s): ESMAEILI , S , PEIVANDI , A , MARTENS , S , WEBER , R , MARTENS , S , RUKOSUJEW , A

Background: 3D printing is a rapidly evolving new technology with various applications within cardiac surgery. It is mainly applied for individual operational planning in complex congenital heart disease. Its impact on procedural understanding in patients has not yet been evaluated. In this prospective randomized cohort trial, we present our preliminary results of patient-specific 3D printed models on informed consent in aortic surgery.

Material and Methods: Between April 2020 and June 2021 twenty consecutive patients for aortic procedures were included in the study. After randomization, patients were informed with either conventional forms or with individual 3D models of their own aorta. Procedural understanding was evaluated using a validated scoring system (based on the illness perception questionnaire). The study was planned in collaboration with the Institute of Epidemiology and Social Medicine of the University of Muenster. The Mann-Whitney U-test was applied for comparison of independent ordinal-scaled variables.

Results: Patients informed with a 3D model of their aortic pathology showed a significantly better understanding regarding their disease (p <.001), operative procedure (p <.001) and localization of their pathology (p= .015).

Discussion and Conclusion: Within cardiac surgery, 3D printing has so far been mainly used for procedure planning in complex (congenital) cases. However, our study shows the potentials of this innovation for broader application beyond the single-case mentality. Our preliminary results indicate a clear benefit of individualized 3D printed models on patient illness and procedural perception in aortic pathologies.

Title: **SURGICAL MANAGEMENT OF CAROTID ARTERY DISEASE: A 10-YEAR SINGLE CENTER RETROSPECTIVE EXPERIENCE.**

Author: AULARD DORCHE WILLIAM

Co-Author(s): LEBAZ-DUBOSQ , M , MESNARD , T , HENON , H , PRUVO , JP , AZZAOUI , R , SOBOCINSKI , J

Background: Carotid endarterectomy (CEA) is performed for stroke prevention. Its indication for asymptomatic patient (>6months) is debated. This study wanted to assess the post-operative morbidity after CEA in a high-volume center for both symptomatic or asymptomatic patients.

Material and Methods: From January 2009 to December 2019, all consecutive patients who underwent CEA in our center were retrospectively included. Patients' details, and intraoperative and follow-up data were collected from their electronic medical records. Survival curves according to KM method were calculated from the exhaustive national registry of death available in France.

Results: Overall, 1,475 CEA among 1,357 patients (male 74.10%, median age 68.73+/- 10 years) were completed during the period; while 26.2% (n=553) were symptomatic. In our population, 12.4% (n=183) had a previous contralateral CEA, 28.2% (n=417) reported a chronic limb ischemia (PAOD) and 37.5% (n=553) an coronary heart disease (CHD). 88.5% (n=1305) of CEA enclosed a primary arterial closure without any patch.
The postoperative (<30 days) stroke rate documented with imaging exam (MRA or CT) was 1.8% (n=26) [1.6% (N=17) in the asymptomatic stenosis and 2.3% (N=9) in the symptomatic stenosis group (p=0.33)]. The 30-day mortality was not different between groups, being 0.7% and 0.5% respectively in the asymptomatic and symptomatic groups. The rate of return to operating room was 1.63% (N=24) with no significant difference between groups (p=0.31). A cervical wound revision for a complementary hemostasis was involved in 83.33% (N=20) of these early revisions. In 0.95% (N=14) of the procedure, a postoperative myocardial infraction was documented without any difference between the two groups (p= 0.16). The overall 5-year survival was 78.5% and 84%, respectively in the asymptomatic and symptomatic groups [p=0.011]. An history of PAOD (OR=1.62, [95% CI 1.22-2.16], p= 0.0009), CHD (OR=1.45, [95% CI: 1.10-1.92], p =0.0058), of aortic aneurysmal disease (OR=1.87, [95% CI: 1.16-3.01], p=

0.01), and the age of the patient (OR=1.04, [95% CI: 1.02-1.05], p<0.0001) were predictors of early mortality.

Discussion and Conclusion: CEA presents low risks in the short and the long terms for both asymptomatic and symptomatic stenosis. Identified comorbidities expose patients to higher risk of early mortality.

Title: **ACUTE AORTIC REGURGITATION POST TAVI: A CASE REPORT**

Author: BOTHAYNA AMIEN

Co-Author(s): HARRINGTON , DE

Background: The use of TAVI (Transcatheter aortic valve implantation) in treating severe aortic stenosis has grown rapidly, with an increasing trend towards implantation in lower risk patients. Despite overall success rates being generally favourable however, TAVI can still result in significant complications. We present a case of a 75-year-old lady who presented with pericardial effusion and acute aortic regurgitation post TAVI procedure.

Material and Methods: A 75-year-old female, otherwise fit and well presented with a history of worsening dyspnoea on exertion. Investigations revealed severe aortic stenosis with a mean gradient 46mmHg and indexed aortic valve area 0.3cm2/m2 on transthoracic echocardiogram. An exercise tolerance test was positive and coronary angiography revealed non-significant coronary disease. The patient was suitable for open surgical aortic valve replacement but declined this in favour of a TAVI procedure due to the anticipated shorter recovery time. A 23mm (small) Accurate Neo2 valve was implanted using a transfemoral approach. Soon after transfer to recovery, the patient became hypotensive. A transthoracic echo revealed a pericardial effusion with cardiac tamponade and a pericardial drain was inserted. This drained around 1500ml blood over a period of several hours, and thus surgical advice was sought. A CT scan revealed no evidence of aortic injury but a haematoma and contrast leak from the lateral wall of the left ventricle. The patient was transferred to theatre for exploration. A transoesophageal echo however revealed significant aortic regurgitation. Following multidisciplinary team discussion, a surgical subxiphoid pericardial drain was inserted and the patient woken up and stabilised. The following day a further multidisciplinary discussion took place and another transthoracic echo confirmed severe transvalvular aortic regurgitation.

Results: The patient then underwent emergency median sternotomy, TAVI explant and open aortic valve replacement using a 21mm Edwards Perimount Magna Ease aortic valve. The lateral wall of the left ventricle was covered by a small haematoma, but no active bleeding was present, so the haematoma was left undisturbed. The operation was performed without incident but unfortunately the patient had developed a dense left-sided weakness on waking. An MRI scan of the brain revealed bilateral watershed infarcts. The patient made a slow recovery and was transferred for stroke rehabilitation.

Discussion and Conclusion: Aortic regurgitation is a significant complication of TAVI which can hugely impact the recovery of patients and affect mortality in the long term. Therefore, close attention must be paid to such risks and careful assessment made of patients, especially those with low surgical risk.
Many factors can influence the development of aortic regurgitation post TAVI implantation including the choice of the valve. In our case, the patient had a small left ventricular outflow tract, and suboptimal expansion of the TAVI valve likely contributed to the subsequent aortic regurgitation, highlighting the importance of balloon-expandable valve versus accurate neo 2 valves. In conclusion we stress the importance of multidisciplinary heart team assessment, particularly where there is clinical equipoise or low surgical risk, for whom the gold standard operation remains open aortic valve replacement.

Title: **CONTAINED RUPTURE OF LV ''AN IMMINENT DEATH OR AN UNLUCKY LIFE SAVER? A RARE CASE PRESENTATION**

Author: CAN KESKINASLAN

Co-Author(s): THEOLOGOU, T, LAURA, L, DEMERTZIS, S.

Background: Left ventricular pseudoaneurysm (LVP) is a rare but serious clinicopathologic entity. This outpouching is formed when cardiac rupture is contained by adherent pericardium or scar tissue, with no myocardial tissue
The clinical presentation can be nonspecific, including congestive heart failure, chest pain, dyspnoea or arrhythmia leading to a delay in the diagnosis.

Material and Methods: Patient of 66 years old hypertensive with poor control.A month ago he reported an episode of a few minutes of epigastric burning pain and 10 days ago he had epistaxis cauterized by the ENT and resolving the problem.A cardiological visit showed a high PA. At the cardiological elective visit, an apical spurious aneurysm was found at the ECHO with covered heart rupture and parietal hematoma. Medical therapy can be considered in asymptomatic patients with small-sized outpouching (<3 cm). However, a regular follow-up to monitor the dimensions is extremely important .Surgical intervention is recommended in symptomatic patients with giant aneurysms and those who carry considerable risk of rupture. Recently, a new therapeutic approach has been used in the form of percutaneous-device closure.

Results: Patient treated with an operative double patch technique in open heart surgery and CPB with optimal result and discharged at home with oral anticoagulation in 7 days.MRI in one month showed a good restoration of his ventricular remodelling and funtion.

Discussion and Conclusion: Open repair in LVP is an optimal but invasive way to treat this complicated condition.

Title: **ACUTE FULMINANT MYOCARDITIS. CLINICAL DILEMMAS IN UNFORTUNATE CASES IN MEDICINE.**

Author: CAN KESKINASLAN

Co-Author(s): KESKINASLAN, C, THEOLOGOU, T, LEO, L, DEMERTZIS, S.

Background: Acute fulminant myocarditis (AFM) is a distinct clinical entity with a high in-hospital mortality rate. Immunosuppression, immunomodulatory therapy, antiviral therapy, and mechanical support, have been proposed for this condition. ECMO has long been proven to be an effective short-term support method for AFM with cardiogenic shock. However, there is no consensus about early bridging to a (LVAD), putting patients on a waiting list for heart transplantation or maintaining ECMO support until heart recovery, except for giant cell myocarditis. Is to identify prognostic factors for heart recovery in AFM with cardiogenic shock supported by ECMO, which may contribute to the clinical decision of whether to maintain ECMO support or perform early bridging to an LVAD and heart transplantation.

Material and Methods: 63 years old female, normally fit and well. Fever, unwell for 4 days Pain to the loin and diagnosed UTI, ascending pyelonefritis .Antibiotic therapy with Ciprofloxacin. Worsened clinical condition with septic shock .ECG: Complete BAV and ST depressions anteriorly ECHO: oedematous myocardium with pericardial collection Impella device inserted to support myocardial function deterioration and drainage of the pericardial collection post BX to look for diagnosis. Biochemistry: Acute renal failure, Trop T >40000ng/L e CK-MB >680μ/L.

Results: Patient deteriorates with increasing acidosis and oliguria Poor cardiac output Complete heart block. Liver deterioration .ECMO inserted despite the Impella device.Patient 2.5 weeks without improvement .Despite all efforts patient dies .Family throughout the progress well and fully informed.

Discussion and Conclusion: Fulminant miocarditis is a rare event but has catastrophic consequences. The clinical presentation and high suspicion can help the diagnosis
Echocardiography together with biochemical results confirms the clinical diagnosis
Insert an ECMO device when patients are deteriorating is a decision that needs to be fast . Stratify the patients in admission can guide the treatment when clinically patients deteriorate. Remember that factors that affect outcome in patients already on ECMO are:1. Early infusion of IMIG 2. High CK-MB (>100 increasing per day)
3. Asystle or VF-VT are adverse factors for outcome. Factors that are associated with poor outcome regarding heart recovery for adult with AFM supported with ECMO are: High CK-MB levels; Occurrence of Asystole and severe malignant arrhythmia (VF/VT). The early use of IVIG shows a protective effect in the present study.

Title: **FEASIBILITY OF PERSONALIZED TUMOR ORGANOIDS CULTURE FROM NON-METASTATIC COLORECTAL CANCER AND PRELIMINARY STUDY OF THEIR INTEREST IN THE MANAGEMENT OF ADJUVANT CHEMOTHERAPY.**

Author: CHARREAU QUENTIN

Co-Author(s): DUCHALAIS , E , PERIARD , N , MAHE , M , HILLION , K , DENIS , M

Background: The standard treatment of non-metastatic colon cancer (NMCC) is based on complete tumor resection, eventually followed by adjuvant chemotherapy in patients at high risk of recurrence. The effectiveness of adjuvant chemotherapy in the prevention of cancer recurrence is limited by the difficulties in identifying patients at high risk of recurrence and predicting tumor sensitivity to the molecules used in adjuvant chemotherapy. Previous studies have demonstrated that personalized tumor organoids (PTO) from metastatic colon cancer reproduced in vitro the phenotypic and genetic characteristics of primary tumors and metastasis. Moreover, PTO chemosensitivity was correlated to metastatic response to chemotherapy. This project hypothesized that personalized tumor organoids (PTO) generated from NMCC could predict the risk of tumor recurrence and the response to adjuvant chemotherapy.

Material and Methods: Biopsies of tumor and healthy mucosa were obtained from operative specimen of patients undergoing curative surgery for NMCC. Biopsies were processed to obtain personalized healthy organoids (PHO) and PTO. PHO and PTO were observed using FFOCT and characterized morphologically using H&S, genetically using NGS and functionally using EDU labeling and live and dead kit. PTO chemosensitivity to a panel of chemotherapy molecules (5-FU, cisplatin, irinotecan) was assessed using ATP assay in cultures exposed to increased concentration of chemotherapy.

Results: PTO and PHO were generated from biopsies of 6 patients with a success rate of 83%. PTO survival probability after culture passages was not correlated to primary tumor stage. PTO were larger than PHO with a significantly higher surface area per organoid (525±503 µm² vs 317±119 µm², p=0.01). The epithelium was thicker in PTOs than PHOs (25±10 µm vs 13±3 µm, p=0.001). PTO proliferation according to EDU labeling rate was significantly higher than PHO (63% vs 47%) (p = 0,0046). PTO and PHO morphological characteristics significantly differed between patients but were not impacted by the composition of the culture medium used to maintain the cultures. Genetic analyses demonstrated that mutations in primary tumor were identical to the mutations found in the PTO. Mutations remained stable after four PTO passages and were not found in the PHO of the same patient. Exposure of PTO cultures to several chemotherapy molecules (5-FU, cisplatin, irinotecan) at increased concentration was associated with increased cell death, and were significantly different between HOs and between patients.

Discussion and Conclusion: These preliminary results demonstrated the feasibility of PTO and PHO cultures from NMCC patients and the ability of PTO from NMCC to faithfully reproduce phenotypic, functional and genetic characteristics of the primary tumor. Survival data are awaiting to determine the prognosis value of PTO functional characteristics. The evaluation of

PTO chemosensitivity is also feasible in patients undergoing surgery for NMCC. Whether PTO chemosensitivity is predictive of tumor cell response in vivo remains to be demonstrated. For this purpose, increasing the PTO cohort and correlating the results with the oncologic outcomes of NMCC patients will be necessary to validate the use of PTO cultures in the decision-making and the choice of adjuvant therapy (and also probably neoadjuvant chemotherapy) within the next years.

Title: **UNDERSTANDING UK MEDICAL STUDENTS' PERSPECTIVES ON A CAREER IN CARDIOTHORACIC SURGERY**

Author: CHRISTOPHER GOULDEN

Co-Author(s): AXIAQ , A , VISSER , R , SHIRKE , M , KHASHKHUSHA , A , ZAIDI , S , PILLAY , R , HARKY , A

Background: The aim of this study was to investigate medical students' perceptions and attitudes towards cardiothoracic surgery (CTS) as a career choice in the United Kingdom (UK).

Material and Methods: A cross-sectional survey was conducted among medical students in the UK using an online questionnaire. The questionnaire was designed to explore the students' level of interest in CTS as a career, factors that influence their decision-making process, and their perceptions of the specialty.

Results: A total of 301 responses were received from medical students across 30 medical schools in the UK. The majority of respondents had considered surgery as a career, and 41.5% reported an interest in CTS. Factors that were perceived to positively influence the decision to pursue a career in CTS included intellectual challenge, technical skill development, and the opportunity to make a significant impact on patients' lives. Factors that were perceived to negatively influence this decision included a lack of work-life balance and the perception that CTS is a highly competitive and stressful specialty.

Discussion and Conclusion: Medical students in the UK have a generally positive view of CTS as a career choice, with a significant proportion expressing an interest in the specialty. However, perceptions of work-life balance and the perceived competitiveness and stressfulness of the specialty may be barriers to pursuing a career in CTS. These findings have important implications for efforts to attract and retain medical students in the specialty. Efforts should be made to address the negative perceptions of work-life balance and competitiveness associated with CTS, in order to attract and retain medical students in the specialty. Moreover, the positive aspects of CTS such as the intellectual challenge, technical skill development, and impact on patients' lives should be highlighted to encourage more medical students to consider CTS as a career option.

Title: **ANALYSIS OF THE EFFICACY AND LONG-TERM METABOLIC AND NUTRITIONAL STATUS OF SLEEVE GASTRECTOMY WITH TRANSIT BIPARTITION COMPARED TO ROUX-EN-Y GASTRIC BYPASS IN OBESE RATS**

Author: CLEMENT BARATTE

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Background: Sleeve gastrectomy with transit bipartition (SG-TB) could be an attractive alternative to Roux-en-Y gastric bypass (RYGB) on weight loss and improvement of comorbidities in patients with obesity. However, there is little long-term data. Translational research on a rat model could allow long-term projection to assess efficacy and safety of SG-TB. This procedure consists of performing a sleeve gastrectomy followed by a Y assembly with a gastro-ileal anastomosis at the level of the antrum (without excluding the stomach) and an ileo-ileal anastomosis. The final anatomical assembly includes a food limb of 120 cm and a common channel of 130 cm. The biliopancreatic limb (not measured routinely) is estimated at more than 300 cm. By creating a double digestive circuit, part of the food is digested in the biliopancreatic limb, while the rest is passes through the food limb, expecting less malabsorption than after BPD-DS. The aim of our study was to evaluate the long-term eficacy and safety of SG-TB compared to RYGB and SHAM in rat model.

Material and Methods: 94 male obese Wistar rats were distributed into 3 groups: SG-TB (n=34), RYGB (n=32), and SHAM (control group n=28). The percentage of total weight loss (%TWL), coprocalorimetry, glucose and insulin tolerance test, insulin, GLP-1, PYY and GIP before and after surgery were assessed. The animals were followed over 6 months (equivalent to 16 years in humans).

Results: At six months %TWL was significantly greater(p=0.025) in the SG-TB group compared to the RYGB group.
There was a significant weight loss difference after 7 days between SG-TB and SHAM animals and after 30 days between SG-TB and RYGB animals, which was maintained over time ($p < 0.05$). The weight loss difference between RYGB and SHAM animals was significant only after 60 days. SG-TB and RYGB animals ate significantly less than SHAM animals during the first 2 postoperative weeks. However, food intake tended towards normalization and reached that of SHAM animals after 1 month postoperatively. There was no difference between the groups(p=0.86) in malabsorption at 15 and 120 days postoperatively. There were no significant differences in the decrease in serum albumin and proteins level between SHAM and RYGB animals whatever the time-point. Glucose tolerance was significantly improved(p=0.03) in the SG-TB and RYGB groups compared to the preoperative state. Insulin secretion, at 3 months was significantly more important in the SG-TB group(p=0.0003), compared to the RYGB and SHAM groups. GLP-1 secretion was significantly increased in the SG-TB and RYGB groups compared to the preoperative state (p=0.001) but similar between SG-TB and RYGB animals (p=0.72).

Discussion and Conclusion: In a rat model, at long-term compared to RYGB, SG-TB provides greater and better-maintained weight loss and an increased insulin secretion without

impairing nutritional status. Food intake and absorption are not significantly modified compared to RYGB and SHAM in the long term.
Insulin and gut hormone (GLP-1 GIP and PYY) secretion are enhanced in the SG-TB rat model.
In the long term, SG-TB appears to be a sustainable non-inferior alternative, to RYGB without impairing nutritional status or incretin secretion.

Title: **IS ROBOTIC VENTRAL MESH RECTOPEXY FOR PELVIC FLOOR DISORDERS BETTER THAN LAPAROSCOPIC APPROACH AT THE BEGINNING OF THE EXPERIENCE? A RETROSPECTIVE SINGLE-CENTER STUDY**

Author: CLOTYLDE DUMAS

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Background: Pelvic floor disorders are frequently observed in women. The laparoscopic ventral mesh rectopexy is considered as the gold standard. Robotic approach is increasing for 10 years, particularly for pelvic surgery.
Our aim was to compare perioperative results of laparoscopic and robotic ventral mesh rectopexy for pelvic floor disorders at the beginning of the surgical experience.

Material and Methods: Between 2017 and 2022, the first 30 laparoscopic ventral mesh rectopexies and the first 30 robotic ventral mesh rectopexies at the beginning of the experience of 2 surgeons were retrospectively analyzed. Perioperative (demographic characteristics, surgical indication, rate of conversion, operative time), and postoperative (complications, length of stay, unplanned reintervention) data were compared between groups.

Results: Demographic characteristics were similar between groups. The rate of conversion was reduced (0 vs 17%, p=0.05), but the operative time was significantly longer (192 ±37 vs 153 ±43 minutes, p<0.0001) during robotic procedure when compared with laparoscopic approach. In terms of learning curve, the number of procedures to obtain the same operative time between the 2 approaches was 15.
Postoperative results were similar between groups, in terms of pain (visual analogic scale = 2.5 ±2 vs 4 ±2, p=0.07), morbidity (17 vs 3%, p=0.2), and unplanned reintervention (0 vs 1%, p=0.99). Mean length of stay was significantly reduced after robotic approach when compared with laparoscopic approach (3 ±2 vs 5 ±2.5 days, p<0.01).
Functional results were better after robotic than laparoscopic ventral mesh rectopexy, with most frequent satisfaction (93 vs 75%, p=0.05), and significant decrease of recurrence (0 vs 14%, p=0.048).

Discussion and Conclusion: Despite longer operative time at the beginning of the learning curve, robotic ventral mesh rectopexy was associated with similar or better perioperative results than laparoscopic ventral mesh rectopexy.

Title: **MOLECULAR CHARACTERIZATION OF ESOPHAGEAL ADENOCARCINOMAS (EAC) AND ITS PROGNOSTIC IMPACT**

Author: CONSTANCE HOULZE-LAROYE

Co-Author(s): RENAUD , F. , PIESSEN , G. , EVENO , E.

Background: Esophageal adenocarcinomas (EACs) have an increasing incidence and a poor prognosis. While gastric cancer molecular subtypes are well characterized with 4 categories: EBV+, Microsatellite instability (MSI), Genomically stable (GS), Chromosomal instability (CIN), there is a lack of data on EACs. Often compared to gastric cancer, recent literature describes only the CIN subtype in EACs, whereas our clinical experience suggests a greater heterogeneity. The aims of our study were (i) to characterize EACs from a molecular perspective based on a large clinicobiological database and (ii) to compare our clinicopathological data with molecular results to analyze their prognostic impact.

Material and Methods: 516 patients underwent transthoracic esophagectomy at the University Hospital of Lille. All HES staining slides of surgical specimens were reviewed, followed by tissue microarray analysis. Molecular subtypes were determined by immunohistochemistry (IHC) (MMR proteins to classify into deficient (dMMR) and proficient (pMMR) MMR, E-cadherin for GS subtype, HER2, C-MET and KRAS for CIN subtype), in situ hybridization (EBV+). In the case of dMMR tumours, PCR was performed to confirm the MSI status.

Results: In our series, 290 EACs are located at the esogastric junction (Siewert I and II) and 226 at the thoracic segment. We highlighted one EBV+ and 26 dMMR tumours (9%), including 30% of discordant results with PCR technique (18 MSI and 8 MSS), suggesting possible changes induced by preoperative treatment. Our results on GS and CIN subtypes are in agreement with the literature with loss of E-cadherin expression in 22 tumours (15%), overexpression of HER2, C-MET and KRAS in 12 (8%), 41 (27%) and 13 (9%) tumours respectively. We observed a trend towards better survival in the dMMR/MSI group (n=26) compared to the GS subtype with a 5-year overall survival of 90% vs 40%, p=0.07.

Discussion and Conclusion: Our study highlights the presence of biomarkers in EACs defining 4 molecular subtypes, partly overlapping with those already described in gastric cancer. Interestingly, the finding of EBV+ and MSI tumors was unexpected and not described elsewhere in previous genomic characterization. The prognostic impact of these 4 subtypes underlines the need for routine molecular characterization to adapt the therapeutic strategy.

Title: **PARTIALLY ABSORBABLE 60% POLY-L-LACTIC ACID/POLYPROPYLENE COPOLYMER (PLLA/PP) 4DVENTRAL® PROMOTES AN ANTI-INFLAMMATORY RESPONSE IN HUMAN MACROPHAGES AND LOW SUSCEPTIBILITY TO BACTERIAL ADHERENCE IN VITRO**

Author: DAOUDI MEHDI

Co-Author(s): VAN DAELE , C. , CALLIGARO , C. , SUSEN , S. , DUPONT , A. , VRANA , NE , STAELS , B. , TAGZIRT , M.

Background: Although synthetic mesh has undoubtedly been effective in reducing abdominal hernia recurrence rates, complications exist linked to their use, including chronic inflammation, nociceptive pain, and infection. Macrophages are actively involved in both immunomodulation process during foreign body response to implanted mesh and regulation of abdominal connective tissue (ACT) homeostasis allowing hernia repair. An abnormal macrophage response characterized by an uncontrolled release of pro-inflammatory cytokines, chemokines, and tissue-degrading enzymes has been shown to be responsible for hernia relapse. In contrast, the angiogenic and tissue remodeling activities of the alternative anti-inflammatory M2 macrophages have potential use in tissue regeneration. Previous studies have reported that peripheral blood mononuclear cells from obese subjects have altered expression of M2 markers and that their monocytes are less susceptible to differentiate an alternative phenotype. There is obviously an association between poor levels of circulating FXIII-A and delayed healing in chronic inflammatory states. Interestingly, M2 macrophages exhibit a higher expression of FXIII-A and seem to play a role in extracellular matrix remodelling as well as in wound healing. On the other hand, mesh infection is mostly related to gram-negative bacteria, like Escherichia coli (E. coli) and gram-positive bacteria like Staphylococcus aureus (S. aureus), in the case of emergency surgery performed on incarcerated hernia. The sharp rise in popularity of fully resorbable biosynthetic meshes has been largely catalyzed by the common belief that this family of meshes is more resistant to infection and therefore they are commonly used in complicated ventral hernias.

Material and Methods: Our original type of hernia implants combines two polymers, a non-absorbable Polypropylene (PP) and a biobased and natural slowly bioabsorbable polymer, Poly-L-Lactic Acid (PLLA). The partially (60%) resorbable PLLA/PP and PP meshes manufactured by COUSIN SURGERY are known as 4DVentral® and biomesh P1®, respectively. Here, the characterization of the inflammatory response of human macrophages and bacterial adhesion in vitro regarding partially 60% PLLA 4DVentral® were performed compared to non-resorbable PP biomesh P1®.

Results: First, we found that the pro-inflammatory cytokine IL-6 secretion was dramatically reduced while the anti-inflammatory IL-10 was highly increased in monocytic THP-1INFγ/LPS M1-like macrophages in the presence of partially 60% PLLA/PP mesh. Moreover, increased mRNA expression of the anti-inflammatory gene markers (CD206, FXIII-A) was observed in the IL-4-induced M2 polarization of human primary macrophages in the presence of partially 60% PLLA/PP mesh. In addition to the mechanical reinforcement supporting, the partially 60% absorbable 4DVentral® positively induces macrophages towards an anti-inflammatory profile, resolving inflammation and promoting tissue repair. Furthermore, 4DVentral® was demonstrated to be significantly less susceptible to both S. aureus and E. Coli adherence in

vitro, compared to biomesh P1®. Indeed, whereas at 1h of culture, no difference was found, a reduction of one third after 6 hours was found with partially 60% PLLA/PP mesh compared to non-resorbable PP mesh.

Discussion and Conclusion: Our results support the use of partially absorbable 4DVentral® in prophylaxis during laparotomy to prevent the occurrence of incisional hernia and warrant further preclinical investigations using an animal model of ventral hernia resistance.

Title: **OBESITY INCREASES THE SURGICAL COMPLEXITY AND RISK OF RECURRENCE AFTER MIDLINE PRIMARY VENTRAL HERNIA REPAIR: RESULTS ON 2307 PATIENTS FROM THE FRENCH SOCIETY OF HERNIA SURGERY (SFCP-CH) REGISTRY DATABASE**

Author: DAVID MOSZKOWICZ

Co-Author(s): MOSZKOWICZ , DA , TURMINE , JU , PASSOT , GU , GILLION , JF

Background: Obesity is a known risk factor of recurrence after hernia surgery, but available data often concern pooled cases of primary and incisional hernia, with short follow-up.
We aimed to analyse the impact of severe obesity (BMI≥35kg/m²) on the results of midline primary ventral hernia repair (mPVHR), in comparison with non-severely obese patients.

Material and Methods: Data were extracted a multicentric prospective registry ("Club Hernie"), in which patients' data are consecutively and anonymously collected. We conducted a retrospective comparative study on patients with severe obesity (sOb) versus non-severely obese patients (non-sOb), who underwent surgery with a minimal 2-year follow-up after their mPVHR.

Results: Among 2,307 patients, 267 sOb and 2,040 non-sOb matched inclusion criteria. Compared with non-sOb, sOb group gathered all the worse conditions and risk factors: more ASA3-4 (39.3%vs.10.2%;p<0.001), symptomatic hernia (15.7%vs.6.8%;p<0.001), defect > 4cm in diameter (24.3%vs.8.8%;p<0.001), emergency surgery (6.1%vs.2.5%;p=0.003), and Altemeir class >1 (9.4%vs.2.9%;p<0.001). Laparoscopic IPOM was used more often in sOb patients (40% vs. 32%; p=0.016), but with smaller Hauters' ratio (46vs.73;p<0.001). Compared with the non-sOb, the rate of day-case surgery was lower (48%vs.68%;p<0.001), the surgical site occurrences were significantly more frequent (6.4%vs.2.5%;p<0.001). The main outcome, 2-year recurrence, was 5.9% in the sOb vs. 2.1% (p=0.008), and 2-year reoperations was 3% vs. 0.3% (p=0.006). In the adjusted analysis, severe obesity was an independent risk factor for recurrence (OR=2.82,[95%CI,1.45;5.22]; p=0.003).

Discussion and Conclusion: In patients with severe obesity, mPVHR is technically challenging and recurrence rate is three times higher than that of non-severely obese patients.

Title: **IATROGENIC URETERIC INJURY DURING COLORECTAL SURGERY HAS A SIGNIFICANT IMPACT ON PATIENT OUTCOMES. A FRENCH MULTICENTRIC RETROSPECTIVE COHORT STUDY**

Author: DIANE MEGE

Co-Author(s): SERENON , V , ROUANET , P , CHARLES-MULLER , D , EVENO , C , COLLARD , M , TUECH , JJ , BUSCAIL , E , MEGE , D

Background: Long-term urologic sequelae after iatrogenic ureteric injury during colorectal surgery are not clearly known. Our aims were to report the incidence and to analyze the long-term consequences regarding urologic late complications and impact on oncological results of iatrogenic ureteric injury occurring during colorectal surgery through a French multicentric experience (GRECCAR group).

Material and Methods: All the patients who presented with iatrogenic ureteric injury during colorectal surgery between 2010 and 2019 were retrospectively included. Patients with ureteral involvement needing en-bloc resection, delayed ureteral stricture or non-colorectal surgery were not considered.

Results: 202 patients (93 men, mean age 63 ± 14 years) were identified in 29 centers, corresponding to 0.32% of colorectal surgeries (n=63 562). Index colorectal surgery was mainly oncological (n=130, 64%). The iatrogenic ureteric injury was diagnosed postoperatively in 112 patients (55%) after a mean delay of 11 ± 9 days. Intraoperative diagnosis of iatrogenic ureteric injury was significantly associated with shorter length of stay (21 ± 22 vs 34 ± 22 days, p<0.0001), lower rates of postoperative hydronephrosis (2 vs 10%, p=0.04), anastomotic complication (7 vs 22.5%, p=0.002) and thromboembolic event (0 vs 6%, p=0.02), than postoperative diagnosis of IUI. Delayed chemotherapy because of iatrogenic ureteric injury was reported in 27% of patients.
At the end of the follow-up (3 ± 2.6 years [1 month – 13 years]), 72 patients presented with urologic sequalae (36%). 6 patients required a nephrectomy (3%).

Discussion and Conclusion: Iatrogenic ureteric injury during colorectal surgery has few consequences for the patients if recognized early. Long-term urologic sequelae can occur in one third of patients. Iatrogenic ureteric injury seems to have an impact on oncological outcomes, as delayed chemotherapy was frequently reported.

Title: **UMBILICO-PLACENTAL HEMODYNAMICS AND TRANSPLACENTAL O2 EXCHANGES DURING INTACT CORD RESUSCITATION IN NEWBORN LAMBS WITH CONGENITAL DIAPHRAGMATIC HERNIA (CDH)**

Author: DYUTI SHARMA

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Background: At birth, delayed umbilical cord clamping increases blood transfusion from the placenta to the newborn infant which promotes cardiorespiratory adaptation. The aim of our study is to investigate the changes in placental hemodynamics and placental gas exchanges during prolonged resuscitation with an intact cord in newborn lambs with or without CDH.

Material and Methods: CDH was created in fetal lambs at the gestational age of 80 days (term 142 days) by an incision of the diaphragm through fetal thoracotomy. At term , the fetal lamb's left lower limb was exteriorized through a midline laparotomy and hysterotomy of the pregnant ewe. Vascular catheters were advanced into the aorta after a skin incision in the groin area, to measure the aortic pressure (AoP). The catheter in the left femoral vein was inserted up to 20 cm into the right atrium. After a retroperitoneum section a flow transducer was placed around the vessel to measure umbilico–placental blood flow (Qup). The lamb was then exteriorized from the uterine cavity. In order to measure the umbilical vein pressure, a catheter was introduced into one of the two umbilical veins. The lambs were intubated and mechanically ventilated. Mechanical ventilation was adjusted to the target of 40–60 mmHg PCO2. Umbilico–placental vascular resistance (Rup) was calculated as: (AoP-Pv/Qu). Blood gases were measured in the Ao and umbilical vein to assess arterial (CaO2) and venous (CvO2) O2 content and transplacental O2 transfer (VO2) through: Qu(CaO2-CvO2). The duration of the resuscitation with intact cord was 60 min.

Results: 5 CDH and 15 control lambs were included. Both AoP-Pv, Qup and Rup were similar in the 2 groups and did not change significantly thorough the study period (respectively, 35±8mmHg, 30±18ml/kg/min and 0.50±0.05 mmHg.min.ml-1). In the CDH group, VO2 did not change during the study period (2.8±1.2ml.kg-1.min-1), whereas VO2 decreased steadily within the first 20 min to 0.4±0.5 ml.kg-1.min-1 in the control group.

Discussion and Conclusion: Our results suggest that transplacental hemodynamics are stable for up to 1 hour after birth during resuscitation while the umbilical cord is kept intact. The placenta may contributes to sustained oxygenation in the newborn with CDH. In the normal control, elevation of PaO2 reduces (or reverses) the O2 gradient within the umbilical vessels and the intervilli chamber, limiting O2 exchanges through the placenta.

Title: **COMPARISON BETWEEN THORACOSCOPY AND THORACOTOMY FOR ESOPHAGEAL ATRESIA WITH TRACHEOESOPHAGEAL FISTULA: IN TERM OF MORBIDITY DURING THE FIRST YEAR OF LIFE**

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, ARNOULD , M , TOLG , C , CHAUSSY , Y , GEISS , S , LAPLACE , C , LABREUCHE , J , GOTTRAND , F , SHARMA , D

Background: Benefits of thoracoscopy approach for surgery of esophageal atresia (EA) remains a matter of debate. The aim of the study was to compare the morbidity during the first year of life of children operated for EA with tracheoesophageal fistula (TEF) in regard the surgical approach (thoracotomy versus “intent to treat” thoracoscopy and thoracotomy versus only thoracoscopy).

Material and Methods: This multicentre (37 centres) population-based study included medical data from patients born with EA with TEF between 2008 and 2019, prospectively collected in the French register for esophageal atresia. Demographic neonatal and surgical data, and ? recorded and 1-year outcomes comparing the groups of thoracotomy and “intent to treat” thoracoscopy (including the converted thoracoscopy to thoracotomy). Finally, the converted thoracoscopy were excluded to avoid bias and compare patients who had only one surgical approach before and after adjustment to term of birth, birth weight, and presence of cardiac anomaly.

Results: A total of 1423 patients were included, divided into 2 groups: thoracotomy group (n=1179) and “intent to treat” thoracoscopy group (n=244). Among this last group, 48 patients (19,7 %) underwent a converted thoracoscopy. Patients operated via thoracotomy were not different from those who underwent thoracoscopy regarding the ventilation duration, the oral feeding autonomy, the length of initial stay and the cumulative length of total hospitalisations during the first year of life. More postoperative complications were found in the intent to treat thoracoscopy group compared to the thoracotomy group, before (OR 1.54 (IC95% 1.11 to 2.13), p=0.009) and after adjustment (OR 1.50 (IC95% 1.08 to 2.08), p=0.015).

Discussion and Conclusion: Our study observed that the surgical approach for repair of EA with TEF did not significantly impact the length of initial stay or the cumulative length of total hospitalisations during the first year of life. Moreover, no statistical difference was found between the 2 groups regarding the oral feeding autonomy and the Z score weight/height at one year of life. At population based thoracoscopy presented significatively more postoperative complications compared to the thoracotomy.

Title: **EXPERIMENTAL EDUCATION TO DAMAGE CONTROL SURGERY IN CIVIL HOSPITAL: A MODEL OF MULTIDISCIPLINARY CIVIL SURGICAL TEAM**

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Background: Changing surgical practices and training in order to acquire appropriate skills in case of massive influx of casualties by weapons of war remain a challenge for civilian surgical teams.

The objectives of this study were to train civil surgical teams in damage control techniques and provide the elements of reflection to reorganize their hospital in case of massive influx of patients.

Material and Methods: We created a new multidisciplinary training day, bringing together surgeons from all specialties and operating room nurses. This course mimicked massive attacks including multiple stabbing-induced wounds. In the morning, data on techniques and organization are presented. In the afternoon, two simulation sessions on the large ventilated intubated animal, with multiple impacts were performed.

Results: Between June 2017 and March 2023, this course model was applied with a total of 9 sessions comprising 88 physicians, mostly surgeons from various specialties, and 80 nurses from the operating room. A feedback analysis demonstrated that, alongside more traditional formation, this surgical multidisciplinary model adds value to current surgical education delivered at University courses. For 91% of learners, the training met the objectives and 75% found the objectives suited to their qualification. 83% thought they could put the knowledge acquired into practice. The second practical part of the training was particularly appreciated

Discussion and Conclusion: Researches by the authors about the effects of this model on surgical ability and performance are still ongoing. However, this model can be useful for all surgical civil teams and complete a basic surgical training for management of mass casualties.

Title: **SEX-LINKED DIFFERENCES IN ACUTE LIVER FAILURE INDUCED BY THIOACETAMID IN LEWIS RATS**

Author: EVA KOBLIHOVA

Co-Author(s): FRONEK , J , CERVENKA , L

Background: Acute liver failure (ALF) is a rare orphan disorder with extremely high mortality rate resulting from widespread damage of hepatocytes. Its pathophysiology is still not so clearly understood and preclinical studies evaluating pathophysiology are needed. The model of ALF induced by thioacetamide (TAA) in Lewis rats is recommended as optimal; however, the limitation of previous studies was that they were performed predominantly in male rats. In view of the growing recognition that sex as a biological variable should be taken into consideration in preclinical research, we examined its role in the development of TAA-induced ALF in Lewis rats.

Material and Methods: The experiments were performed in male and female Lewis rats. Acute liver failure was induced by TAA administrated i.p. in two injections, in the total amount of 525 mg/kg of body weight. Gonadectomy or sham-operation was two weeks before TAA administration. We tested effects of gonadectomy on plasma testosterone and estradiol levels and effects of gonadectomy on the course of TAA-induced ALF in Lewis rats.

Results: Intact male Lewis rats showed lower survival rate than their female counterparts, due to augmented liver injury documented by higher plasma ammonia, and bilirubin levels and alanine aminotransferase activity. Second, in female rats castration did not alter the course of TAA-induced ALF whereas in the male gonadectomy improved the survival rate and attenuated liver injury, reducing it to levels observed in their female counterparts.

Discussion and Conclusion: We found that Lewis rats show a remarkable sexual dimorphism with respect to TAA-induced ALF, and male rats display dramatically poorer prognosis as compared with the females. We showed that testosterone is responsible for the deterioration of the course of TAA-induced ALF in male rats.

Title: **EVALUATION OF THE EFFECTIVENESS OF INTRA-ARTICULAR INJECTION OF BOTULINUM TOXIN TYPE A AND ITS COMPARISON TO HYALURONIC ACID IN A RAT MODEL OF TEMPOROMANDIBULAR JOINT OSTEOARTHRITIS**

Author: FLORENT BARRY

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Background: Temporomandibular disorders (TMDs) are complex pathologies and is a major cause of chronic orofacial pain. Intramuscular injection of botulinum toxin A is among the treatments of choice for the subtypes of TMDs with a predominantly muscular component responsible for a chronic masticatory myofascial pain. Despite its use in intra-articular injection has been mainly studied in knee or shoulder osteoarthritis and has shown promising results with a reduction in pain, its use in articular forms, and particularly in case of temporomandibular joint osteoarthritis (TMJOA), has not yet been sufficiently evaluated as opposed to the reference molecule hyaluronic acid (HA). The main aim of our study was to evaluate the effect of intra-articular injection of botulinum toxin A into the temporomandibular joints on pain and compare it to HA using a chemically induced TMJOA rat model.

Material and Methods: A rat model of chemicaly induced TMJOA was used to compare the effect of intra-articular injection of botulinum toxin A, HA and saline as control molecule. Persistent pain assessment by head withdrawal test, histological analysis, and imaging were performed in each series at different time points of the study until D30.

Results: Compared to saline, intra-articular injection of botulinum toxin A or HA showed a significant decrease in pain in rats to D14. Furthermore, the effect of botulinum toxin A was prolonged to D21 regarding withdrawal test compare to HA. The histological and radiographic data seem to show a decrease in temporomandibular joint inflammation in the botulinum toxin and HA groups compared to saline.

Discussion and Conclusion: This trial in a rat model of chemically induced TMJOA shows promising results for the use of intra-articular injection of botulinum toxin A in the field of TMJOA for the treatment of articular TMDs.

Title: **5-ALA MEDIATED PHOTODYNAMIC THERAPY IN THE TREATMENT OF HEPATOCELLULAR CARCINOMA: AN IN VITRO AND EX VIVO FEASIBILITY STUDY**

Author: FLORIAN PECQUENARD

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Background: Hepatocellular carcinoma (HCC) represents 80% of primitive tumors of the liver and its incidence is on the rise. When the tumor is resectable, surgery is a treatment of choice but leads to a high recurrence rate of up to 70% at 5 years. New therapeutic modalities are needed to limit tumor recurrence after excision. 5 aminolevulinic-acid (5-ALA) is a photosensitizer (PS) used for photodynamic therapy (PDT). This therapeutic modality based on the concomitant presence of light of a specific wavelength (635nm), a PS and oxygen, may represent an interesting tool in HCC treatment armamentarium. The aim of the present work was to assess the potential use of 5-ALA mediated PDT in HCC treatment.

Material and Methods: 5-ALA mediated PDT was evaluated in vitro on two human HCC cell lines (HuH7, HepG2). Cellular metabolism of 5-ALA, cellular viability after PDT treatment and involved cell death mechanisms were studied. In order to study the impact of liver cut surface coagulation on laser light penetration, an ex vivo mini-pig liver model was designed. Depth of light transmission was measured and compared to values simulated with a Monte-Carlo model using liver optical properties from the literature.

Results: HCC cell lines showed a concentration and time dependent intracellular PS accumulation with extracellular excretion over time. 5-ALA mediated PDT was able to induce an important HCC cellular viability loss in a light and PS doses dependent manner. This viability loss corresponds to a cell death mechanism of necrosis with a lower proportion of apoptosis. The study of the 635nm laser light transmission on the mini-pig ex vivo liver model showed a major impact of surface coagulation with a nearly 10-fold decrease compared to non-coagulated liver. Above 4mm thickness of liver tissue, light transmission was evaluated as insufficient to trigger PDT treatment. These data were further validated by the Monte Carlo simulations.

Discussion and Conclusion: 5-ALA mediated PDT seems to be efficient in killing HCC cells but liver penetration of the light necessary to trigger the PDT effect appears limited with a strong impact of surface coagulation. The use of another PS stimulated by light of higher tissue penetration capacity such as indocyanine green may provide better results.

Title: **A NEW GAS EXCHANGE DEVICE AND ITS LOW-FLOW APPLICATION WITH SPECIAL REGARD TO CO2 ELIMINATION**

Author: FOIVOS MOUZAKIS

Co-Author(s): KASHEFI , A , KALVERKAMP , S , ZAYAT , R , SPILLNER , J , MOTTAGHY , K , HIMA , F

Background: Extracorporeal life support (ECLS) is nowadays widely used for patients suffering from pulmonary diseases. Herein, we aim to introduce a new gas exchange device that uses silicone coated dialysis hollow fibers, and to investigate its role in promoting gas exchange, particularly with regard to carbon dioxide (CO2) elimination.

Material and Methods: Commercial dialyzers of varying surface area (0.7-1.8 m2) were coated with silicone and the coating quality was evaluated by diverse methods especially developed for this purpose (e.g. pressurization of the intracapillary space to confirm impermeability). The fluid dynamic behavior and the gas exchange performance of the new devices were investigated in a mock loop using porcine blood. The experiment was performed according to ISO 7199:2016 Standard and for a chronic obstructive pulmonary disease (COPD) setting (CO2 partial pressure pCO2 ≥ 80 mmHg, oxygen saturation sO2 ≤ 50%). A commercial PMP oxygenator was tested under the same conditions for comparative purposes.

Results: The new devices presented zero plasma leakage. The blood pressure drop in the new gas exchange devices was higher compared to a commercial PMP. However, considering that CO2 elimination therapies are mostly conducted in the low-flow range blood pressure drop of the new devices fell within the physiologically acceptable limits. For a blood flow of 200 ml/min, the pressure drop ranged from 74 to 35 mmHg for surface areas from 0.7 to 1.8 m2. The oxygen and CO2 transfer rate (OTR and CTR) were comparable to the commercial PMP. At COPD conditions, the siliconized dialyzer with 1.4 m2 surface area managed to bring venous pCO2 from 80 mmHg down to 33.9 mmHg for a blood flow rate of 200 ml/min and a gas flow/blood flow ratio of 2:1, whereas for the same blood flow rate and at 10:1 gas flow/blood flow ratio it reduced pCO2 from 80 to 14 mmHg.

Discussion and Conclusion: The novel silicone-coated dialyzers display good gas exchange performance and could successfully be implemented in low-flow applications paired with a dialysis machine especially for CO2 elimination. In the case of the COPD setting, the accomplished sufficient CO2 elimination, enough to bring pCO2 into a physiological range. Furthermore, the well-established production process of silicone coating allows for a time-efficient and cost-effective production of novel gas exchange devices compared to the conventional manufacturing techniques for the production of commercial oxygenators.

Title: **MAY C-REACTIVE PROTEIN LEVELS ANTICIPATE COMPLICATED GALLSTONE CHOLECYSTITIS IN THE ELDERLY PATIENT?**

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Background: Early emergency cholecystectomy is recommended when complicated acute cholecystitis (CC) is suspected, to reduce the risk of complications. However, early diagnosis of CC is usually difficult, and is often not considered until the patient deteriorates. Previous studies evaluated inflammatory parameters on laboratory tests as surrogate markers of CC, although translation of those results in clinical practice is not consistent and it is not clear whether these are generalizable for use in the elderly patient. CRP in particular has been used among laboratory based items to diagnose acute cholecystitis, while current guidelines do not make use of it to determine the severity of disease. Aim of this study is evaluating the power of discrimination of the inflammatory markers commonly available (neutrophil count, neutrofil-to lymphocyte ratio –NLR-, CRP) with respect to leukocyte count and other imaging parameters to distinguish non-complicated acute cholecystitis from CC.

Material and Methods: We included patients over 65 years of age, operated by laparoscopy in emergency, and affected by acute cholecystitis confirmed by clinical, laboratory and imaging criteria on the basis of the recent Tokyo 2018 Guidelines. We excluded patients with chronic use of steroids, immunodeficiency or haematologic neoplasms, and procedures for primary bile duct disorders (i.e. Mirizzi's Syndrome). We reviewed clinical operative and pathology data of patients treated from September 2017 to June 2022 at the Academic Unit of General Surgery at Polyclinic of Bari University Hospital. Complicated acute cholecystitis was defined by the presence of gallbladder empyema, necrosis (patchy or complete), gangrene or perforation. Primary aim of this study was assessing CRP levels, leukocytes, neutrophil fraction and neutrophil-to-lymphocyte ratio against the intraoperative finding of complicated acute cholecystitis.

Results: The study group was composed of 83 patients with a mean age of 73.4 years (range 65-89) of which 44 (53%) males.
The mean time interval between admission and cholecystectomy of 2.8 days (range 0-47) was influenced by presence of cases of acute pancreatitis (6%) and common bile duct stones (9.6%). There was no perioperative mortality. Univariable analysis showed positive association between intraoperative finding of CC and levels of CRP(0.013), white cell count (0.024), and pericholecystic fluid(0.002). Of these factors, only increasing levels of CRP independently predicted CC at multivariable analysis (OR 1.022, 95% CI (1.001-1.043), p=0.033).
The Area Under the Curve (AUC) was 0.881 (95% CI 0.772-0.989). Using a threshold value of 19 mg/dl, sensitivity and specificity for CC were, respectively, 79% and 80%.

Discussion and Conclusion: Preoperatively, increasing levels of CRP and presence of pericholecystic fluid were found to be independent predictive factors for intraoperative

finding of CC in the elderly patient. In the context of this study CC was associated to increased technical complexity during cholecystectomy, a higher rate of conversion to open surgery, perioperative complications and patient's admission to intensive care. Results of this study may help inform care planning and surgical strategy adopted for laparoscopic cholecystectomy in the elderly patient.

Title: **LONG-TERM IN-VIVO STUDY OF THE GROWTH OF A PEDICLED FAT FLAP IN A TISSUE ENGINEERING CHAMBER**

Author: GUILLAUME LACROIX

Co-Author(s): LACROIX , G , CLERET , D , JORDAO Z. , A , PAYEN , J , MARCHETTI , P , GUERRESCHI , P

Background: Use of tissue engineering chamber (TEC) for growth of autologous vascularized fat flap is a promising approach for breast reconstruction after mastectomy. Previous experiments using our in vivo TEC model demonstrated that adipose flap was spontaneously generated without the need of stem cell implantation. Numerous studies demonstrate the generation and short-term survival of adipose tissue; however, long-term persistence remains elusive. The purpose of the present study are to clarify the long-term stability of the adipose flap generated.

Material and Methods: Ten minipigs were implanted with a PLCL (polylactide-co-caprolactone) TEC (475cc or 175cc). TECs with an 80cc or 30cc pedicled fat flap were implanted in the ventral or neck region of the minipigs. There were four experimental groups according to the implantation period of the chamber; 3 months (n=3), 6 months (n=3), 12 months (n=3) and 21 months (n=1). Growth of the fat flap was monitored monthly by MRI. At each timepoint, fat flaps were harvested for histomorphometry studies that included analysis of the adipose tissue, the vascular network and the connective tissue. A study of systemic effects was also conducted.

Results: Throughout the study, there was an absence of significant clinical phenomena except a postoperative seroma (8 out of 10 animals) that naturally resorbed after 2 months (except for one minipigs that was sacrificed after 2 months of implantation due to seroma infection). In all pigs followed (n=9), a rapid growth of the fat flap was observed during the first 6 months with a maintenance of the volume beyond. After 1 month, the multiplication factor of the fat flap volume was 1.38 and the filling of the useful volume of the TEC was 32%. After 6 months, the fat flap volume was doubled and the regenerated autologous tissue filled the entire useful volume of the TEC. After 12 and 21 months, the average multiplication factor of the fat flap volume was 2.41. No abnormalities in the structure, size, and number of adipocytes constituting the flap were noted compared with control adipose tissue. The vascular density in the adipose fat flap was similar to the control adipose tissue and was composed mainly of small vessels. An absence of macrophagic cells and necrosis was noted. The fat flaps were composed of a small amount of connective tissue fibers (10.9% of the total flap area) and a thin layer of connective tissue surrounded the TEC (approximately 0.5 cm thick). Serum

protein analysis was normal and no degradation products were found in the liver and kidney at 12 and 21 months after implantation.

Discussion and Conclusion: Overall, this preclinical study does not reveal any major obstacle to the use of TECs in a breast reconstruction context. The adipose flaps were generated spontaneously in vivo in TECs, they are mature, vascularized and have shown long-term stability (up to 21 months). TEC will contribute to breast reconstruction without donor site morbidity and without short and long term systemic adverse effects.

Title: **DAY-CASE LAPAROSCOPIC PARTIAL GASTRECTOMIES FOR THE TREATMENT OF GISTS IN ADULTS: A TWO YEAR STUDY AT A UNIVERSITY TEACHING HOSPITAL**

Author: GULZAR DHANOYA DHANOYA

Co-Author(s): JAUNOO , S

Background: Day-case surgeries allow patients to return home on the same day after undergoing their surgical procedure, allowing shorter inpatient stays, reduced hospital costs and reduced risk of hospital acquired infections amongst other benefits. Laparoscopic partial gastrectomy (LPG) is the most popular treatment option for small gastrointestinal stromal tutors (GISTS) and other benign stomach lesions. Due to the short operating time needed to perform most LPGs, there are few post-operative complications, with a recent study showing a gastric leak rate of only 3%. The success of day-case LPG has been shown to be affected by certain patient factors, including comorbidities and previous abdominal surgical history. Results of recent studies suggest day-case LPGs are a safe and effective treatment option for small gastric lesions and GISTS in a select group of patients. There is great potential for day-case LPGs to provide effective treatment for patients whilst saving valuable hospital resources. The aim of this study was to assess the efficacy and safety of day-case LPG procedures as a more desirable alternative to admitting patients to hospital >24hrs post LPG surgery. We wanted to use the data collected over a two-year period in our university teaching hospital to investigate patient, or other factors which might facilitate a safe same-day discharge.

Material and Methods: From January 2021 to September 2022, we recorded all patients who underwent an LPG procedure at our hospital and were discharged <24hrs following surgery. Patient pre-operative assessments, operation notes and historical medical notes were accessed to record certain patient factors, including age, comorbidities and ASA score. The number of complications and 30-day readmission rates were noted and compared between those discharged <24hrs and those hospitalised >24hrs.

Results: Between January 2021 and September 2022, there were 28 total laparoscopic partial gastrectomies performed to treat GISTs, 11 of which were performed as day cases. The mean age was 63 years. There were no open conversions. There were no post operative complications or readmissions recorded. Patient selection however, was careful, as patients

with high BMIs, at high bleeding risk or with extensive gastric surgical history were not suitable for the procedure.

Discussion and Conclusion: For a select group of patients, including those with healthy BMI and low bleeding risk, day-case LPG is a safe and effective treatment option for those with GISTs and benign stomach lesions. There were no significant differences in readmission rates and post-op complications when compared with patients admitted to hospital for >24hrs after surgery. However, it must be taken into account that the sample size of patients in this study was small and therefore further similar studies are needed with larger numbers of patients to assess the safety and efficacy of LPGs on a wider, more practical scale. This would also allow us to identify further patient factors that may worsen or alleviate post-op complications of day-case LPGs. To conclude, day-case LPG has the potential to become the primary treatment pathway for low-risk patients suffering from small GISTs and benign stomach lesions, as it will save valuable hospital resources and costs, with no added post-operative complications.

Title: **THE SAFETY AND EFFICACY OF DAY-CASE LAPAROSCOPIC APPENDICECTOMIES FOR ACUTE APPENDICITIS IN ADULTS: A TWO-YEAR RETROSPECTIVE CASE STUDY**

Author: GULZAR DHANOYA DHANOYA

Co-Author(s): JAUNOO , S

Background: Acute appendicitis is one of the most common presentations in acute surgery (50,000 per annum in the UK alone). Laparoscopic appendicectomy (LA) is today's gold standard management of simple acute appendicitis (ie. Non gangrenous/ non-perforated appendix). This is due to its less invasive nature compared with open surgery, making patient recovery faster, and hospital admission times shorter. Most LA cases show a post-op length of stay (LOS) time of 1-2 days according to recent data, however this is most likely attributed to delayed onset of disease and complicated disease, including gangrenous and/or perforated appendix. Simple appendicitis cases however, are eligible for same-day discharge following LA procedures. Same-day discharges for LA cases has the potential to provide safe, definitive treatment for patients with acute appendicitis whilst saving valuable hospital resources.The purpose of this study was to assess the safety of same-day discharge after laparoscopic appendectomy for acute appendicitis at a tertiary Care Center as well as to to determine the key factors that can facilitate a less than 24h discharge.

Material and Methods: Between January 2021 and December 2022, a retrospective single-centre chart review was performed for all patients over 18 years of age who underwent LA for acute appendicitis in 2021. Two groups were established once all data had been collected: those who had been discharged <24hrs and those who were admitted >24 hours. Patient past medical records were accessed to determine any peri or post-operative complications, including intra-abdominal abscesses and superficial surgical site infections (SSSIs). Histology reports and 30-day readmission rates were also investigated to determine the safety of same-day discharges.

Results: Between January 2021 and December 2022, 572 laparoscopic appendicectomies were performed. Of these, 126 were performed as day-cases (<24h). The average LOS was 8 hours with a minimum stay of 4 hours. Only 62% of patients that were discharged <24hours had simple appendicitis. There were six 30-day readmissions for any patient discharged <24 hours who had undergone an LA procedure. One of these patients readmitted with post-op collections, which were treated conservatively. The other five patients readmitted with wound infections. When comparing patients discharged <24hrs compared with those admitted >24hrs, there was no significant difference between complications or readmission rates.

Discussion and Conclusion: Discharging patients who have undergone LA for simple appendicitis on the same day of their surgery is both safe and effective practice. It has the potential to spare valuable hospital resources and funds, as well as allowing patients to return to the comfort of their own homes sooner after surgery. There is no difference in post-op complications and readmission rates between day-case LA and those admitted to hospital >24hrs after their surgery. For patients presenting with simple appendicitis, day-case LA should be used where possible.

Title: **THE SAFETY AND EFFICACY OF DAY-CASE LAPAROSCOPIC NISSEN FUNDOPLICATION FOR THE TREATMENT OF GERD IN ADULTS: A TWO YEAR STUDY FROM A UNIVERSITY TEACHING HOSPITAL**

Author: GULZAR DHANOYA DHANOYA

Co-Author(s): JAUNOO , S

Background: Laparoscopic Nissen Fundoplication (LNF) is the primary treatment options for patients suffering with gastro-esophagel reflux disease (GERD). It provides a more long-term, definitive anti-reflux treatment when compared with the alternative of life-long acid suppression medications. In the majority of cases, the procedure time is short and patient length of stay (LOS) time in hospital post surgery is brief. Despite this, very few ambulatory LNFs are performed, with little research available to convey the safety and efficacy of day-case procedures. Day-case Laparoscopic Nissen Fundoplication has the potential to provide patients with effective treatment for their reflux disease whilst saving valuable hospital resources and costs. This study aims to investigate the safety and efficacy of day-case Laparoscopic Nissen Fundoplication procedures in treating adult patients with GERD over a two year period in a university teaching hospital.

Material and Methods: Between January 2020 and December 2022, all patients who presented with asymptomatic, uncomplicated GERD were offered the option of having their Laparoscopic Nissen Fundoplication procedures as day-cases. All fulfilled the predetermined inclusion criteria, and all cases followed standard surgical, anaesthetic antiemetic and analgesic protocols. Patient factors taken into account included: age, comorbitides and ASA score using patient operation notes, pre-op assessments and historical medical records. Post-op complications and 30-day readmission rates were also recorded.

Results: Between January 2020 and December 2022, 41 patients underwent laparoscopic nissen fundoplication for GERD, with 19 of these done as day-cases. Those who stayed in hospital for >24hrs after surgery we were admitted for various reasons including pain, nausea and late operation finish. There were no complications or re-admissions recorded for those who underwent day-case procedures.

Discussion and Conclusion: Day-case Laparoscopic Nissen Fundoplication is a safe and effective management option for select adults suffering from GERD, with no difference in post-op complications when compared to patients hospitalised >24hrs after surgery. Candidates must be carefully selected however, as post-op complications in day-cases were only low as patients selected were healthier with fewer comorbidities. Further studies are therefore needed to explore a wider variety of patient factors that may worsen or alleviate post-op complications. In conclusion, Laparoscopic Nissen Fundoplication has the potential to be a safe and effective day-case treatment offered for GERD whilst saving valuable hospital resources and costs, provided there is adequate surgical expertise and careful patient selection.

Title: **PHARMACOLOGICAL PROPHYLAXIS OF INTESTINAL REPERFUSION DAMAGE**

Author: IGNACIO GARCIA-ALONSO

Co-Author(s): VELASCO-ORAA , X , CEARRA , I , MONTEJO , U , RUIZ-MONTESINO , I , HERRERO DE LA PARTE , B

Background: Intestinal ischemia-reperfusion is still a relevant clinical problem, especially in newborns and in the elderly. In this piece of work, we check the utility of curcumin and dexmedetomidine to overcome the damage induced by reperfusion, both locally and in distant organs, using α-tocopherol as a comparison.

Material and Methods: In female Wag/RijHsd rats (six animals per group), the superior mesenteric artery was clamped for 1 h; then, the clip was removed and animals were allowed 4 h of reperfusion. Curcumin (200 mg/kg, oral) was given 24 h and 2 h before clamping; α-tocopherol (20 mg/kg, i.p.) was administered 2 h before ischemia, and dexmedetomidine (10 or 40 mg/kg, s.c.; dex-10 and dex-40, respectively) was given 15 minutes before ischemia. Blood samples and terminal ileum were collected. Additionally, D-xylose absorption test was performed to evaluate intestinal absorption; 1h after D-xylose administration, D-xylose plasma levels were quantified (mg/ml).

Results: All of the treatments reduced histological damage assessed with Chiu's scale (non-treated, 2.6 ± 0.75; curcumin, 1.54 ± 0.8; dex-10, 1.47 ± 0.7; dex-40 1.43 ± 0.9; α-tocopherol, 1.01 ± 0.8) and improved absorption of D-xylose (healthy rats 2.06 ± 0.07; non-treated, 1.18 ± 0.07; curcumin 1.76 ± 0.30; dex-10, 2.29 ± 0.20; dex-40, 2.25 ± 0.26; α-tocopherol 1.66 ± 0.21). Dexmedetomidine improved renal function. Urea was significantly increased in no-treated animals (86.6 vs 26.3, $p<0.00001$), but dexmedetomidine treated animals showed 49.2

or 51.7 regarding the dose used ($p<0.01$); while the other drugs only achieved a slight reduction ($p>0.05$). Creatinine serum levels showed a similar pattern: elevation because of ischemia-reperfusion (0.55 vs 0.26, $p<0.001$) and significant reduction to nearly normal values in dexmedetomidine treated animals. The elevation of liver enzymes in serum was not improved by any of the drugs.

Discussion and Conclusion: The three drugs proved useful reducing intestinal damaged, being α-tocopherol the most efficient drug. Regarding intestinal function, only dexmedetomidine restored D-xylose absorption to normal values. Last of all, if we focus on systemic alterations, renal function was improved by dexmedetomidine, while liver enzymes were not improved by any of the drugs.

Title: **DEVELOPMENT OF A MODEL OF NEONATAL ANALGESIA THROUGHOUT LACTATION IN RATS**

Author: ISABELLE DUTRIEZ-CASTELOOT

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Background: Today, the management of human and animal pain is of paramount importance, from the earliest stages of development. With advances in neonatal care, management of prolonged pain in newborns is a daily concern. In addition to ethical considerations, it would have long-term effects and consequences. However, its treatment remains inadequate. Therefore, it is important to develop an experimental model of long-term analgesia for neonatal research.

Material and Methods: We hypothesized that transdermal fentanyl could induce optimal analgesia during lactation. Experiments were performed in six groups of rats with transdermal fentanyl 0, 3, 12, 50, 100, or 200 µg/kg/h from the second postnatal day (P2) until weaning. Assessment of analgesia was carried out at P21, with behavioral scores (ranging from 0 to 3) using a 4% formalin test. Plasma levels of fentanyl were determined by UPLC/TQD at P22. Growth rate was investigated.

Results: Fentanyl 100 and 200 µg/kg/h reduced scores of formalin-evoked behavioral pain. They increased time spent in pain score 0 (8 min 55 s and 6 min 34 s versus 23 s in controls) as in low pain scores 1 and 2, and decreased time in the most severe pain score 3 (19 min 56 s and 17 min 39 s versus 44 min 15 s). From 50 µg/kg/h, fentanyl was detected in the plasma and increased in a dose-dependent manner from 50 µg/kg/h (2.36 ± 0.64 ng/ml) to 200 µg/kg/h (8.66 ± 1.80 ng/ml). Clinically, from 3 to 100 µg/kg/h, there was no difference in growth and no visible side effects. At 200 µg/kg/h, we observed a weaker growth from P17 to P22 and ophthalmological side effects with a bilateral corneal opacity in 90% of the pups. No difference was observed between male and female rats.

Discussion and Conclusion: Altogether, our results indicate that transdermal fentanyl 100 µg/kg/h is an efficient therapeutic for a long-lasting analgesia in lactating pups. This new model provides a useful tool for protection and well-being, as well as a future opportunity to study the long-term health consequences of prolonged neonatal analgesia.

Title: **THE ROLE OF PANCREATIC REGENERATIVE PROTEIN (PSP/REG) IN ISLET REGENERATION AND DIABETOGENESIS**

Author: ISALINE LOUVET

Co-Author(s): ACOSTA MONTALVO , A , SAPONARO , C , REDING , T , GRAF , R , KERR-CONTE , J , PATTOU , F , BONNER , C

Background: Pancreatic islet dysfunction and demise are key characteristics of type 1 diabetes (T1D), type 2 diabetes (T2D), and HNF1A-MODY, respectively. Pancreatic Stone Protein / Regenerating Protein (PSP/reg) is regulated at the transcription level by the Hepatocyte Nuclear Factor family of proteins and physiologically secreted from pancreatic acinar cells. Upon focal or systemic extra-pancreatic inflammation, such as sepsis, PSP/reg is strongly increased, but also highly elevated in the serum of T1D, TD2, and HNF1A-MODY patients. Although, PSP/reg is expressed and induced in islets of diabetic mice, the mechanisms involved remain largely unknown. Moreover, after decades of research, whether PSP/reg protein expression in human alpha, beta or delta cells under hyperglycaemic conditions is changed, has not been explored. Since PSP/reg is inducible by hyperglycemia and secreted, we hypothesized that its gene product may function as a mitogenic, trophic, and/or an antiapoptotic factor in the endocrine pancreas.

Material and Methods: The aim was to study the localisation of PSP/reg protein in the pancreas of normoglycemic lean, normoglycemic obese and diabetic obese deceased donors using the confocal imaging technique on whole human pancreas sections embedded in paraffin and on isolated human islets embedded in histogel. We studied the expression of PSP/reg protein in the pancreas of normoglycemic lean, normoglycemic obese, pre-diabetic obese and diabetic obese deceased donors using western blot technique on proteins extracted from the endocrine part of the pancreas. Then to study the effect of a chronic treatment (24h) with the recombinant PSP/reg protein on the insulin secretion of islets isolated from lean normoglycemic, obese pre-diabetic and obese diabetic donors after islet glucose stimulation (GSIS).

Results: We first observed that PSP/reg protein was highly enriched in acinar cells, but also colocalized with insulin in beta cells, somatostatin in delta cells and, to a lesser extent, with glucagon in alpha cells. We also showed that PSP/reg protein is strongly increased in the islets of obese diabetic donors compared to lean normoglycemic, obese normoglycemic and obese pre-diabetic donors. The addition of recombinant PSP/reg protein to islets isolated from obese pre-diabetic and obese diabetic donors for 24 hours increased glucose-stimulated insulin secretion (GSIS), compared to vehicle-treated islets.

Discussion and Conclusion: Collectively, these data suggest that PSP/reg plays an important role in the endocrine pancreas during diabetogenesis and that treatment with recombinant PSP/reg protein may improve beta-cell function in diabetes.

Title: **VASCULAR EPTFE GRAFTS IN A PORCINE CAROTID ARTERY MODEL**

Author: JAROSLAV CHLUPAC

Co-Author(s): FABIAN , O , FRANK , J , NOVAK , T , NOVOTNY , R , SIMUNKOVA , Z , MRAZOVA , I , KONARIK , M , ZAPLETAL , M , BACAKOVA , L , PIRK , J , FRONEK , J

Background: Vascular surgery faces a shortage of versatile materials for bypass grafting or patch angioplasty. Autologous vessels are considered gold-standard grafts; however, their availability is limited. Their synthetic counterparts display suboptimal performance. This study aimed to evaluate the in vivo behavior of various configurations of expanded polytetrafluoroethylene (ePTFE) prosthetic grafts in an animal model.

Material and Methods: Various ePTFE grafts were implanted bilaterally into the carotid arteries of domestic pigs: interposition graft with an inner diameter (ID) matched with the native artery (ID=5 mm, n=5), undersized interposition graft (ID=4.5 mm, n=1), oversized interposition graft (ID=6 mm, n=1), and oversized bypass graft (ID=6 mm, n=1). Patch grafts were also implanted contralaterally in some cases (n=3). The implantation period lasted one month. Acetylsalicylic acid was administered (100 mg daily). The grafts were evaluated using flowmetry, angiography, and histology. The institutional and national Animal Care and Use Committees approved our study.

Results: All five matched, and one undersized interposition graft became occluded. The oversized interposition graft remained patent and developed mild stenosis in proximal anastomosis. The oversized bypass graft was patent with non-stenotic neo-intimal hyperplasia in proximal anastomosis. All patch grafts remained patent, with non-stenotic neo-intimal hyperplasia and surface endothelialization developing in their lumina.

Discussion and Conclusion: Implantation of ePTFE grafts into porcine carotid arteries was burdened with a high occlusion rate and represents a challenge. Oversized grafts and patch angioplasty were more suitable experimental configurations. Our animal model serves for further research in vascular tissue engineering. Supported by the project National Institute for Research of Metabolic and Cardiovascular Diseases (Programme EXCELES, Project No. LX22NPO5104) - Funded by the European Union - Next Generation EU. Supported by the Ministry of Health of the Czech Republic, grant No. NV19-02-00068.

Title: **A MORPHOLOGICAL REVIEW OF MEDIAL MALLEOLAR FRACTURES – A LARGE SINGLE CENTER SERIES**

Author: JASON MAVROTAS

Co-Author(s): AAMIR , J , CALDWELL , R , LONG , S , SREENIVASAN , S , PANESA , A , JEEVARESAN , S , LAMPRIDIS , V , MASON , L

Background: Medial Malleolus Fractures (MMF) are frequently managed by orthopaedic surgeons and are one of the most treated fractures of the ankle. Many approaches to management are described in the literature however, their morphology is under investigated. Knowledge of the medial malleolar morphology allows greater assessment and planning in their surgical treatment.

Material and Methods: Patients who had undergone surgical fixation of their MMF were identified from 2012 to 2022, using electronic patient records. Analysis of their pre-operative, intra-operative and post-operative radiographs was performed to determine their fracture morphology. Lauge-Hansen classification was used to characterise ankle fracture morphology and Herscovici classification to characterise MMF morphology. Non-union was defined as no trabecular crossing on radiograph at 6 months post-operatively. Malunion was defined as displacement on at least 1 radiograph image of >1mm.

Results: A total of 647 patients were identified across a 10-year period who had sustained a medial malleolar fracture. The most common Herscovici fracture in Supination Adduction injuries was a Herscovici D (43.59%, 17/39), in supination external rotation injuries was Herscovici C (52.75%, 259/491), in pronation external rotation injuries was Herscovici C (48.81%, 41/84) and in pronation abduction injuries was Herscovici B (45.45%, 12/33). Medial wall blowout occurred in 19.23%, occurring in supination adduction injuries most commonly (51.28%, 20/39). Herscovici A fractures were significantly more malreduced at time of surgery compared to other fracture types (21.88%, 7/32, p=.003). Medial wall blowout combined with Hercovici type B fractures showed a significant increase in malunion rate. (p=.038). There was no significant difference in union rates across the classification groups (range 11.67% Herscovici D to 22.86% for Herscovici B).

Discussion and Conclusion: The morphology of medial malleolar fractures does have an impact of the radiological outcome following surgical management. There was a high rate of medial wall blowout even in the non adduction fracture types, and this should be assessed to prevent over compression during surgical treatment. Malreduction of Herscovici A fractures may indicate a need for further investigation and different methods of fixation.

Title: **THE RADIOLOGICAL OUTCOMES OF BI-PLANAR, RETROTUBERCLE, MEDIAL OPENING–WEDGE HIGH TIBIAL OSTEOTOMIES**

Author: JASON MAVROTAS

Co-Author(s): ABUAL-RUB , Z , MELTON , J

Background: The primary purpose of high tibial osteotomy (HTO) is to correct the mechanical axis in the coronal plane and redistribute the weight-bearing load on the tibiofemoral joint. In addition to the desired coronal plane correction, HTO can cause changes in the sagittal and axial planes with potential undesirable effect. This study aimed to evaluate the radiological outcomes of medial opening wedge high tibial osteotomy (MOWHTO) and identify any undesired changes resulting from the procedure.

Material and Methods: Patients with medial compartment gonarthrosis treated with a bi-planar, retrotubercle MOWHTO were included. Pre- and post-operative full length anterior-posterior and lateral radiographs of knee joints were performed. Pre-operative osteotomy was planned using the Miniaci method. Insall-Salvati ratio, posterior tibia slope, deviation from Fujisawa point, mechanical lateral distal femoral angle (mLDFA), mechanical medial proximal tibial angle (mMPTA), and joint line angle were measured pre- and post-operatively.

Results: Radiographs of 16 knee joints in 14 patients were reviewed. With respect to MOWHTO, analysis highlighted a significant change in the mean axis deviation; post-operative 17.9 ±17.5% from pre-operative 52.0 ±14.8% ($P < 0.05$). The mMPTA and mLDFA also increased significantly from 87.9 ± 3.4° and 85.9 ± 2.1° preoperatively, to 92.8 ± 2.7° and 89.9 ± 2.1° postoperatively ($P < 0.05$), respectively. There was no significant effect on the Insall-Salvati ratio or posterior tibial slope.

Discussion and Conclusion: This study demonstrates that the effect of bi-planar retrotubercle MOWHTO on the knee joint is primarily coronal plane specific. Use of this technique provides desired, successful correction of the mechanical axis with minimal undesirable effects in the sagittal and axial planes. The specificity and efficacy of biplanar, retrotubercle MOWHTO in correcting the varus mal-alignment causing unicompartmental gonarthrosis is highlighted by this study, and may be an effective method of delaying progression to partial or total join replacement in end-stage disease.

Title: **MANAGEMENT OF ACUTE COMPARTMENT SYNDROME - A 3 YEAR RETROSPECTIVE SERIES AT A UK MAJOR TRAUMA CENTRE**

Author: JASON MAVROTAS

Co-Author(s): MARSDEN , S , BEATTIE , S , ALSUMADI , M , SREENIVASAN , S , COOPER , B , KLASS , B

Background: Acute compartment syndrome (ACS) is one of the few true orthopaedic surgical emergencies, characterised by an increase in intra-compartmental pressure and subsequent tissue hypoperfusion, hypoxia and cell death. Prompt decompression via fasciotomies is the widely accepted treatment to avoid devastating patient morbidity. The British Orthopaedic Association (BOA) has published national standards with the aim to avoid centre-specific idiosyncratic variations in practice. This study aimed to assess the efficacy of a UK Major Trauma Centre (MTC) in managing ACS as well as evaluating patient related outcomes.

Material and Methods: Patients who had undergone fasciotomies were identified from 2019-2022, using electronic patient records. Of these, traumatic and adult cases were included, while those undergoing fasciotomies for chronic compartment syndrome, extravasation injuries and prophylactically following vascular procedures, were excluded. Theatre and patient records were then evaluated to assess 3 key areas as outlined in the BOA standards: 1) Documentation and diagnosis 2) Initial management 3) Surgical management and intra-operative outcomes.

Results: A total of 11 adult patients were identified to have developed ACS following trauma across a 3-year period with a mean age of 43 and 8:3 male to female predominance. Of these, 64% developed ACS directly following trauma, while 36% developed ACS post-operatively. Pain and a complete neurovascular examination were documented in 82% and 91% of cases respectively. Elevation of the limb and a 30-minute reassessment were documented in 36% and 45% of cases respectively. The quantity of analgesia used at the time of assessment was documented in 64% of cases. In terms of surgical management, the median time taken to surgery from initial symptoms was 4 hours 58 minutes with the median time from diagnosis to surgery 1 hour and 28 minutes. In total, 27% of cases underwent surgery within an hour of the diagnosis of ACS, increasing to 73% within 2 hours. Re-exploration took place within 48 hours of the initial surgery in 36% of cases and plastic surgical input was provided in 55% of cases. Intraoperatively in 55% of cases the muscles were deemed viable with no formal debridement required, while in 18% of cases at least some muscles were deemed non-viable requiring subsequent debridement.

Discussion and Conclusion: It is evident that certain aspects of the management of ACS as outlined in the BOA standards are less well followed. Documentation of limb elevation and a 30-minute reassessment were particularly poorly documented. There was a large discrepancy between time to surgery from initial symptoms and from diagnosis. A possible explanation for this may be the often-insidious onset of ACS symptoms early in its presentation. Despite this, the majority of cases were unable to meet the BOA target of surgery within an hour of a formal diagnosis of ACS. Multiple factors are likely to contribute to this, with delays identified at all stages in the patients transfer to theatre. In this series, no correlation was seen between patients who had delayed admission to theatre of over an hour and those requiring debridement for non-viable muscle identified intraoperatively.

Title: **DOES THE INTRODUCTION OF A DAILY MIDDLE-GRADE WARD ROUND IMPROVE MORTALITY AND LENGTH OF STAY IN HIP FRACTURE PATIENTS? A LARGE SINGLE-CENTRE SERIES AT THE UNITED KINGDOM'S TOP PERFORMING TRUST**

Author: JASON MAVROTAS

Co-Author(s): MOUSA , A , MCENTEE , L , HARRISON , J

Background: In 2022, there were 72,215 hip fracture admission costing the NHS over £1 billion per year or 1.5 million bed days. Included in this amount is the unavoidable and relatively predictable costs of surgery and anaesthesia, however the cost related to length of stay is more variable and amenable to improvement. In this study we focus on the impact of the middle-grade ward round (MGWR) on acute length of stay and inpatient mortality after it was introduced in November 2018.

Material and Methods: A total of 1796 records of patients with hip fractures (over 69 months) were collected retrospectively in the period prior to the introduction of the MGWR. This was then compared to a total of 586 patients admitted following the introduction of the ward round (over 24 months). Acute length of stay and inpatient mortality were subsequently calculated from the retrieved data. Acute length of stay was defined as the time period between presentation to the orthopaedic team and discharge from the orthopaedic ward. Exclusion criteria for the length of stay portion of the study included hip fracture patients not admitted to an orthopaedic ward and those that died as inpatients.

Results: Following the introduction of the MGWR, there was a 58% reduction in the inpatient mortality rate (10.58% to 4.44%) and a 19% reduction in acute length of stay (16.56 days to 13.36 days, p=0.041)

Discussion and Conclusion: This study demonstrates that following the introduction of the MGWR there has been a significant reduction in acute length of stay and inpatient mortality in admitted hip fracture patients. Moreover, inpatient mortality was now lower than the national average. These findings underline the high standard of hip fracture care delivered at the Queen Elizabeth Hospital, Gateshead, having notably also ranked first nationally in meeting the best practice tariff for hip fractures in 2022. The improvements can be attributed to a streamlined post-operative management, early recognition of complications, and timely discharge planning. Financially, this represents ~ £337,000 per year in cost-savings to the trust.

Title: **PERFORMANCE OF AN AMBULATORY DIGESTIVE REINSTILLATION DEVICE**

Author: JEAN ROBERT NZAMUSHE

Co-Author(s): JINGHANG , L , SEGUY , D , MELON , T , LOGIER , R

Background: Digestive reinstillation (DR) is a process for recovering an intestinal transit by reintroducing the proximal food bolus to the distal segment in case of a productive double

enterostomy or a high-flow small bowel fistula. Although having already demonstrated nutritional benefits, DR suffers from a scarcity of ergonomic devices specifically dedicated to its realization.
To optimize the DR, we designed a portable, ambulatory DR device to collect and pump the chyme from proximal to distal segment. The EXCEP (Extra Corporeal Enteral Pump) is designed for close double enterostomies in gun barrel or for high fistulas. The purpose of this work is to present the performance of our device in such previous situation.

Material and Methods: The performance of EXCEP has been evaluated on a test bench and in large animals for liquids of varying consistency: water (E), industrial chyme (CI), enteral nutrition (AE) and glycerol diluted to 50%(G). In addition, a comparison with a non-motorized inert bypass system (SBPI) was carried out by measuring the proportion of liquids reinstilled for the same volume over an identical period.

Results: Both bench and large animal testing revealed reinstillation performance greater than 95% for all fluids tested. On the other hand, EXCEP showed better reinstillation performance than SBPI in terms of percentage of volume reinstilled: E (97% vs 70%; $p < 0.05$); CI (96% vs 62%; $p<0.05$); EA (96% vs 60%; $P<0.05$); G (95% vs. 60%; $P<0.05$).

Discussion and Conclusion: Ambulatory DR seems feasible with an ambulatory device and requires a pumping system to optimize its performance. EXCEP could therefore facilitate DR in terms of efficiency and ergonomics, making it possible to broaden its use and even its indications. Studies on patients accompanied by a medico-economic analysis would confirm all the interest.

Title: **PULMONARY VALVE REPLACEMENT UNDER CARDIOPULMONARY BYPASS IN THE JUVENILE SHEEP, TIPS AND TRICKS IN A FRAGILE MODEL**

Author: JEROME SOQUET

Co-Author(s): ROSA , M , CORSEAUX , D , DUPONT , A , UNG , A , STAELS , B , VAN BELLE , E , SUSEN , S , JUTHIER , F

Background: Our team is currently studying bioprosthetic valve degeneration using a juvenile sheep surgical model, which is known to carry a high risk of early postoperative mortality. The aim of the present study is to describe our experience of pulmonary valve replacement (aortic xenograft implanted in pulmonary position) in a juvenile sheep model and to share a few safeguards and pitfalls from a surgical perspective.

Material and Methods: From September 2019 to July 2021, 27 juvenile sheep underwent a pulmonary valve replacement under cardiopulmonary bypass (beating heart) with a fresh porcine aortic valve. In addition, 1 specimen served as a sham. Median weight of sheep and pigs were 23 kg (21.6 – 24.7) and 21 kg (19.7 – 24) respectively. Median diameter of implanted porcine valves was 14 mm (14 – 15). Early mortality was defined as death within 30 days following the procedure. An autopsy was systematically performed in cases of early death.

The cohort was divided into 2 groups: the Early Group (first 14 specimens) vs the Late Group (last 14 specimens).

Results: The 2 groups had similar morphological characteristics (weights and implanted valve diameters). The early death rate differed significantly between the 2 groups: 50% (7/14) in the Early Group vs 14% (2/14) in the Late Group (p = 0.043). Causes of early deaths were: bleeding (n = 3), iatrogenic (n = 2), presumed arrhythmia (n = 2), respiratory failure (n = 1) and cerebral malperfusion (n = 1). Of note, there was no early mortality in the last 12 consecutive specimens. Measures taken to improve postoperative outcomes were: (1) to switch cardiopulmonary bypass priming solution from sodium chloride 0.9 g/L to Lactated Ringer's, (2) to administer potassium chloride 1g/L of priming solution at the start of the cardiopulmonary bypass, (3) to administer calcium chloride 1 g just before coming off bypass, (4) to administer 1 mg adrenaline boluses after coming off bypass when necessary, (5) to decrease the size of the venous cannula down to 26 Fr, (6) to systematically insert a nasogastric tube before the procedure to relieve pressure on the lungs by emptying the stomach, (7) to transcutaneously puncture the stomach in case of peroperative distension and (8) to postpone the first transesophageal echocardiography (performed under general anesthesia) to the second week after the operation (versus the first week).

Discussion and Conclusion: Pulmonary valve replacement potentially remains a high-risk procedure in juvenile sheep. Tissues are fragile and prone to bleeding. In our experience, results were drastically enhanced by measures aimed at improving postoperative cardiac function, avoiding arrhythmias, optimizing the respiratory status and favoring recovery before the performance of an invasive procedure under general anesthesia.

Title: **ACTIVE SURVEILLANCE OF LOW-RISK PROSTATE CANCER: COMPARISON OF THE ONCOLOGICAL OUTCOMES BETWEEN MEN YOUNGER AND OLDER THAN 60 YEARS OLD.**

Author: JONATHAN OLIVIER

Co-Author(s): BENHEDDI , T

Background: Active surveillance (AS) is now recommended as a safe option for the management of low-risk prostate cancer (LRPCa). If younger men may benefit the most from a differed treatment strategy, we need to assess oncological outcomes of AS according to age. Objective: To compare the oncological outcomes of AS between group of men younger or older than 60 years old.

Material and Methods: Retrospective analysis of a monocentric database of 246 patients managed with AS for a low risk PCa (Grade Group 1) between 2007 and 2019. We compared outcomes as AS discontinuation free survival, cause of AS discontinuation and unfavorable oncological outcomes in case of AS discontinuation between the 2 age groups using the Kaplan-Meier method and Cox proportional hazards regression.

Results: Among the 246 men who met eligibility criteria and started AS, 51 and 195 men were younger and older than 60 years old, respectively. Median follow-up was 5.3 years. At 5yr, AS discontinuation free-survival was 71% (95%CI:68-74) for the whole cohort, 75% (95%CI:68-82) and 70% (95%CI:67-74) in the younger and older men group . There was no significant difference between the 2 groups in the all-cause AS discontinuation-free survival (p=0.46). Out of 59 actively treated (9-younger and 50-older patients), 7 (11.9%) had biological recurrence and 1 (2%) had progression to distant metastatic lymph node. There was no significant difference on unfavorable oncological outcomes at the end of AS (p=0.71).
There was no progression to bone metastatic disease and no specific death.

Discussion and Conclusion: There was no difference in the oncological outcomes of AS between groups of men younger and older than 60 years old.

Title: **PREDICTIVE FACTORS OF TESTICULAR CANCER IN SMALL TESTICULAR TUMORS TREATED WITH PARTIAL ORCHIECTOMY: A RETROSPECTIVE STUDY.**

Author: JONATHAN OLIVIER

Co-Author(s): ROSE , M , LEROY , C , MARCELLI , F , LEROY , X

Background: Radical orchiectomy is the standard treatment for a testis cancer. Partial orchiectomy (PO) can be considered in the setting of a solitary functioning testis, bilateral tumors or for small testicular lesions. Objective: To evaluate possible factors predicting testicular cancer in patients undergoing PO.

Material and Methods: We retrospectively analyzed the records of all patients who underwent PO for a solitary functioning testis, bilateral tumors or a small lesion (<2cm on preoperative ultrasound) in our center during the period 2004-2021. Testis sparing surgery consisted of tumor enucleation for FSE. Immediate radical orchiectomy was performed in all cases of malignancy at FSE but otherwise the testes were spared.

Results: 101 patients were included in the study. Reasons for PO included small lesion in 79 (78%); solitary functioning testis in 18 (18%) or bilateral lesions in 4 (4%). A lesion was palpable in 32 (32%) and median size was 6.6mm (IQR=5.2-10) at US. 21 patients had elevated serum tumor markers. Overall 28 of the 101 men (28%) presented with testicular cancer (20 seminomas, 6 non-seminomas,1 intraepithelial neoplasia and 1 burn-out tumor). Diameter of the lesion ($p<0.05$), presence of microlithiasis ($p<0.01$), irregular contour of the lesion ($p<0.01$) on preoperative US, elevated serum markers ($p<0.05$), personal history of testicular cancer ($p<0.01$) were predictors of malignancy

Discussion and Conclusion: Small testicular masses are often benign and do not always require radical orchiectomy. None of the predictive factors can preoperatively predict the histology of the lesion. Therefore, we suggest to perform partial orchiectomy for small testicular masses.

Title: **VALUE OF FROZEN SECTION EXAMINATION FOR THE MANAGEMENT OF SMALL TESTICULAR TUMORS**

Author: JONATHAN OLIVIER

Co-Author(s): ROSE , M , LEROY , C , MARCELLI , FR , LEROY , X

Background: Partial orchiectomy has proved to be technically feasible, safe, enabling preservation of a considerable amount of testis parenchyma

Material and Methods: We retrospectively analyzed the records of all patients who underwent testis sparing surgery for a small testicular mass (<2cm on preoperative ultrasound) in our center during the period 2004-2021. Testis sparing surgery consisted of tumor enucleation for FSE. Immediate radical orchiectomy was performed in all cases of malignancy at FSE but otherwise the testes were spared.

Results: 81 patients were included in the study. In 37 patients US was performed for infertility evaluation, 17 for testis trauma or scrotal pain, 7 for palpable lesion, 9 during follow up of contralateral testis cancer and 12 for other causes. Median tumor size was 6.6mm (IQR: 5.2-10). Overall 23 of the 81 men (28.4%) presented with testicular cancer. FSE concluded in 55 cases to a benign lesion, in 21 cases a diagnosis of malignancy was retained and the last 5 cases were inconclusive. Comparing FSE and definitive diagnosis, FSE correctly identified all malignant and benign lesions except for 2 lesions. These 2 benign lesions on FSE were finally found to be malignant (1 nonseminoma and 1 intraepithelial neoplasia) on definitive diagnosis and radical orchiectomies were subsequently performed for these cases. The 5 inconclusive cases were all benign on definitive diagnosis. Overall 91.4% of FSE results were concordant with the definitive diagnosis and no radical orchiectomy was performed abusively.

Discussion and Conclusion: Intraoperative FSE is a useful and reliable method for the management of small testicular masses of the testis.

Title: **THE PACT STUDY: A PROSPECTIVE MIXED-METHODS STUDY OF PATIENT ATTITUDES TOWARDS MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING-DIRECTED PROSTATE CANCER DIAGNOSIS**

Author: JOSEPH NORRIS

Co-Author(s): ALLEN , C , GHEI , M , KASIVISVANATHAN , V , KIRKHAM , A , OLDROYD , R , WHITAKER , HC , KELLY , D , EMBERTON , M

Background: Multiparametric magnetic resonance imaging (mpMRI) affords improvement beyond the traditional approach to prostate cancer diagnosis. However, the views of men that experience this novel technology are, as yet, unexplored. The objective of the PACT (Patient ACcepTance of MRI) study was to systematically investigate men's perceptions of prostate mpMRI, using a dual-phase, mixed-methods approach.

Material and Methods: Men referred with suspected prostate cancer underwent mpMRI and were prospectively recruited from diagnostic prostate cancer clinics. In Phase I, men were invited to complete detailed questionnaires examining views around accuracy and acceptability of diagnostic strategies for suspected prostate cancer (including, mpMRI and systematic TRUS-guided biopsy). In Phase II, men were invited back to undergo semi-structured interviews to expand upon themes identified in the prior phase, in greater depth. Interviewees were selected to ensure a diverse range of backgrounds were represented (e.g. ethnicity, education, age, diagnostic-experience). Qualitative interview data were analysed thematically for areas of consensus (Braun & Clark, 2006). Ethical permission for PACT was granted by the local governance committee (Ref: 2018/19-252).

Results: In Phase I, 117 men completed the study questionnaire (Table 1). Mean age was 64-years-old (range: 38–82). Overall, men expressed favourable opinions toward prostate mpMRI (96% good/very good). High-levels of satisfaction with reported with mpMRI accuracy, and men appeared to have low levels of concern regarding non-detected disease, favouring omission of biopsy in cases of negative mpMRI. In contrast, negative/mixed views were recorded regarding satisfaction of the non-image-directed systematic TRUS-guided biopsy approach. In Phase II, twenty men returned for in-depth semi-structured interview. Thematic analysis revealed avoidance of invasive procedures, and improved diagnostic accuracy as key themes. The majority of interviewees favoured the non-invasive nature of pre-biopsy mpMRI, and the possibility of avoiding biopsy. Fear of invasion regarding prostate biopsy was informed predominantly by prior individual experience, or negative second-hand reports regarding unpleasant biopsy side-effects. Men, by and large, were happy to tolerate risk of mpMRI-invisible disease, provided follow-up measures were instigated (e.g. PSA surveillance). When biopsy was required, the majority of men greatly valued increased accuracy of MRI-guidance, however, a mixture of views were expressed regarding strategy, with some preferring MRI-targeted biopsy alone, and others favouring concomitant systematic biopsy. Finally, trust in clinicians was strongly expressed throughout all interviews, which may inform patient viewpoints and shape decision making.

Discussion and Conclusion: Patients undergoing prostate mpMRI appear to favour this diagnostic approach over traditional systematic TRUS-guided biopsy. Avoidance of invasive biopsy, and when necessary, more precise disease localisation, were highlighted as central reasons for men to prefer mpMRI.

Title: **MOLECULAR LANDSCAPE OF PROSTATE CANCER TOPOGRAPHY: OBSERVATIONS FROM THE TCGA**

Author: JOSEPH NORRIS

Co-Author(s): SATISH , P , SIMPSON , BS , FREEMAN , A , GIGANTI , F , KIRKHAM , A , ORCZYK , C , WHITAKER , HC , EMBERTON , M

Background: Each anatomical prostate zone possesses histopathologically distinct glandular and stromal architecture and it is likely that prostate tumours arising in each zone may harbor unique molecular characteristics. Here, we present a pilot study interrogating The Cancer Genome Atlas (TCGA) data, to compare differences at a clinical, genetic, epigenetic, transcriptomic and proteomic level, between prostate tumours in district topographical locations.

Material and Methods: The TCGA cohort is comprised of 500 patients with prostate cancer, who underwent multi-omic genetic profiling following surgical resection with no prior treatment. In addition to McNeal zones, we assessed differential genomic characteristics based on other topographical features. We also tested if the McNeal zone samples were derived from resulted in significant differences in terms of clinical outcome.

Results: Significant genetic differences were observed between McNeal zones, with central zone (CZ) tumours demonstrating higher clinical stage, and possessing more aggressive genetic character-istics than peripheral zone (PZ) and transition zone (TZ) tumours including copy-number gains in oncogenes such as TBL1XR1 and PIK3CA. At a transcriptomic level, TZ tumours appeared to have hallmarks of less aggressive disease.

Discussion and Conclusion: This early work suggests that prostate tumour location is potentially important prognostic feature, however, larger, long-term clinical and biological research is now required to confirm these findings.

Title: **CAN WE PREDICT LONG TERM MORTALITY WITH ELDERLY PATIENTS IN COLORECTAL CANCER OPERATIONS?**

Author: KASO ARI

Co-Author(s): CRANE , J , BORUCKI , J , NUNNEY , I , IQBAL , M , HERNON , J , STEARNS , A

Background: Frailty is a significant factor in surgical decision-making as it can predict surgical outcomes, but accurately pre-operational assessments of frailty in predicting postoperative outcomes are still questionable. The Modified Frailty Index (m-FI) is an 11-point simple, objective scoring tool derived from the existing NSQIP pre-operative variables. Its usefulness has been observed across different surgical specialties in predicting postoperative morbidity and mortality. This study investigates for the presence of an association with the m-FI scoring tool against 2-year mortality in elderly post-operative colorectal cancer patients.

Material and Methods: This retrospective cohort study utilized data from a primary database containing information on 3051 patients with previous colorectal cancer operations. After applying age exclusion criteria, 605 patients were further screened and 337 were included in the final study population. Baseline demographic and clinical information was collected, and the m-FI scores were categorized into less than 3 and more than or equal to 3. Survival analysis

was performed to evaluate the association between m-FI score and 2-year mortality, adjusting for confounders.

Results: The overall 2-year survival rate was 84.8%. Patients with an m-FI score of less than 3 had a 2-year survival rate of 85.5% and median survival time of 93 months, while those with an m-FI score of 3 or greater had a 2-year survival rate of 74% and median survival time of 64 months. A log-rank test showed a statistically significant difference between the two survival curves (p=0.0853). After adjusting for confounders, an m-FI score of 3 or greater was associated with increased odds of 2-year mortality (OR=2.5, 95% CI: 1.3-4.8, p=0.0197) and a hazard ratio of 1.5 (95% CI: 1.00-2.27, p=0.0478) compared to an m-FI score of less than 3.

Discussion and Conclusion: The modified frailty index (m-FI) has been proposed as a simple tool to assess frailty and predict adverse outcomes in surgical patients. Multiple studies have demonstrated its association around short term mortality, albeit a strong link. In this study, we investigated the m-FI as an accurate predictor of 2-year mortality in elderly patients undergoing colorectal cancer surgery. Patients with an m-FI score of less than 3 had only approximately 11% increase in 2-year survival rate compared to those with a score of more than or equal 3. The m-FI tool can be considered as an adjunct around the decision-making process to predict long term post-operative mortality, alongside other scoring tools and the surgeon's prior experience with overall clinical makeup of the patient to be operated on.

Title: **LYNCH SYNDROME – DO WE REALLY SCREEN FOR IT?**

Author: KASO ARI

Co-Author(s): IQBAL , M , LEE , A , SHAIKH , I

Background: Lynch syndrome (LS) is an inherited condition that predisposes individuals to colorectal cancer (CRC) due to germline mutations in mismatch repair (MMR) genes. Although LS is responsible for up to 5% of all CRC cases, only a small fraction of individuals with LS are diagnosed. The 2017 NICE guidelines recommend universal screening for LS using immunohistochemistry (IHC) for MMR proteins or microsatellite instability (MSI) testing in all newly diagnosed CRC cases. The aim of this study was to evaluate compliance with NICE guidelines and increase awareness of LS screening.

Material and Methods: A retrospective chart review was conducted on all patients diagnosed with colorectal cancer between January 2019 and December 2019 across two major CRC tertiary centres within the region to identify what proportion of patients meet the NICE guideline criteria for universal screening and referral to geneticists. A re-audit was carried out of charts between January 2022 and December 2022 once IHC with further molecular testing and appropriate genetics referral was mandated by the department.
To meet the standards, patients with MMR deficiency on IHC testing required further molecular and then a referral to the geneticist if unable to rule out LS from the testing.

Results: A total of 629 patient's reports were analysed over both audit cycles. During the first audit cycle, 361 colorectal adenocarcinoma specimen reports were reviewed. Only 5.8% of patients were appropriately tested with immunohistochemistry. Of these, approximately 60% required further molecular testing and genetics referral. Of this cohort, only one patient was referred to the geneticist. During the second audit cycle, once universal screening and referral guidelines were implemented, 268 specimen reports were analysed. Of these patients, 205 underwent IHC testing, of which 45 patients (22%) demonstrated mismatch repair deficiency. Subsequently, 39 of these patients underwent further molecular testing, and ultimately 10 patients required a referral for genetics assessment.

Discussion and Conclusion: The findings of this study indicate that compliance with the 2017 NICE guidelines for universal screening for LS in CRC patients had improved once the guidelines were mandatory, however we still did not fully meet the standards. The estimated incidence of LS is 2-5%. This means the expected pick-up rate from our practice should be 6 – 15 patients from our cohort of approximately 300 patients annually with CRC. As a trust, we improved our screening rate from 5.8% to 77%. However, we did not meet the 100% mark from IHC testing, and 13% of patients with MMR deficiency were not appropriately screened further for LS. This demonstrates that a significant proportion of patients require further molecular testing and genetics referral after initial IHC testing, which can be resource-intensive and time-consuming. We recommend promoting a standardised referrals pathway in clinics run by CRC specialists to ensure all patients with abnormal immunohistochemistry testing are appropriately considered for genetics analysis.

Title: **SENDING PATIENTS HOME WITH A NASAL PACK DURING COVID 19 TO REDUCE INPATIENT STAY - CAN WE STILL DO THIS NOW?**

Author: KASO ARI

Co-Author(s): COLLINS , R

Background: Epistaxis is a common presentation to ENT departments with many patients requiring no further intervention beyond simple nasal packing. Due to the involvement of the upper respiratory tract, the management of epistaxis posed an increased risk of Sars-CoV-2 transmission. New guidelines were introduced in March 2020 allowing certain patients to be discharged home with nasal packs to reduce the risk of inpatient transmission. The aim of this audit was to review the success of the "Pack and Home" criteria during the COVID-19 pandemic and its potential for future use.

Material and Methods: This retrospective analysis reviewed the pre and post-implementation of the new guidelines. The study population consisted of patients admitted to A&E with epistaxis requiring nasal packing. Compliance with the "Pack and Home" criteria, length of inpatient admission, and re-bleeding rates were recorded.

Results: Out of the 723 patients admitted to A&E with epistaxis, 131 patients required nasal packing. Of these, 72 (55%) and 59 (45%) patients were admitted in the first and second loop

respectively. The study found no significant difference in the clinical characteristics of patients in loop one and loop two. However, patients in loop one was more likely to be on anticoagulants and had a history of atrial fibrillation. In loop two, 35.6% of patients were suitable for outpatient care under the "Pack and Home" criteria, with 94.9% being successfully discharged. Three patients represented within 48 hours of discharge, all of whom were on the "Pack and Home" pathway.

Discussion and Conclusion: The outbreak of COVID-19 in 2019 created numerous challenges for healthcare systems worldwide. One significant challenge was the management of patients with epistaxis, a condition commonly managed in ENT departments. The use of nasal packs and other interventions poses a high risk of Sars-CoV-2 transmission due to the involvement of the upper respiratory tract. As a result, new guidelines were introduced in March 2020, allowing selected patients with epistaxis to be discharged home with nasal packs (Pack and Home criteria). Our results indicate that 35.6% of patients in loop two were suitable for outpatient care under the Pack and Home criteria, and 94.9% of them were successfully discharged. These findings suggest that the Pack and Home criteria could be a viable option for selected patients with epistaxis, particularly during the COVID-19 pandemic.
In conclusion, our study suggests that the Pack and Home criteria are a feasible option for selected patients with epistaxis during the COVID-19 pandemic. However, it is essential to select patients carefully, provide clear discharge instructions and close monitoring to avoid re-bleeding and potential adverse outcomes. Further studies are required to evaluate the criteria's effectiveness in reducing hospital admissions and healthcare costs

Title: **EXPERIENCE USING THERMOGRAPHY FOR EVALUATION OF HEPATIC BLOOD FLOW IN HEPATECTOMY.**

Author: KEN TSUBOI

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Background: In liver resection, visualization of the demarcation line of the blood flow is important. But only the surface of the liver can be visualized. Recently the intraoperative ICG fluorescence method, which administers ICG intravenously and uses an ICG camera, has been used to recognize the blood flow in the liver parenchyma. It is useful for intraoperative navigation in hepatectomy. However, it has the risk of administration of Iodine-containing drug and is not able to evaluate repeatedly. Therefore, we devised a new technique using thermography to evaluate liver blood flow minimally invasive and repeatedly.

Material and Methods: We assume the hepatic blood flow is consisted with the temperature, and used the infrared thermography camera(FLIR T530). The subjects were patients who underwent open systematic liver resection at our hospital. Preoperatively, we constructed the 3D intrahepatic blood vessels from contrast-enhanced CT, and planned liver resection line. We used the Pringle technique to reduce bleeding in hepatectomy. At first, we clamped the

hepatoduodenal ligament and confirmed whether the decreased hepatic blood flow could detect the change of liver temperature using thermography. We clamped the Glisson's sheath and observed whether the demarcation line was coincided with visual and thermography. We resected liver parenchyma along the demarcation line. After hepatectomy, we recorded thermographic images whether the remaining liver parenchyma had blood flow failure or not. Postoperatively with contrast-enhanced CT, we examined that the hepatectomy had been performed as planned, and investigated whether the blood flow failure in the remaining liver was consistent with thermography.

Results: When Glisson's sheath was temporarily clamped, the liver surface demarcation line of the hepatic ischemic area and the hepatic remaining area coincided with visual observation and thermography. Therefore, Glisson's sheath could be resected safely. In the liver parenchyma, the difference between the resected liver and the remaining liver was difficult to visually recognize, but was clearly identified using thermography. The decreased blood flow in the remaining liver was consistent with the change in the liver temperature. In addition, postoperative contrast-enhanced CT showed the decreased blood flow at the same area.

Discussion and Conclusion: The visible demarcation line became clearer using thermography. The infrared thermography camera could visualize blood flow in the liver parenchyma, and is a good indicator of the range of liver resection. It may also visualize the hepatic ischemia after resection. Thermography in hepatectomy can be a simple, repeatedly and minimally invasive evaluation of hepatic blood flow, and may be a useful intraoperative navigation tool.

Title: **PREVENTIVE EFFECT OF ADIPOSE-DERIVED MESENCHYMAL STEM/STROMAL CELL LINE (ASCL) SHEETS FOR RAT LIVER ISCHEMIA-REPERFUSION INJURY MODEL**

Author: KITA HIDENORI

Co-Author(s): OBARA , H , YUMIKO MATSUBARA , Y , YUKAKO ONO-URUGA , Y , KAZUMASA FUKUDA , K , KENTARO MATSUBARA , K , YUKO KITAGAWA , Y

Background: Ischemia-reperfusion injury (IRI) is a serious complication of liver transplantation, and reducing IRI is considered an important issue in liver transplantation. Recently, mesenchymal stem cells (MSCs) have been shown to inhibit apoptosis in liver IRI. In this study, the efficacy of Adipose-Derived Mesenchymal Stem/Stromal Cell Line (ASCL), a cell line of human adipose tissue-derived MSCs originally developed at our institution, in reducing IRI was verified. Our past studies have shown that ASCL inhibits hypoxic injury in vitro. In addition, when ASCL was administered to the spleen of rats in a rat liver IRI model, AST and ALT in the blood tended to decrease in the ASCL group.

Material and Methods: We hypothesized that by applying ASCL as a sheet, the extracellular matrix of ASCL would bind to the tissue and settle locally, making it more effective than systemic administration and enhancing the anti-inflammatory effect. In addition, the application of ASCL sheets is simpler than intrasplenicen administration, making it easier to apply in the clinic situation. The purpose of this study was to verify the efficacy of ASCL cell

sheets in inhibiting injury in rat IRI model using ASCL sheets. Cell sheets were created by using temperature-responsive culture dishes. The surface of the temperature-responsive culture dish is made of a temperature-responsive polymer, which changes from hydrophobic to hydrophilic when placed in a low-temperature environment, allowing cells to be released from the dish. ASCL were expanded in this dish, cultured and then subjected to low-temperature treatment to create cell sheets. 40-60 minutes of low-temperature treatment resulted in successful cell-sheeting. The number of cells used was prepared at 2.0 x 105 cells per sheet. Cell sheets are applied directly to the rat liver on the capsule, followed by clamping of the hepatic left lobe Gleason for 60 or 90 minutes and reperfusion. Sheets were overlaid at the site of application and stacked in situ, and blood samples and liver tissue were collected. ASCL cells were observed to be stacked and established in the liver tissue to which the cell sheets were attached.

Results: In the 90-minute ischemia-reperfusion model, the 160-hour survival rate of the control group (n=5) was 40%, while all patients in the ASCL sheets group (n=6) were alive. This result was comparable to survival rates in previous studies. In the 60-minute ischemia-reperfusion model, AST and ALT of at 3 hours after the ischemia-reperfusion injury was 734.5 (±532.5) (U/L) and ALT was 253 (±185.0) (U/L), respectively. These were significantly lower in the ASCL sheets group than those in the intrasplenicen administration group (AST; p=0.01, ALT; p=0.001). Similarly, AST and ALT of at 24 hours after the ischemia-reperfusion injury was 384 (±340.6) U/Land ALT was 200.2 (±241.2) U/L. These results showed that the effect of ASCL sheets group was noninferior to that of the intrasplenic injection group for ischemia/reperfusion injury model.

Discussion and Conclusion: This indicates that ASCL sheets are effective in early IRI. The use of ASCL sheets was found to be as effective as or more effective than intrasplenic administration in suppressing hepatic ischemia-eperfusion injury.

Title: **CMC1 JOINT ARTHROPLASTY: SO MANY IMPLANTED, SO FEW DOCUMENTED.**

Author: KONSTANTINOS VAKALOPOULOS

Co-Author(s): PAPALOIZOS , MP

Background: We have been implanting CMC1 joint prostheses since 1997. Since then, various implants have been proposed and many discontinued. With the development of dual-mobility protheses, interest has grown and more and more surgeons are choosing CMC1 prosthesis instead of trapeziectomy.

Material and Methods: A review of the published literature since 1997 was performed.

Results: More than 100,000 implants have been implanted until now. Less than 5,000 have been documented. There is a clear evolution towards implant arthroplasty, and numbers have been steadily growing since 2011. Trapeziectomy remains stable over the years.

Discussion and Conclusion: A very few amount of qualitative studies exist documenting CMC1 joint arthroplasty. This is a surprising fact when taking into account the number of implants performed in recent years. New studies seem promising. We feel that there is a need for implant registries and high quality research including patient reported outcomes and a systematic consensus on endpoints.

Title: **MECHANISMS OF LIVER REGENERATION IN A RAT MODEL OF LIVER VENOUS DEPRIVATION TECHNIQUE AND MEASUREMENT OF HYPOXIA**

Author: LAZARE SOMMIER

Co-Author(s): None

Background: Pre-operative portal embolization is the gold standard in liver hypertrophy procedures, aiming to reduce post-operative mortality after major hepatectomy caused by acute hepatic failure. The one-stage Liver Venous Deprivation (LVD) technique (combined portal and sushepatic embolization) is a recent procedure performed in humans, with greater hypertrophy of future remnant liver than portal embolization. The underlying mechanisms remain not elucidated. It therefore represents a new model for understanding liver regeneration.
From arterio-portal balance inflow in liver sinusoid, we know that an increase in portal inflow results in a lowering of arterial blood flow. This situation may cause hypoxia in the future remnant liver after portal embolization/LVD, and represents one of the purpose of this first approach.
The primary objective of this project is to validate an experimental model of liver venous deprivation technique in rats. The secondary objective is to investigate the presence of hypoxia in the LVD technique

Material and Methods: The first part of this project consists in developing a surgical model of LVD in male rats (n=30). We are also developing a scannographic method for liver volumetry and a method of measuring hypoxia by 18Fluoromisonidazole PET-CT.
The second part of this project consists in validation of the experimental animal model and investigation of the presence of hypoxia (n=34) in growing and embolized liver
Three groups:
1) Portal embolization at D0, sacrifice at D7, (n=13)
2) Venous deprivation of the liver at D0, sacrifice at D7, (n=10)
3) Control group: Hepatic pedicle dissection at D0, sacrifice at D7, (n=11)
The primary endpoint was the measurement of hypertrophy at D7 by CT scan. Measurement of hypoxia by 18Fluoromisonidazole PET-CT is performed at H8 and H30 post procedure.

Results: The LVD experimental model resulted in 55% hypertrophy of the future remnant liver, significantly greater than the control group (55% vs 2%, $p<0.001$). This model does not provide higher hypertrophy than the portal ligation model (55%vs 59%, $p=0.492$) in rat at day 7.

Analysis of 18Fluoromisonidazole PET-CT scans revealed higher hypoxia in future remnant liver in the LVD group (n=2) than in the Portal Ligation group (n=4) at 8 hours. Differences decreased sharply at 30 hours post-procedure.

Discussion and Conclusion: The rat model of liver venous deprivation technique is a new model of liver hypertrophy that can be used to investigate liver regeneration and seems to implicate hypoxia of the future remnant liver.

Title: **IMPROVING THE BURDEN OF SPINAL TRAUMA ON ORTHOPAEDIC SERVICES AT A DISTRICT GENERAL HOSPITAL**

Author: LUKE THORNTON

Co-Author(s): MCALLISTER , R , BEATTIE , S , FARRAR , G

Background: Spinal trauma is a frequent issue referred to the on-call team at district general hospitals in the UK and can be associated with significant patient length of stay and cost. As part of routine management, discussion with a tertiary spinal specialist centre is often performed.

Material and Methods: Our primary aim was to develop a pathway to improve efficiency and the patient experience at our district general hospital. Secondary aims included reducing the number of tertiary referrals, local decision making and potential cost saving measures. We reviewed all spinal trauma admissions over a 12 month period (Sept 2020-August 2021) at Leighton Hospital, Cheshire, UK.

Results: 29 patients were admitted for cervical spine trauma and 133 patients were admitted with thoracolumbar trauma. 94 of all patients were referred to the tertiary spinal unit. 116 patients with thoracolumbar injuries had A0/A1 (stable) fractures. In this subset of patients, further imaging with MRI scan was recommended in 44 patients. No change to management resulted following MRI in any patient with a A0/A1 fracture undergoing further imaging. Overall, median length of stay was 5 days.

D**iscussion and Conclusion**: Spinal trauma is a common orthopaedic admission at our unit. Approximately 90% of thoracolumbar fractures were stable compression type fractures in our study. A large proportion of cases were discussed with the tertiary unit where local management may have been more appropriate. MRI did not change management and delayed decision making by 36 hours. An in-house pathway with clear guidelines of when tertiary referral and/or further imaging has now been developed. A cost saving analysis demonstrated a potential saving of £200,000-300,000.

Title: **EVALUATION OF EFFECTIVENESS OF TARGETED PHOTODYNAMIC THERAPY USING A VECTORIZED PHOTOSENSITIZER COUPLED TO FOLIC ACID IN AN OVARIAN CANCER MODEL**

Author: MARGAUX MERLIER

Co-Author(s): BOIDIN , L , VIGNON , AS , ZIANE , L , MOINARD , M , FROCHOT , C , MORALES , O , KERBAGE , Y , DELHEM , N

Background: Ovarian cancer (OC) is one of the most defying diseases in gynecologic oncology. Treatment is based on cytoreductive surgery, chemotherapy and targeted therapy. However, recurrences occur in 70% of cases. The existence of residual microscopic disease after surgery remains the hypothesis explaining this high recurrence rate. Photodynamic therapy (PDT) appears to be a promising candidate for the treatment of these lesions. It would consist of injecting a photosensitizing molecule (PS) into the patient before surgery and then illuminating the peritoneal cavity after debulking procedure, at a specific wavelength for PS excitation. This oxygen-dependent treatment results in microscopic tumor cell death through the formation of oxygen free radicals. The first challenge of PDT is to have a specific PS in order to target micro metastases while preserving the surrounding healthy tissue. Folate Receptor α (FRα) is a cell surface receptor overexpressed in OC. Thus, we propose a targeted-PDT using a vectorized Photosensitizer coupled with folic acid (PSAF) in order to target peritoneal metastasis. Secondly, adequate illumination of the peritoneal cavity is essential to carry out relevant PDT. Such devices have been developed and here, we study the potential effect of the operating lamp to induce PDT.

Material and Methods: Our in vitro study was performed using OC cell lines (OVCAR3 and SKOV3) which showed a high expression of FRα, comparing to fibrosarcoma cells (HT1080) which underexpresses FRα. This expression was validated by immunofluorescence (confocal microscopy) and the specific incorporation of the PS was measured using fluorometric assays. The safety of this PS and its efficiency to induce OC cell death after illumination was evaluated using mitochondrial metabolism measurement (CellTiter-Glo®, Promega). Furthermore, we evaluated quantity and homogeneity of the delivered illumination of operating lamp during 30 minutes thanks to a fantom of peritoneal cavity and an optical measuring equipment. The light dose was extrapolated to 4 hours, which is the average duration of surgery.

Results: Confocal microscopy revealed a greater semi-quantification of the FRα signal for OVCAR3 and then SKOV3 compared to HT1080, validating the overexpression of this receptor by OC cells. Fluorimetry showed a maximal internalization at 24h with 9uM of PS for the OC cell lines. This internalization was higher for OC cell lines compared to the HT1080 one, validating the specificity of PSAF for OC cells. After PDT-PSAF, we found an effective cytotoxic effect dependent of the PS concentration, the light dose as well as the FRα expression. Concerning the operating lamp, a light dose of 5.72 x 10 -5 J (min: 7.88x10-6 J, max: 1.33x10-4 J) was observed, corresponding to a significant dose of light which could potentially emphase the PDT effect.

Discussion and Conclusion: Our work has shown that PDT-PSAF could be effective for OC treatment. Even if the illumination of the whole cavity is complex, devices have been previously approved and first feasibility test will be led, in the lab, on pig in the following

months. Besides, since scialytic lamp delivering a significant dose of light, we have now to determinate if it could be considered as detrimental or beneficial to PDT.

Title: **MOUSE MODEL OF HINDLIMB ISCHEMIA : TIPS AND TRICKS WE LEARNED**

Author: MARIE JUNGLING

Co-Author(s): MENASCHE , P

Background: Peripheral artery disease (PAD) is characterized by progressive obstruction of the arteries. The resulting chronic ischemia can lead to amputation. This is a public health problem that is getting worse over the years.
We studied a model of mice with hindlimb ischemia to evaluate the pro-angiogenic potential of extracellular vesicles (EV) from human Wharton's Jelly mesenchymal stem cells (MSC). We evaluated two modes of administration: occasional intramuscular injection and continuous diffusion by subcutaneous pump.
We present our study, emphasizing the surgical tips and tricks that we have learned during our experience.

Material and Methods: We chose 10-12 week-old male BALB/c mice because of their limited regeneration potential compared to other species.
We performed a ligation of the common femoral artery (CFA) and experimented with two techniques to induce hindlimb ischemia: one above the LCFA (“high-located ligation” ; n = 27), one between the LCFA and the PCFA (“low-located ligation” ; n = 46). We worked with an USB Digital Microscope BYSAMEYEE and performed a SURGIPRO 8-0 ligation.
A laser-doppler confirmed the ischemia at day 2, the result was interpreted in comparison with the contralateral healthy hindlimb.
The treatment was administrated at day 2: intramuscular injection of PBS, or intramuscular injection of MSC-EV or subcutaneous implantation of an ALZET 1003D osmotic pump charged with MSC-EV. Control by laser-doppler was repeated at day 7, day 14 and day 21.
At day 21, the mice were sacrificed for a final angiography and the gastrocnemius muscle was removed for histological analysis.

Results: The “high-located ligation” technique was complicated by the early sacrifice of 10% of the mice due to excessive ischemia.
The “low-located ligation” technique induced severe ischemia with an average perfusion index of 8.9% at day 2. In the control group, the average perfusion index was 28.5% ± 8.5 at day 7, 49.4% ± 21.5 at day 14 and 56.9% ± 15.9 at day 21, indicating a limited spontaneous recovery.

Discussion and Conclusion: The “low-located ligation” femoral artery induces stable hindlimb ischemia. However, this is a model of acute ischemia in young and healthy mice, whereas PAD is a chronic pathology that occurs in patients with multiple comorbidities.
With a rapid and reproducible surgical technique, this experimental model constitutes an acceptable first step for the study of pro-angiogenic therapies.

Title: **RENAL EVOLUTION 10 YEARS AFTER ISLET TRANSPLANTATION IN TYPE 1 DIABETES**

Author: MARIE-CHRISTINE VANTYGHEM

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Background: Few studies have evaluated the impact of islet transplantation on long-term complications of type 1 diabetes (T1D). The Objective of the study was to evaluate the nephrological complications in a cohort of T1D patients ten years after evaluation for islet transplantation, comparing those who underwent islet transplantation versus those who did not.

Material and Methods: Monocentric study Pronoceldiab (NCT02627690) conducted from 2014 to 2021 in a cohort of T1D patients who were evaluated for islet transplantation, comparing glomerular filtration rate (GFR) decline between the "transplant" group (using the Edmonton protocol) and the "control" group receiving insulin therapy.

Results: This cohort consisted of 86 T1D patients, of which 34/86 did not receive islet transplantation and were not included in Pronoceldiab: 13 patients were initially excluded due to contraindications for transplantation (6 with proteinuria, 3 with residual C-peptide, 2 with psychological disorders, 1 with ischemic heart disease, 1 with obesity).
21 patients were excluded due to a lack of reevaluation at 10 years (3 deaths, 3 kidney-pancreas transplants, 8 unreachable, 7 refusals).
16/86 T1D patients who did not receive transplantation were included in Pronoceldiab in the "control" group. Among the 36 patients who received islet transplantation alone, 17 with a follow-up of 10±2 years were included in PRONOCELDIAB (TIL).
At baseline (T0), sex ratio, age, diabetes duration, HbA1c, creatinine, GFR, and microalbuminuria did not differ between the transplant and control groups. However, the body mass index (BMI) was higher in the control group. At 10±2 years, the decline in GFR, GFR level, and microalbuminuria were similar between the "transplant" and "control" groups, except for creatinine levels, which differed. The decline in GFR among the transplant recipients was positively influenced by the duration of insulin independence and negatively influenced by age, overweight/obesity, and initially poor renal function. Mortality appeared to be higher in the control group (≥3/50) compared to the transplant group (1/36).

Discussion and Conclusion: This study shows no difference in GFR deterioration at 10 years between the "transplant" and "control" groups receiving insulin therapy, despite the use of immunosuppressive treatment in the transplant recipients.

Title: **MOBILITY ANALYSIS OF A POSTERIOR SACROSPINOUS LIGAMENT FIXATION USING A FINITE ELEMENT MODEL OF THE PELVIC SYSTEM**

Author: MARINE LALLEMANT

Co-Author(s): LALLEMANT , M , ARTEAGA SHIMOJYO , A , MAYEUR , O , RAMANAH , R , RUBOD , C , COSSON , M

Background: The aim of our study was to analyze the influence of a right and/or left sacrospinous ligament fixation and the distance between the anchorage area and the ischial spine on the pelvic organ mobility using a generic and a patient-specific Finite Element model (FEM) of the female pelvic system during posterior sacrospinous ligament fixation (SSF).

Material and Methods: Firstly, we used a generic 3D FEM of the female pelvic system previously made by our team that allowed us to simulate the mobility of the pelvic system.
To create a patient-specific 3D FEM of the female pelvic system, we used a preoperative dynamic pelvic MRI of a 68 years old woman with a symptomatic stage III apical prolapse and cystocele.
With these 2 models, SSF was implemented as 2 sutures between the apical point of the vagina and the sacrospinous ligament. Pelvic organ mobilities were analyzed using the same pubococcygeal method.
A right and/or left SSF and different distances between the anchorage area and the ischial spine (1 cm, 2 cm and 3 cm.) were compared. Outcomes measures were the displacement during maximal strain compared to rest of the anterior reference point (Ba), the apical reference point (C), the posterior reference point (Bp) of pelvic organ mobilities.

Results: Overall, pelvic organ mobility decreased regardless of surgical technique and model.
According to the generic model, C point was displaced by 14.1 mm, 14.1mm and 11.5 mm and Ba point by 12.7 mm, 12.7mm and 12 mm after left, right and bilateral SSF, respectively. C point was displaced by 15.4 mm, 14.6 mm and 11.6 mm and Ba point by 12.5 mm, 13.1 mm and 13.1mm when the suture on the sacrospinous ligament was performed at 1 cm, 2 cm and 3 cm from the ischial spine respectively.
During the construction of the patient-specific model and before the surgery simulation, an significative and asymmetric organ displacement of the bladder was observed on the x-axis. Therefore, the displacement of Ba point could not be analyzed. C point was displaced by 4.8 mm, 3.29 mm and 2.28 mm and Bp point by 5.35 mm, 4.08 mm and 3.39 mm after left, right and bilateral SSF respectively. C point was displaced by 4.80 mm, 4.75 mm and 4.85 mm and Bp point by 5.35 mm, 5.30 mm and 5.38 mm when the suture on the left sacrospinous ligament was performed at 1 cm, 2 cm and 3 cm from the ischial spine, respectively. Similarly, Bp et C points were similarly displaced when the suture on the right or both sacrospinous ligament was performed at 1 cm, 2 cm and 3 cm from the ischial spine.

Discussion and Conclusion: The generic model could be useful for predicting the anatomical outcome of posterior SSF. Currently, the patient-specific model does not yet allow it. But il seems to identify excessive mobility of the pelvic floor organs. With the generic model, the

apex appears to be less mobile in bilateral SFF. The anchorage area on the sacrospinous ligament seems to have little effect on pelvic organ mobilities.

Title: **COMPARISON OF FIRST VERSUS SECOND LINE SACROCOLPOPEXIES IN TERMS OF MORBIDITY AND MID-TERM EFFICACY**

Author: MARINE LALLEMANT

Co-Author(s): LALLEMANT , M , GROB , A , PUYRAVEAU , M , PERIK , M , ALHAFIDH , A , COSSON , M , RAMANAH , R

Background: In Europe there is a disparity in the surgical management of pelvic organ prolapse (POP). According to Haya et al., sacrocolpopexy for apical prolapse was employed 13 times more frequently in France (66%) than in Sweden (5%). In France, minimally invasive sacrocolpopexy is usually proposed as a first-line treatment after evaluation of the risk-benefit ratio of performing an abdominal surgery. On the contrary, in the Netherlands, sacrocolpopexy is performed as a second line procedure after failure of a previous vaginal POP surgery (e.g. sacrospinous ligament fixation, colporrhaphy, the Manchester Fothergill procedure). In the literature, there is no study comparing sacrocolpopexy as either first- or second-line surgical management of POP. The aim of this study was to compare POP recurrence and morbidity between first and second line sacrocolpopexies.

Material and Methods: We conducted a retrospective chart review of all laparoscopic or robotic sacrocolpopexies for POP-Q stage ≥ 2 POP, with or without a history of previous prolapse repair, performed with a similar technique between January 2012 and June 2019 in 3 European Gynecologic Surgery Departments. Patients were separated into two groups: first line sacrocolpopexy (FLS) and second line sacrocolpopexy (SLS). Each patient from the SLS group was age-matched with a patient from the FLS group. The primary outcome measure was reoperation procedures for recurrent POP defined as a symptomatic POP-Q stage ≥ 2 POP in at least one vaginal compartment. Secondary outcomes included operative time, intraoperative organ trauma, intraoperative blood loss, postoperative POP recurrence (operated on or not), global reoperation and mesh-related complications.

Results: During this period, 332 patients were included. After age-matching, 170 patients were analyzed: 85 patients in the FLS and SLS groups, respectively. After a mean follow-up of 3 years, there was no statistically significant difference between the two groups in terms of recurrent POP (9.4% versus 10.6%, p=0.7), recurrent POP reoperation (3.5% versus 5.9% p=0.7), mesh-related reoperation (0% versus 2.4%, p=0.5), global reoperation (3.5 versus 8.2%, p=0.3), operative time (198±67 minutes versus 193 ±60 minutes, p=0.5), intraoperative complications such as organ injury (4.7% versus 7.1%, p=0.7) and blood loss > 500 mL (2.4% versus 0%, p=0.5).

Discussion and Conclusion: Patients who underwent a first or a second line sacrocolpopexy seemed to have similar rates of prolapse recurrence and complications.

Title: **BIOMECHANICAL PROPERTIES OF EACH LAYER OF PORCINE PERINEAL TISSUES**

Author: MARINE LALLEMANT

Co-Author(s): LALLEMANT , M , KADIAKHE , T , CHAMBERT , J , LEJEUNE , A , RAMANAH , R , MOTTET , N , JACQUET , E

Background: Data concerning the mechanical properties of the perineum and fetal stresses during delivery are very limited. They result essentially from numerical models of the distension of the levator ani muscles. During childbirth, the morphological and dynamic adaptation of the perineum to the fetal presentation depends on its resistance to the stresses induced by the presentation. Under the compressive efforts induced by the presentation, the perineum becomes thinner until sometimes it tears. Biomechanical parameters are necessary to understand perineal tears. However, in-vivo experimentations raise ethical issues.
The aim of the study was to describe the biomechanical properties of each perineal tissue layer collected from sows in order to better understand perineal tears during childbirth.

Material and Methods: Perineal tissues of fresh dead sow from local slaughterhouse waste were dissected. One sample was obtained from the skin, the vagina, the external anal sphincter (EAS), the internal anal sphincter (IAS) and anal mucosa. They were tested in quasi-static uniaxial tension using the testing machine Mach-1® (Biomomentum Inc, Canada). The tests were performed in the general fiber direction until failure at a displacement velocity of 0.1 mm.s-1 and at a constant temperature of 21°C. Stress-stretch curves of each perineal tissue before the first damage for each sow were obtained. Non-linear elastic behavior of these tissues are observed and modeled by hyperelastic laws described by three coefficients : C1, C2, and C3. These coefficients were identified by least mean squares method from experimental curves (Yeoh model and Martins model). Only C1-coefficients were analyzed because of its meaning (initial slope of stress-stretch curve). Pearson correlation coefficient was calculated to measure the correlation between C1-coefficient and the duration between the first microfailure and the complete rupture for each tissue. Pearson correlation was computed between C1-coefficient and the number of micro-failures before complete rupture for each tissue.

Results: Ten samples of each layer were analyzed. Mean values of C1-coefficient and corresponding standard deviations were 37 ± 16 kPa, 200 ± 97 kPa, 28 ± 18 kPa, 18 ± 14 kPa and 138 ± 29 kPa for the perineal skin, the vagina, the EAS, the IAS and the anal mucosa respectively. According to this same sample order, the first microfailure appeared at least at 31%, 26%, 49%, 53% and 21% of strain. No correlation was found between C1-coefficient and the duration between the first microfailure and the complete rupture of each tissue ($p>0.05$) or the number of micro-failures before complete rupture of each tissue ($p> 0.05$).

Discussion and Conclusion: In this population of fresh dead sow, the vagina was the stiffest tissue. The anal mucosa was the less extensible tissue. The IAS and EAS were the more extensible and the less stiff. But this analysis did not consider the biomechanical properties of contracted muscles. In the future, it would be interesting to study the viscoelasticity.

Title: **CONSERVATIVE MANAGEMENT VERSUS SYSTEMATIC SUTURE OF ISOLATED VAGINAL OR FIRST-DEGREE PERINEAL TEARS AFTER DELIVERY: A PRELIMINARY RANDOMIZED EFFICACY TRIAL**

Author: MARINE LALLEMANT

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Background: The objective of this study was to assess the preliminary efficacy and safety of conservative management compared with systematic suture in isolated vaginal or first-degree perineal tears after birth.

Material and Methods: We conducted a preliminary efficacy, open-label, randomized, controlled and prospective trial. This study implemented Simon's 2-step plan (interim analysis and final analysis) to test the success rate of the digital compression strategy group. Primiparous women aged ≥ 18 years with isolated vaginal or first-degree perineal tears after spontaneous vaginal birth of a cephalic presentating term (≥ 37 weeks) neonate were randomly allocated to the conservative management (CM) group (digital compression if bleeding followed by suture if persistent bleeding) or a systematic suture (SS) group. The primary outcome was the success of the intervention 10 days after delivery, defined by pain as evaluated using a visual analog scale < 3, satisfactory healing defined by a REEDA score ≤ 2 and no bleeding or infection. Sexual well-being was assessed at two and six months postpartum.

Results: Among 861/2,209 eligible women, 143 consenting women with a superficial perineal tear were randomized: 72 in the systematic suture group and 71 in the conservative management group. Success rate was 87.8% (90% CI [70.5-93.54]) (42/55) in the systematic suture group versus 90% (90% CI [78.3-93.8]) (53/61) in the conservative management group. The REEDA score was significantly higher in the systematic suture group (1.4 versus 0.9; p=0.036). Perineal pain was significantly higher at day one in the systematic suture group (2.38 vs 1.69; p=0.034). For the Female Sexual Functional Index score, no significant difference was found between the two groups at inclusion or at 2 and 6 months postpartum.

Discussion and Conclusion: Conservative management of superficial perineal tears shows an efficacy rate ≥ 90%. Women in the conservative management group had less pain at the first-day follow-up and lower REEDA scores at the 10th-day follow-up.

Title: **PROGNOSTIC INDICATORS FOR DISEASE-FREE AND OVERALL SURVIVAL AFTER SURGICAL RESECTION OF PANCREATIC DUCTAL ADENOCARCINOMA**

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Background: Pancreatic ductal adenocarcinoma (PDAC) is associated with poor prognosis despite potentially curative surgery and chemotherapy. We aimed to investigate easily accessible clinico-pathological factors associated with survival in patients who underwent curative resection for PDAC.

Material and Methods: 141 patients underwent surgical resection for PDAC between 2015 and 2020 in a single institute. Univariate and multivariate cox proportional hazard models were used to identify prognostic factors for disease-free survival (DFS) and overall-survival (OS).

Results: In our cohort, the median age was 69, with 66 females and 75 males. The follow up was 1-83 months. The median DFS was 14.4 months, and the median OS was 20.8 months. Univariate analysis showed CA19-9, Neutrophil-Lymphocyte Ratio (NLR), CRP/Albumin ratio, resection-margin status, lymph-node involvement, and chemotherapy incompletion were significantly associated with poor DFS and OS. Multivariate analysis revealed that CA19-9 (Hazard ratio [HR]= 2.999; 95% Confidence Interval [CI] 1.518- 5.857, P<0.001), CRP/Albumin ratio (HR=2.644; 95% CI 1.305- 5.458, P<0.007), lymph-node involvement (HR= 3.695; 95% CI 1.52- 10.60; P<0.007) and chemotherapy incompletion (HR= 0.294; 95% CI 0.1364- 0.6109; P<0.01) were independently associated with worse OS. Additional multivariate analysis showed CA19-9 (P<0.006), CRP/Albumin ratio (P<0.006), lymph-node involvement (P<0.003) and chemotherapy incompletion (P<0.0002) were independent predictors for reduced DFS.

Discussion and Conclusion: Higher CA19-9, CRP/Albumin ratio, lymph-node involvement and chemotherapy incompletion are predictors of poor prognosis after surgery for PDAC. Completion of adjuvant chemotherapy is essential for prolonging survival, and treatment has to be multimodal. Therefore, patients need to be counselled prior to surgery and supported to get through chemotherapy.

Title: **SURGICAL MANAGEMENT OF RETRORECTAL TUMORS: A FRENCH MULTICENTRIC EXPERIENCE OF 270 CONSECUTIVES CASES**

Author: MATHILDE AUBERT

Co-Author(s): MEGE , D , PARC , Y , RULLIER , E , BEYER-BERJOT , L , DENOST , Q , LEFEVRE , J , PANIS , Y

Background: Literature data on retrorectal tumors is limited. There is no consensus concerning the best surgical approach for the management of retrorectal tumors. Our aim was to report the largest multicentric experience on surgical management of retrorectal tumors.

Material and Methods: Patients operated for retrorectal tumors in 18 academic French centers were retrospectively included (2000-2019).

Results: 270 patients were included. Surgery was performed through abdominal (n=72, 27%), bottom (n=190, 70%) or combined approach (n=8, 3%). Abdominal approach was laparoscopic in 53/72 (74%) and bottom approach was a Kraske modified procedures in 169/190 (89%) patients. In laparoscopic abdominal group, tumors were more frequently symptomatic (37/53, 70% vs 88/169, 52%, p=0.02), larger (mean diameter = 60.5 ± 24 (range, 13-107) vs 51 ± 26 (20-105) mm, p=0.02) and located above S3 vertebra (n=3/42, 7% vs 0, p=0.001) than those from Kraske modified group. Laparoscopy was associated with a higher risk of postoperative ileus (n=4/53, 7.5% vs 0%, p=0.002) and rectal fistula (n=3/53, 6% vs 0%, p=0.01) but less wound abscess (n=1/53, 2% vs 24/169, 14%, p=0.02) than Kraske modified procedures. Retrorectal tumor was malignant in 8%. After a mean follow up of 27 +/-39 (1-221) months, local recurrence was noted in 8% of the patients. After surgery, chronic pain was observed in 17% of the patients without significant difference between the 2 groups (15/74, 20% vs 3/30, 10%; p=0.3).

Discussion and Conclusion: Both laparoscopic and Kraske modified approaches can be used for surgical treatment of retrorectal tumors (according to their location and their size), with similar long-term results.

Title: **PROXIMALIZATION IS ADVANCEMENT - ZONE 2 VS. ZONE 3 FROZEN ELEPHANT TRUNK CLINICAL OUTCOMES: A SYSTEMATIC REVIEW & META-ANALYSIS**

Author: MATTI JUBOURI

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Background: The treatment of complex aortic pathologies involving the aortic arch and proximal descending thoracic aorta remains challenging for surgeons despite the evolution of surgical techniques and aortic grafts over decades. Total arch replacement (TAR) with the frozen elephant trunk (FET) approach offers a one-stage hybrid repair strategy for this entity of aortic pathologies. FET surgical techniques mainly vary based on either the supra-aortic vessels re-implantation methods or the Zone of graft distal anastomosis. The main scope of this systematic review and meta-analysis is to evaluate the clinical outcomes achieved with FET. The study further delineate these result by comparing Zone 2 versus Zone 3 FET techniques.

Material and Methods: In a systematic review, multiple electronic databases including PubMed/MEDLINE, Scopus, and EMBASE were searched from inception till June 2021 to identify relevant studies reporting on outcomes of TAR with FET using Zone 2 or Zone 3 for distal anastomosis of the graft, and after applying exclusion criteria, a total of 85 studies were extracted. Meta-analysis was conducted using the R-studio and STATA software. In addition, subgroup analysis was performed based on age (≤60 and >60), aortic pathology (acute, chronic, and/or other), stent type (Thoraflex Hybrid Plexus (THP), E-vita, Cronus, Frozenix, and mixed/other) and date of publication (≤2017 and >2017).

Results: A total 10960 FET patients were studied. Using a random-effects model, the pooled estimate for postoperative cerebrovascular accident (CVA) in 8018 patients was 0.06 (95% CI 0.05-0.08; I2 = 73%). The pooled estimates of postoperative paraplegia was 0.03 (95% CI 0.02-0.04; I2 = 0%). For in-hospital mortality (in 5569 patients), 30-day mortality (in 6614 patients) and 1-year mortality (in 1006 patients) this was 0.07 (95% CI 0.05-0.09; I2 = 76%), 0.08 (95% CI 0.06-0.10; I2 =76%) and 0.09 (95% CI 0.04-0.17; I2 =90%), respectively. The pooled proportion of patients (n=6065) with postoperative renal failure patients was 0.12 (95% CI 0.09-0.15; I2 = 88%). Meta-analysis demonstrated that patients under 60 years old had a higher rate of CVA and paraplegia ($p<0.01$ and $p<0.02$, respectively). However, the pooled estimates of CVA, 30-day mortality, paraplegia, and renal failure were similar between subgroups with aortic pathologies. Similarly, we did not observe any differences in outcomes incidence based on the year of publication. The distal anastomosis of the graft in Zone 2 was more favourable overall than Zone 3 FET, with a significantly lower incidence of renal failure (odds ratio 0.52; 95% CI 0.33-0.82; P=0.069; I2=0%). Regarding publication bias, based on the Egger's test and the visual inspection of funnel plots, there were asymmetries among studies reporting postoperative CVA ($p<0.001$), in-hospital mortality ($p<0.001$), 30-day mortality ($p<0.001$), 1-year mortality ($p=0.013$), renal failure ($p=0.054$), and paraplegia ($p=0.002$).

Discussion and Conclusion: Our results indicate that the morbidity and mortality following TAR with FET in complex thoracic aortic disease are favourable. However, ongoing monitoring is essential for assessing further complications. Finally, Zone 2 distal anastomosis is less technically challenging and was found to be associated with a lower risk of complications, particularly renal failure, making the prospects of FET proximalization more promising.

Title: **EVIDENCE-BASED FROZEN ELEPHANT TRUNK PRACTICE: A SYSTEMATIC REVIEW AND META-ANALYSIS**

Author: MATTI JUBOURI

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Background: The introduction of the frozen elephant trunk (FET) technique for total arch replacement (TAR) has revolutionized the field of aortovascular surgery. However, although FET yields favourable results, the risk of certain complications requiring secondary intervention remains present, negating its one-step hybrid advantage over conventional techniques. Several commercial FET grafts exist on the global market, with controversial evidence on the association between the choice of graft and clinical outcomes. This systematic review and meta-analysis sought to evaluate controversies regarding the incidence of FET-related complications, with a focus on aortic remodelling, distal stent-graft induced new entry (dSINE) and endoleak, in patients with type A aortic dissection (TAAD) and/or thoracic aortic aneurysm.

Material and Methods: In a systematic review, a comprehensive literature search was conducted using multiple electronic databases including PubMed/MEDLINE, Scopus, and EMBASE to identify evidence on TAR with FET in patients with TAAD and/or thoracic aortic aneurysm. Studies published up until January 2022 were included, and after applying exclusion criteria, a total of 43 studies were extracted. Meta-analysis was conducted using the R-studio and STATA software. Furthermore, the I2 statistic was used to quantify the total variability among eligible studies, ascribable to heterogeneity. In addition, sub-analysis was performed based on FET graft type, location of the study centre (Asia, North America, and Europe), and procedure urgency (elective/emergent).

Results: A total of 5068 patients who underwent TAR with FET were included. The pooled estimates of dSINE, endoleak and secondary thoracic endovascular aortic repair (TEVAR) post-FET were 2% (95% confidence interval [CI] 0.01-0.06, I2 = 78%), 3% (95% CI 0.01-0.11, I2 = 89%) and 7% (95% CI 0.05-0.12, I2 = 89%), respectively. Furthermore, the pooled estimates of FL thrombosis at the stent level, the descending thoracic aorta level, and the abdominal aorta level were 0.91 (95% CI 0.75-0.97, I2 = 92%), 0.61 (95% CI 0.49-0.72, I2 = 86%), and 0.36 (95% CI 0.25-0.48, I2 = 88%), respectively. After subgroup analysis, heterogeneity for dSINE and endoleak resolved among European patients, where Thoraflex Hybrid Plexus (THP) and E-Vita stent-grafts were used (both I2 = 0%). In addition, heterogeneity for secondary TEVAR resolved among Asians receiving the Cronus (I2 = 15.1%) or Frozenix stent-grafts (I2 = 1%). Amongst patients undergoing emergent surgery, the source of heterogeneity was non-significant (I2 = 8%). Based on the Egger's test and the visual inspection of the funnel plots, which revealed asymmetries, the sources of publication bias are almost all the reported postoperative outcomes in our results ($p < 0.050$ for all outcomes) except for in-hospital mortality ($p = 0.254$) and FLT at the level of the abdominal aorta ($p = 0.703$).

Discussion and Conclusion: Our results show that the FET procedure in patients with TAAD and/or aneurysm is associated with optimal results, with a particularly low incidence of dSINE and endoleak as well as highly favourable aortic remodelling. However, the type of stent-graft and the study location were sources of heterogeneity, emphasizing the need for multicentre studies directly comparing FET grafts. Finally, THP can be considered the primary FET device choice due to its superior results.

Title: **DRIVING TECHNOLOGY FOR ENDOVASCULAR AORTIC ARCH REPAIR: AN INTERNATIONAL ANALYSIS OF RELAY BRANCHED OUTCOMES**

Author: MATTI JUBOURI

Co-Author(s): SURKHI , AO , AL-TAWIL , M , PIFFARETTI , G , BASHIR , M

Background: The introduction of endovascular aortic arch repair (EAR) represents a paradigm shift in the management of complex arch pathologies. This has also been accompanied with a rise in commercial interest in EAR resulting in the development of several endografts. However, the RELAY™ Branched can be considered the prime endograft choice. Yet, open surgical repair remains the gold-standard management strategy for arch disease. In this

multicentre original study, a comparative analysis of international outcomes data on the single-, double- and triple-branch RELAY™ endografts is provided.

Material and Methods: Multicentre data was collected prospectively between January 2019 and January 2022 and stored in an international registry. This was later retrieved and analysed retrospectively. All patients were followed-up for 24 months post-EAR. Outcomes measured included target vessel patency (TVP), reintervention, disabling and non-disabling strokes, and mortality. Logistic regression analysis, Pearson's chi-squared test and Kaplan-Meier survival analysis were performed. The volume-outcome relationship was also analysed.

Results: Of our 148 patients, 17 (11.5%) received a single-branch RELAY™, 108 (73%) double-branch, and 23 (15.5%) triple-branch. The group characteristics were similar at baseline. Target vessel cannulation and technical success were achieved in 147 (99.3%) patients. TVP at 30 days post-EAR was 100% in all groups, however, this became 93.8%, 74.0% and 100% at 24 months post-EAR in the single-, double- and triple-branch endograft groups, respectively. The Kaplan-Meier freedom from vessel occlusion curve showed a significant log-rank p-value of 0.002. As for reinterventions, these were only required with the double-branch RELAY™ (n=50, 34%), with the Kaplan-Meier freedom from reintervention curve demonstrating a significant log-rank p-value of 0.03. Similarly, disabling strokes were only observed in the double-branch group (n=35, 32.4%), and the overall study incidence was 23.8%. As, for non-disabling strokes, this was 12.8% (n=19), with 15.7% (n=17) in the double-branch group and 8.7% (n=2) with the triple-branch RELAY. The overall mortality rate was 2.7%, with all 4 deaths recorded occurring in those receiving the double-branch endograft. Logistic regression analysis showed a significant association between urgency (acute) and reintervention.

Discussion and Conclusion: Our results clearly demonstrate that EAR using RELAY™ Branched is a highly efficacious strategy that yields favourable results. Nevertheless, it seems that clinical outcomes with the single- and triple-branch RELAY™ are more optimal than with the double-branch configuration. Importantly, beyond its results this study provides a solid foundation for future studies investigating EAR. Despite its favourable clinical outcomes which can be considered superior to competitor endografts, cost analysis studies needed to assess the cost effectiveness of RELAY Branched. In addition, large studies directly comparing OSR with EAR are required.

Title: **DRIVING ENDOVASCULAR SOLUTIONS FOR ABDOMINAL AORTIC ANEURYSMS: A 9-YEAR INTERNATIONAL EXPERIENCE WITH THE FENESTRATED ANACONDA ENDOGRAFT**

Author: MATTI JUBOURI

Co-Author(s): SURKHI , AO , TAN , S , BAILEY , DM , WILLIAMS , IM , BASHIR , M

Background: Endovascular aortic repair (EVAR) has become the mainstay treatment for abdominal aortic aneurysms and is associated with excellent clinical outcomes. However, there remains a risk of complications requiring reintervention. Several EVAR devices exist

commercially, yet, the Terumo Aortic Fenestrated Anaconda™ has demonstrated outstanding results. The main scope of this study is to present a 9-year international experience with the Fenestrated Anaconda endograft and evaluate its clinical outcomes.

Material and Methods: The current study represents a 9-year cross-sectional international analysis of custom-made Fenestrated Anaconda. Data was collected prospectively in 27 countries and stored in a registry. This was later retrieved and analysed retrospectively. For the statistical analysis, SPSS 28 for Windows and R were utilised. Pearson Chi-Square analysis was used to assess differences in cumulative distribution frequencies between variables. Statistical significance for all two-tailed tests was set at $P < 0.05$.

Results: A total of 5058 patients received the Fenestrated Anaconda endograft. This was indicated either due to complex anatomy for competitor devices (n = 3891, 76.9%) or based on surgeon preference (n = 1167, 23.1%). Overall, the Fenestrated Anaconda was utilised to rescue 3466 (68.5%) failed previous EVARs using competitor devices. The predominant device category was bifurcate (83.6%), whilst the most common proximal ring stent configuration being standard (64.5%). All devices were delivered within 8 weeks of diagnosis, with most being implanted within 6-8 weeks (55.4%), and 95% of devices were delivered along with a prototype. As for clinical outcomes, both survival and TVP were 100% during the first 6 postoperative years but dropped to 77.1% and 81% thereafter. In the complex anatomy indication group, cumulative survival and TVP were both 100% until year 7 post-EVAR when they decreased to 82.8% and 75.7%. In the other indication group, survival and TVP were also 100% during the first 6 years but plateaued at 58.1% and 98.8% in years 7-9 of follow-up. A sac regression of 0-30% was observed in 4772 (94.3%) over the first 4 years post-EVAR. Here, 99.6% of patients receiving the Fenestrated Anaconda due to unsuitable/complex anatomy for competitor devices and 76.8% based on surgeon preference had 0-30% sac regression. During years 5-9 of follow-up all patients had 20-45% sac regression. No cases of endograft migration or reintervention were recorded.

Discussion and Conclusion: The Fenestrated Anaconda endograft features a highly unique and innovative design which enables it to treat highly complex aortic anatomy while achieving excellent results. Additionally, its custom-made approach allows it to be tailored to individual patient anatomy, this in addition to the device prototype provided to optimise clinical outcomes. In addition, it is a highly versatile device offering a wide range of device categories, configurations, and sizes. The use of the Fenestrated Anaconda endograft as a 'rescue' device to salvage failed competitor devices is well-established in the literature with optimal clinical outcomes achieved. Finally, the Fenestrated Anaconda has been proven to be a highly effective EVAR endograft, as our results demonstrated favourable survival/longevity, TVP and sac regression as well as minimal endograft migration and reintervention.

Title: **SEVERE ANKLE INJURY**

Author: MAXIME MATON

Co-Author(s): DE VUYST , F

Background: The subtalar dislocations are rare, this is described as a dislocation of the talo-calcaneal and talo-navicular joints but the tibio-talar joint is intact.
The diagnosis is easy and done with x-ray : antéro-posterior and lateral view. A emergency reduction is necessary In a few cases, you need a surgical approach if the dislocation is irreducible or no stable after reduction.

Material and Methods: A man aged of 19 years, felt in climbing, with a forced varus. In emergency room, the clinical exam showed a deformation and the x-ray : a talo-naviculo-calcaneal dislocation.
A reduction is done in the operative room, the testing a showed a stable ankle so we stabilized with a posterior splint.
During the post-operative consultation : the control x-ray showed a good reduction and the CT : a minimal osteo-cartilagny tearing. The sport is autorized after three month.
Conclusion: The talo-naviculo-calcaneal dislocation is rare following a plantar flexion and inversion.
A diagnosis is quickly and easily done and the reduction is done in the operative room under general aneasthesia.
A cast is applied during some weeks before starting the physiotherapy. A surgical treatment is done in a few rare : irreducible – instable – open dislocation.

Results: The treatment consists of an emergency reduction, which is performed under general anesthesia using a boot-pulling motion. A plaster cast is applied with the ankle in 90° dorsiflexion.
It should be noted that to achieve an easy reduction, it is indicated to perform it in the supine position with the knee flexed to 90° to relax the triceps and the hands positioned one at the level of the tibio-tarsal and the other applying the reduction maneuver.
According to Malgaigne's treatise, force can be applied to the head of the talus to facilitate entry into the joint socket.
In some situations, the dislocation is either unstable or irreducible, about 10%: different elements are involved: the talon-navicular capsule, the peroneal tendons or the posterior neurovascular bundle, or it is open, in these situations the use of pins for reduction assistance or fixation are used. If hardware is used, fixation is maintained for six weeks.
The prognosis is favorable if reduction is performed quickly and the joint is stable. Rehabilitation is started as soon as the cast is removed, and resumption of sports is allowed from the third month.
The long-term risk to be feared is subtalar osteoarthritis; the other fear is talar necrosis, but this is much rarer.

Discussion and Conclusion: Medial talocalcaneal dislocation is a rare lesion, following a mechanism of inversion and plantar flexion.

A rapid clinical diagnosis must be made and confirmed by frontal and lateral radiographs in order to schedule a reduction under general anesthesia as soon as possible.
After the reduction, a cast is applied for a few weeks before starting rehabilitation. X-ray and CT scans are performed at follow-up to verify joint congruency and the absence of associated lesions.
Surgical treatment is reserved for rare cases: irreducible, unstable or open dislocation.

Title: **DEVELOPMENT OF A PARATHYROID CELL THERAPY ADAPTED FOR ALLO- AND XENO-TRANSPLANTATION FOR THE TREATMENT OF HYPOPARATHYROIDISM.**

Author: MEHDI MAANAOUI

Co-Author(s): CHETBOUN , M , THEVENET , J , QUENON , A , GIBIER , JB , GENCARELLI , T , GMYR , V , MARCINIAK , C , BAUD , G , MASSAAD , L , GOBERT , M , VANTYGHEM , MC , HUBERT , T , CAIAZZO , R , KERR-CONTE , J , HAZZAN , M , PATTOU , F

Background: Hypoparathyroidism is a threatening condition, mainly post-surgery, associated with calcium disorders. Allo-transplantation have been explored to prevent or treat hypoparathyroidism, but long-term results remain controversial as there is a lack of tools designed to evaluate the processing of parathyroids. The objective of our study is to propose useful tools adapted to allo- and xeno-transplantation.

Material and Methods: Human parathyroid samples were obtained during parathyroid surgeries. Porcine parathyroids were harvested in Landrace Pigs. Digestion of parathyroids was performed using collagenase and parathyroid cells were cultured using DMEM-F12 medium. Functionality of the cells was assessed with perifusion studies, which exposed the cells to sequential flows of high or low- calcium media. Mice experiments involved parathyroids minced or digested and transplanted under the kidney capsule of c57bl/6 RAG2-KO mice, followed up until day 30. Levels of human parathormone in mice were measured with ELISA tests. Standard stainings were performed on grafts samples to determine grafts volumes. Red Sirius, collagen-1 and alpha-sma stainings were performed to estimate fibrosis.

Results: First we showed that both minced parathyroids from human or pigs could be efficiently transplanted under the kidney capsule of RAG2KO mice with persistent viable tissue at day 30 post-transplantation. Then we investigated if enzymatic digestion of human parathyroids was comparable to minced tissue. After digestion, human parathyroid cells could be cultured up to 4 days and showed a response in vitro to calcium stimuli. After transplantation into mice, digested parathyroids showed similar outcomes compared to minced parathyroids, with an increasing secretion of parathormone from day 0 to day 30. Even though digested parathyroid graft volumes were lower than minced ones, we found a significant higher percentage of fibrosis in minced parathyroids.

Discussion and Conclusion: Porcine and Human parathyroids can be transplanted successfully under the kidney capsule of immune-incompetent mice. Enzymatic digestion of parathyroids

is a reliable tool to process parathyroids before transplantation, which will be of help for future preclinical models.

Title: **A SIMPLE METHOD FOR EX VIVO PARATHYROID PROCUREMENT IN MINI-PIGS**.

Author: MEHDI MAANAOUI

Co-Author(s): QUENON , A , MARCINIAK , C , RABIER , T , LAPIERE , S , GOUTCHTAT , R , HUBERT , T , HAZZAN , M , CHETBOUN , M , PATTOU , F

Background: Hypoparathyroidism is a severe condition, resulting in the lack of secretion of the parathormone, involved in calcium homeostasis. Considering the treatment of hypoparathyroidism, there is lack of available and effective treatments,and parathyroid allotransplantation has been recently on the highlights as an alternative therapy in life-threatening hypoparathyroidism. Very few preclinical studies have been published on parathyroid transplantation, as well as animal models. One of the main hurdles of animal models is the difficulty to reach and identify parathyroid glands in animals. Unlike human parathyroid glands, which are four individualized glands located behind the thyroid, pigs possess two parathyroid glands, one left and one right, located inside the left and right thymus. The objective of this study is to propose an ex vivo pig living-donor parathyroid procurement method, to help for further parathyroid transplantation studies.

Material and Methods: Landrace pigs were used for the experiments. After anesthesia, pigs were positioned on the operation table in supine position and intubated with an endotracheal tube. Porcine thymus were first retrieved thank to the following protocol: A vertical incision, using a 21 cold blade is performed, is performed on the white cervical line, for approximately 10 cm. An opening is created between the prethydoid muscles, with Metzenbaum scissors. A self-staining retractor is placed between the omohyoid muscle and the thyroid cartilage in order to dissect the conjonctive tissue and to expose the thymus. The cranial part of the thymus is progressively exposed and released from the carotid sheath, including the vagal nerve, the intern jugular vein and the common carotid artery. After release, the cranial part of the thymus can be extracted, and usually range from 5 to 8 cm. After extraction, the thymus is rinsed in physiological serum, in order to facilitate the identification of the parathyroid gland. After rinsing the cranial part of the thymus is gently flattened in order to feel the parathyroid gland, which has a different texture compared to the rest of the tissue. Using any source of light, the parathyroid gland can be finally identified using transillumination.

Results: Four pigs were used for the experiments, with a success of parathyroid identification of 5 parathyroids out of 8 suspected parathyroids (1 lymph node, 2 thymus lobules, 5 parathyroid glands). The parathyroid nature of the tissue was assessed thanks to immunostaining of the parathormone on fixed tissue, as well as parathormone levels in culture medium obtained from freshly minced tissue.

Discussion and Conclusion: For the first time, we propose an ex-vivo approach to harvest parathyroid glands from pigs, which may be the first step for a sustainable approach to parathyroid xenotransplantation.

Title: **INCARCERATED INCISIONAL HERNIAS SHOULD BE MANAGED SURGICALLY WHERE POSSIBLE, DESPITE A HIGH INCIDENCE OF OBESITY AND COMORBIDITY: A 7-YEAR EXPERIENCE IN A DISTRICT GENERAL HOSPITAL.**

Author: MOATAZ KHOGALI

Co-Author(s): ISLAM OMAR, ABBY TOWNSEND , GEORGIA FOTIOU , MOATAZ KHOGALI , ILHAAM SAID , LUKE NEWEY , CATRIN WILLIAMS , ANNABEL JONES , RICHARD GUY

Background: Incisional hernia is a common complication of major abdominal surgery. Decision-making for an increasingly elderly, often co-morbid population, can be challenging, especially in the face of obstruction or incarceration. This study describes the outcomes and burden of emergency management of incisional hernias.

Material and Methods: A retrospective single-centre observational study was conducted on all patients with an incarcerated incisional hernia over seven years. Patient demographics, comorbidities, presentation mode, radiological imaging and management were analysed. Outcome measures were: postoperative complications, need for Level 2 or 3 care, mortality rates, hospital stay, readmission rates and hernia recurrence.

Results: Some 194 patients were identified, of whom 54 were excluded. For the 137 patients analysed, the mean age was 66.54 SD± 14.6 with a median of 67 years; 80 (58 %) were females. The mean BMI was 34.6 SD± 10.08 kg/m2.
Forty-three per cent had at least one comorbidity, the commonest being anaemia (17.5%), followed by diabetes mellitus [DM] (16.8%) and chronic obstructive pulmonary disease [COPD] (15.3%). Seventy-nine (57.7%) patients presented with small bowel obstruction, of whom 3 (2.2%) had bowel perforation. Over two-thirds of patients (93, 67.9%) were managed surgically, with 44 (32.1%) being managed conservatively.
The significant complication (Clavien-Dindo III and over) rate was 16.1%, and the most common complications were wound-related. The 30-day and 90-day mortality rates were 6.6% and 8.8%, respectively. The mean length of stay was 12 days SD± 25. Some 19.7% needed Level 2 or 3 care, and 24.1% had unplanned readmissions, the majority of whom were in the conservatively-managed group.

Discussion and Conclusion: Patients with complicated incisional hernias have significant comorbidities, and many are obese. Emergency presentation of incisional hernia carries a high risk of morbidity and represents a high burden on healthcare providers. High readmission rates are seen in conservatively managed patients, and surgical repair should be undertaken where possible.

Title: **SAFETY OF SURGICAL REPAIR OF INCISIONAL HERNIA IN PATIENTS WITH MORBID OBESITY**

Author: MOATAZ KHOGALI

Co-Author(s): ISLAM OMAR, ABBY TOWNSEND , OLIVER HADFIELD , MOATAZ KHOGALI , JEREMY WILSON , CONOR MAGEE

Background: Incisional hernia (IH) is a common complication after open and minimal access abdominal surgery. The current practice guidelines recommend weight reduction to achieve a body mass index (BMI) < 35 Kg/M2 before surgical repair of ventral hernias. However, this could be challenging to achieve, especially in emergency presentations. This study aims to assess the safety of surgical repair of IH in patients with BMI ≥35 Kg/M2.

Material and Methods: A retrospective comparative study has been conducted to include all patients who had surgical repair of IH on an elective and emergency basis in a UK District General Hospital. The patients were divided into two groups. Group I BMI < 35 Kg/M2 and Group II with BMI ≥35 Kg/M2. A comparison was made between the two groups according to demographics, comorbidities, hernia characteristics, operative data, and outcomes.

Results: The study included 239 patients, 181 in Group I and 58 in Group II. Severe obesity was associated with male patients, and they were younger than Group I, p= 0.001 and 0.013, respectively. 13.8% of Group I had DM compared to 29.3% in Group II, p= 0.007. There were no significant differences in hernia characteristics or mode of surgery between the two groups. However, Group II had more overall and wound-related complications, p= <0.001 each. There were no significant differences in 30-day and 90-day mortality, recurrence rate, or 90-day readmissions.

Discussion and Conclusion: Surgical repair of IH in patients with morbid obesity is associated with more overall and wound-related complications.

Title: **OUTCOMES OF SURGICAL REPAIR OF INCISIONAL HERNIA IN THE OLD PATIENTS ≥70 YEARS**

Author: MOATAZ KHOGALI

Co-Author(s): ISLAM OMAR, ABBY TOWNSEND , OLIVER HADFIELD , MOATAZ KHOGALI , JEREMY WILSON , CONOR MAGEE

Background: Incisional hernia (IH) is a common complication after abdominal surgery. Increasing age and frailty may be associated with poor outcomes after surgical interventions, especially after operating in hostile surgical fields with adhesions and dense scars. This study aims to assess the safety of surgical repair of IH in patients ≥ 70-Year-old.

Material and Methods: A retrospective study of all patients who had surgical repair of IH on an elective and emergency basis in a UK District Hospital. The patients were divided into two groups—Group I <70 and Group II ≥70 years. A comparison was made between the two groups according to demographics, comorbidities, hernia characteristics, operative data, and outcomes.

Results: Two hundred sixty-two patients were included with a mean age of 61.8 SD± 14.2 years, and 152 (58%) were females. Group I included 173, and Group II had 89 patients. Group I had more patients with morbid obesity, 46 (28.8%) compared to 12 (15.2%) in Group II; p= 0.021. Group II had more patients with at least one comorbidity and COPD than Group I; p= 0.004 and 0.003, respectively. 55 (32%) and 49 (29.3%) of Group I had multiple defects and recurrent hernias compared to 24 (28.2%) and 16 (18.8%) in Group II, p= 0.541 and 0.071, respectively. The mean hospital stays were 5.5 ± 8.3 and 8.33 ± 18.7 days, and the mean durations of surgery were 131.6 ± 105.2 and 106.73 ± 74.22 minutes in Groups I and II, p =0.057 and 0.181, respectively. There were no significant differences in overall or wound-related complications, p= 0.587 and 0.125, respectively. The 30-day mortality rates were 3 (1.7%) and 3 (3.4%), and the 90-day mortality rates were 4 (2.3%) and 3 (3.4%) in Groups I and II, respectively, without significant differences between both groups. There were no significant differences in the recurrence rate (with a mean follow-up of 56 months) or 90-day readmissions between the two groups.

Discussion and Conclusion: Surgical repair of IH is safe and effective in patients ≥ 70 years with comparable outcomes with younger patients.

Title: **OUTCOMES OF ELECTIVE AND EMERGENCY SURGICAL REPAIR OF INCISIONAL HERNIA – A COMPARATIVE OBSERVATIONAL STUDY**

Author: MOATAZ KHOGALI

Co-Author(s): ISLAM OMAR, ABBY TOWNSEND, OLIVER HADFIELD, MOATAZ KHOGALI, JEREMY WILSON, CONOR MAGEE

Background: Incisional hernia (IH) is a common complication after abdominal surgery, with a reported incidence ranging from 10 to 20%. Surgical repair of IH is associated with alleviation of symptoms and improvement in quality of life. However, operative intervention could come at a high cost to the patient and the healthcare facilities. This study aims to describe and compare the outcomes of the elective and emergency surgical repair of IH.

Material and Methods: A single-centre comparative retrospective study including all patients who had surgical repair of IH. The patients were divided into two groups; Group I (Emergency) and Group II (Elective). A comparison was made between the two groups.

Results: 262 patients were identified with a mean age of 61.8 SD±14.2 years, and 152 (58%) were females. The mean BMI was 31.6 (SD±7.2 Kgs/m2). More than 58% had at least one comorbidity. 169 (64.5%) had elective, and 93 (35.5%) had emergency repair. Patients

undergoing emergency repair of IH were significantly older and had higher BM, p= 0.031 and 0.002, respectively.
The overall complication rate in the full cohort was 46.2%, and the significant complications rate (Clavien-Dindo III and IV) was 9.54%. The 30-day and 90-day mortality rates were 6 (2.3%) and 7 (2.68%), respectively. In the emergency group, the complications, 30-day and 90-day mortality rates were significantly higher than in the elective group, p= <0.001, 0.002 and 0.001, respectively. The emergency group had a significantly longer hospital stay, and more of them needed a higher level of care, p= <0.001 each.
Overall, 42 (16.1%) developed wound complications, 25 (9.6%) patients had a recurrence, and 41 (15.71%) had 90-day readmissions, without significant differences between the two groups.

Discussion and Conclusion: IH is associated with medical comorbidity and high BMI. Emergency repair of IH is associated with higher complication rates and mortality compared to elective repair.

Title: **AVOIDABLE MEDICAL ERRORS IN INVASIVE PROCEDURES: FACTS ON THE GROUND – NHS STAFF SURVEY**

Author: MOATAZ KHOGALI

Co-Author(s): ISLAM OMAR, AHMED HAFEZ, TILEMACHOS ZAIMIS, MOATAZ KHOGALI, RISHI SINGHAL, RACHEL SPENCER

Background: Despite the huge efforts, large numbers of Never Events are reported yearly. This work aims to assess awareness and compliance with the safety standards and get recommendations from the National Health Service (NHS) staff on preventative measures.

Material and Methods: An online survey has been conducted directed at NHS staff involved in invasive procedures. Invitations were sent through social media, and the survey was kept live from 20/11/2021 to 23/04/2022.

Results: Out of 700 invitations sent, 75 completed the survey (10.7%). 96% and 94.67% were familiar with the terms Never Events and near-miss, respectively. However, 52% and 36.49% were aware of National and Local Safety Standards for Invasive procedures, (NatSSIPs-LocSSIPs), respectively. 28 (37.33%) had training on preventing medical errors. 48 (64%) believe that training on safety checklists should be delivered during undergraduate education. Fourteen (18.67%) had experiences when the checklists failed to prevent medical errors.
53 (70.67%) have seen the operating list or the consent forms containing abbreviations. 33 (44.00%) have a failed counting reconciliation algorithm. NHS staff emphasised the importance of multi-level checks, utilisation of specific checklists, patient involvement in the safety checks, adequate staffing, avoidance of staff change in the middle of a procedure and list order, and investment in training and education on patient safety.

Discussion and Conclusion: This survey showed a low awareness of some of the principal patient safety aspects and poor compliance with NatSSIPs recommendations. Checklists fail on some occasions to prevent medical errors. The study presented the recommendations of the staff on preventative measures.

Title: **REVIEW OF MANAGEMENT OF PERFORATED DIVERTICULAR DISEASE BASED ON HINCHEY CLASSIFICATION IN MODERN PRACTICE.**

Author: MOHAMED SALEM

Co-Author(s): HANIF , S , FAROOQ , A , ZEID , A , ALMONIB , A

Background: Colonic diverticula are small outpouchings from the colonic lumen owing to mucosal herniation through the colonic wall at sites of vascular perforation. Optimal treatment strategies are based on disease severity as classified by Hinchey today, a conservative treatment with antibiotics (and abscess drainage) is advocated for Hinchey 1 and 2 perforated diverticulitis. Patients presenting with perforated diverticulitis with generalized peritonitis (Hinchey 3 and 4) should undergo emergency surgical treatment. Laparoscopic peritoneal lavage without resection of the affected bowel segment in patients with purulent peritonitis (Hinchey 3) appears to diminish the morbidity and improve outcome, whereas acute resection should be performed in patients with gross fecal peritonitis (Hinchey stage 4). Each case should be classified based on clinical and computed tomography (CT) findings and then treated appropriately.

Material and Methods: The search will be conducted by using the databases: Without restrictions on location or publication types: Medline, Central, and Scopus, Cochrane, Embase, ProQuest, PubMed. The Mesh terms and their combinations used in the search were as follows: “Perforated diverticulitis” “Hinchey classification” “complicated diverticulitis of the colon” Similar approach was used in the other databases. Filters applied were “English language”, “2010-2020” and “Randomized Controlled Trial”. The reference lists of related reviews and original articles were searched for any relevant studies.

Results: Most patients with uncomplicated diverticulitis (stages 0–Ia) can be treated conservatively. Diverticulitis with a localized abscess (stages Ib–II) is generally resolved with conservative treatment. Operative treatment is considered standard therapy for severe diverticulitis with perforation and generalized peritonitis (stages III–IV).

Title: **MIDDLE COLIC ARTERY FIRST APPROACH FOR BENIGN SUBTOTAL COLECTOMY USING DAVINCI X - A VIDEO VIGNETTE**

Author: MUHAMMAD RAFAIH IQBAL

Co-Author(s): ARI , K , DOWSETT , D , SHAIKH , I

Background: Robotic assisted colorectal surgery has been widely adopted as the minimally invasive approach for both benign and malignant colorectal procedures. Its efficacy and safety as compared to laparoscopic surgery is supported by the evidence in literature.
We describe a technique for robotic subtotal colectomy for benign disease using DaVinci X.

Material and Methods: We present a video of Middle colic artery first approach for benign subtotal colectomy in a patient with ulcerative colitis using DaVinci X. A 25-year old male with pan-ulcerative colitis who had failed medical therapy with infliximab and adalimumab. He was maintained on high dose of prednisolone and had frequent hospital admissions requiring intravenous steroids. His colonoscopy showed Pan ulcerative colitis more severe on the left side which was proven on histology. After shared decision making and informed consent, robotic subtotal colectomy with end ileostomy was planned.

Results: There are number of different approaches for subtotal colectomy. Some prefer to start from the right colon whilst other start from the sigmoid. In our institute we start with middle colic pedicle first approach. After the division of the left branch of middle colic pedicle, the next landmark we approach is the lesser sac which is relatively easier to enter to the left of the divided middle colic vessels. Identification of the pancreas facilitates further dissection. We apply metal clips to the base of pedicle and use the robotic vessel sealer on the specimen side. It is a practice in our unit to clip any named vessel. Once transverse colon dissection over the pancreas is done, we then focus on ileocolic vessels which are dissected off the retroperitoneum, clipped and divided. Further dissection of the right colon mesentery reveals the right ureter. Terminal ileum is identified, followed by the lateral mobilization of the right colon therefore separating the right colon mesentery from the retroperitoneum. Once the right colon is mobilized, terminal ileum is divided. The omentum is then dissected off the transverse colon and the dissection is completed to the hepatic flexure followed by the splenic flexure. The robot is then re-docked in order to gain access to the left colon. The left colic artery is identified and then dissected, clipped and then divided. Dissection continues in a medial to lateral fashion thus lifting the left colon mesentery of the retroperitoneum. Sigmoid vessels are identified, clipped and divided. Lateral dissection of the left and sigmoid colon is done in a standard fashion and joined to the medial and supra-colic dissection to complete the left colonic and splenic flexure mobilization. Once the colon is fully mobilized, the specimen is extracted from the suprapubic pfannenstiel incision. The rectosigmoid junction is divided. After checking the final haemostasis, small bowel orientation is checked and end ileostomy is then made at the pre-marked site.

Discussion and Conclusion: The technique used describes a step wise approach to robotic subtotal colectomy using DaVinci X.

Title: **FEASIBILITY OF TWO ROBOTIC COLORECTAL CASES IN A DAY**

Author: MUHAMMAD RAFAIH IQBAL

Co-Author(s): ARI , K , ELGALLAB , B , DOWSETT , D , SHAIKH , I

Background: Robotic assisted colorectal surgery has been widely adopted as the minimally invasive approach for both benign and malignant colorectal procedures. Its efficacy and safety as compared to laparoscopic surgery is supported by the evidence in literature and is becoming the cornerstone for advancing in the field of minimally invasive surgery. The learning curve for robotic surgery is unique both for novel and expert laparoscopic surgeons. There is ongoing debate that robotic surgery is slow and impacts the theatre productivity and time utilization. We aim to assess the feasibility of two robotic colorectal cases in a day.

Material and Methods: A retrospective review of all the consecutive operating lists where two robotic colorectal cases were performed in a day was done over a 4-year period (2018 – 2022) in a busy tertiary care centre in United Kingdom. DaVinci X robot was used in performing the procedures. Data was extracted from the prospectively maintained database from the DaVinci app. Data regarding the timing of port and positioning, docking time, pedicle time, length of operation was recorded. In addition, the individual procedure data and the different combination of procedures performed in a day was also recorded. SPSS v28 was used for data analysis.

Results: A total of 64 theatre list were identified over the study period with 128 robotic colorectal cases performed. The procedures performed included right hemicolectomy (RRHC), high anterior resection (RHAR), low anterior resection (RLAR) and rectopexy (RRPX). The main combination of operations performed included RRHC with RRHC, RRHC with RHAR, RRHC with RLAR and RHAR with RHAR. The mean time for port and positioning/docking time was 18mins/6mins, 17mins/5mins, 20mins/6mins and 14mins/4 mins respectively. The pedicle time for RRHC, RHAR and RLAR was 58mins, 45mins and 35mins respectively. The mean operating time for RRHC, RHAR, RLAR and RRPX was 3h 47 mins, 3 h 53mins, 4h 35 mins and 2hr 41mins respectively.

Discussion and Conclusion: Robotic surgery do offer autonomy to the surgeon but team work and competent theatre team are crucial to the delivery of robotic service. Our data shows that with standardization of procedural steps, teamwork, teaching, training and practice performing two robotic colorectal cases in a day is feasible and can be safely achieved.

Title: **A NOVEL EVALUATION TOOL FOR FOUNDATION DOCTOR SIMULATION COURSES IN UNITED KINGDOM**

Author: MUHAMMAD RAFAIH IQBAL

Co-Author(s): VINOO , A , WALTON , SJ

Background: To get the most out of clinical simulation, sessions should be tailored to the needs of the learner. It is difficult to assess the clinical effectiveness of a simulation course without objective evidence of the impact on clinical practice. For a course to be individualised, there should an alignment between the learners' curriculum and the learner perceived outcomes. The foundation programme curriculum (2016) for junior doctors in the UK lists 20 foundation professional capabilities (FPCs) that trainees are expected to meet to complete

their foundation training prior to entering specialty training/ General Practice training. We believe these FPCs should be utilised as quality assurance for organised foundation courses.

Material and Methods: A clinical simulation course was organised over 6 months for foundation doctors. The course ran for one whole day and consisted of 5 sessions. Each session lasted for about 15-20 min and emulated surgical ward/ emergency based clinical problems simultaneously employing a foundation year 1 doctor and a foundation year 2 doctor. At the end of the full day, all the foundation doctors were given a questionnaire employing a rating scale (1 being 'poorly facilitated' to 5 being 'very well facilitated') listing the 20 foundation professional capabilities. We aimed to determine the alignment between participant perceived learning outcomes and these stipulated foundation professional capabilities.

Results: At the end of 6 months, we were able to get 57 responses. Participant perceived outcomes aligned well with most of the FPCs. More than 80% of the respondents scored 4 or above for 13/20 of the FPCs. The seven FPCs that scored low are listed below
1. Demonstrates engagement in career planning
2. Recognises, assesses and manages patients with long term conditions
3. Performs procedures safely
4. Is trained and manages cardiac and respiratory arrest
5. Demonstrates understanding of the principles of health promotion and illness prevention
6. Manages palliative and end of life care
7. Contributes to quality improvement

Discussion and Conclusion: Standardisation of courses held for foundation doctors are difficult and we offer an approach to evaluate a foundation year simulation course. We have shown that our simulation course can help foundation doctors meet most of their FPCs covering a large range of technical and nontechnical skills. This is especially useful for assessors when evaluating foundation doctors during their annual review as foundation doctors need to upload evidence for each of the 20 FPCs.
Poorly rated FPCs as per our questionnaire reflect the inability to emulate these qualities in an acute simulated clinical setting. For these FPCs, foundation doctors would need to provide additional evidence during their annual review.
Reference:https://foundationprogramme.nhs.uk/curriculum/

Title: **CLINICO-PATHOLOGICAL FACTORS AFFECTING LYMPH NODE YIELD (LNY) AND POSITIVITY (LNP) IN LEFT SIDED COLON AND RECTAL CANCERS**

Author: MUHAMMAD RAFAIH IQBAL

Co-Author(s): NANJAPPA , N

Background: The status of lymph node metastasis is a key factor in predicting the patient's CRC prognosis. The American Joint Commission on Cancer (AJCC) recommends that at least 12 lymph nodes be examined for each surgical specimen of CRC. The lymph node ratio (LNR)

is also a prognostic factor that is inversely correlated with survival outcomes. Although the average number of lymph nodes evaluated has risen in the past decades through better surgical standards, the rate of node-positive colon cancer, surprisingly, has not increased.
We aim to study the correlation between patient age with lymph node yield (LNY), lymph node positivity (LNP), location of the tumour, type, and urgency of the operation, to identify any statistical correlation between the location of the tumour with the urgency, type of operation, LNY, and LNP along with identification of any significant difference in LNY between laparoscopic surgery (LS) and open surgery (OS).

Material and Methods: This is a retrospective, non-interventional review of consecutive patients who underwent left-sided colon and rectal cancer resection over a three-year period (01 April 2018 and 31 March 2021) at a single institution. Descriptive and inferential statistical analysis was carried out in the present study. Continuous variables were presented as Mean and Standard Deviation (SD) while categorical variables as Number (n) and Percentage (%). Significance was assessed at a 5% level of significance. Chi-square / Fisher Exact test was used to find the significance.

Results: A total of 102 patients were included in the study, of which 63 (61.8%) were males and 39 (38.2%) were females. The age range was 34 to 88 years (Mean + SD: 66.5 + 11.5 years) There was no significant statistical correlation between the location of the tumour with the urgency (p=0.81), type of operation (p=0.86), LNY (p=0.48), and LNP (p=0.92). We found no statistical correlation between the urgency of surgery with LNY (p=0.25) and LNP (p=0.91). LNY in LS ranged between 1 and 43 nodes (median (IQR): 17(8)). For OS, LNY ranged between 8 and 27 nodes (median (IQR): 13.5(5.5)). There was no statistically significant difference (P=0.1449, Mann-Whitney test). We found no statistical correlation between T stage and LNY (p=0.08) and LNP (p=0.12). There was a statistical significance between the LNP and vascular invasion & perineural invasion (p<0.001).

Discussion and Conclusion: Patient age, tumour location, the urgency of surgery, and consultant experience did not significantly impact the LNY in this study. Our study showed a positive correlation between LNP and CRMI, VI, and PI comparable to previously published literature. This is useful to have in perioperative planning and discussion. A few studies published suggest that LNY in laparoscopic surgery is superior to open surgery. Contrary to these studies, we found no statistical significance between LS vs. OS and LNY. A meticulous operation following the embryonic planes of dissection irrespective of the access will yield better results as our study suggests. Whether 12 nodes per patient is an appropriate level is controversial. LNY depends on several factors such as severity of disease, neo-adjuvant therapy, pathologist's skill and tumour location.

Title: **DOES INCREASED EXPOSURE TO CARDIOTHORACIC SURGERY INCREASE MEDICAL STUDENTS' INTEREST IN THE SPECIALTY? - A SYSTEMATIC REVIEW**

Author: NAJEEBA LALLMAHOMED

Co-Author(s): ALWAN , S

Background: Medical students' interest in cardiothoracic surgery as a future specialty is low and has been on the decline. A number of factors are responsible for this, however in this paper we shall look in detail at medical students' exposure to cardiothoracics, and whether this influences their interest, by means of a systematic review. We shall then discuss the other factors contributing to medical students' interest, or lack thereof, in cardiothoracic surgery. The existing literature suggests that a lack of exposure to cardiothoracics as medical students is one of the defining factors which lead to the lack of interest in the specialty. Medical students in the UK consider cardiothoracic surgery a competitive specialty and believe that a lack of exposure leads to their detriment. Internationally, a similar sentiment is present: there has been a decreasing worldwide interest in cardiothoracic surgery. In the light of the above, it is important for us to try to find if increased exposure can help to increase interest in the specialty.

Material and Methods: A comprehensive search was performed on PubMed. The search terms included "cardiothoracic surgery medical students". All articles published before July 26, 2022, were included in this study. All types of publications were included for review. A literature search was performed whereby articles which discussed both medical students' interest in cardiothoracic surgery and their exposure to the specialty were included. Duplicated studies, letters to the editor and comments were excluded. This systematic review only involved the analysis of existing data that are available publicly and is therefore exempt from ethical approval.

Results: Five articles were included in the study, with a total number of 2736 respondents identified. The percentage of exposed students who were interested in the specialty ranged from 29.6% to 40.5%, versus 23.4% to 59.5% in non-exposed students. (Table available to compare results).

Discussion and Conclusion: More prospective studies need to be carried out to evaluate the direct effect of exposure to cardiothoracic surgery on medical students' career choices. Other factors contributing to increased interest included mentorship programmes, electives, highly interactive simulations and portfolio-building workshops.

Title: **IMPACT OF OBESITY ON BOTH SURGICAL AND ONCOLOGICAL OUTCOMES AFTER GASTRIC ADENOCARCINOMA SURGERY**

Author: OPHÉLIE BACOEUR OUZILLOU

Co-Author(s): VORON , T , LAMBERT , C , FUCKS , D , PIESSEN , G , GENSER , L , GUIRAMAND , J , PEZET , D , GRONNIER , C , GAGNIERE , J

Background: The impact of overweight and obesity on pathologic outcomes, complications and oncologic outcomes following surgery for gastric adenocarcinoma has been poorly reported, with only small cohorts and varying results on the topic.

This multi-institutional study, conducted on a large cohort of patients who underwent surgery for gastric adenocarcinoma, aimed to better precise pre-, intra-, and postoperative outcomes following surgery for gastric cancer in overweight and obese patients compared to patients with a normal BMI. An analysis of both overall and recurrence-free survival was also performed.

Material and Methods: We retrospectively analysed data from a multi-institutional database (32 French centres) on patients who underwent surgery for gastric adenocarcinoma between 2007 and 2017, totalizing 1589 patients divided into 3 groups which have been compared: 722 with BMI between 18.5 and 24.9 kg/m2, 585 with BMI between 25 and 29.9 kg/m2 and 282 with BMI greater than 30 kg/m2.

Results: Tumour stage at presentation, administration of both neoadjuvant and adjuvant treatments, performance of laparoscopic approach, rates of total and partial gastrectomy, type of lymphadenectomy and number of harvested lymph nodes, and rates of reoperation were similar between the three studied groups. 90-day mortality was also comparable. There were more tumors located at the fundus or greater curvature in patients with BMI ≥ 25kg/m2, and located at the antrum or pylorus in patients with normal BMI ($p < 0.001$). Presence of signet-ring cells at pathology was more frequent in patients with a BMI less than 25 kg/m2 ($p = 0.04$). Postoperative overall ($p = 0.003$) and surgical ($p < 0.001$) morbidity, and grade ≥ III postoperative complications ($p = 0.01$) were increased in overweight or obese patients. There were no difference in terms of median overall survival, 5-years overall survival, cancer-specific overall survival and recurrence-free survival between three studied groups.

Discussion and Conclusion: Overweight or obesity did not impact tumour stage at presentation, pre- or intraoperative strategies, quality of lymphadenectomy, or survival in patients undergoing surgery for gastric adenocarcinoma. However, postoperative morbidity, especially severe complications, were increased in patients with BMI > 25 kg/m2. Surgery for gastric adenocarcinoma should be proposed for all patients and performed as usual, regardless of their BMI, but obese patients should be better noticed about the risk for postoperative complications.

Title: **HYSTEROTOMY DURING EMERGENCY CESAREAN SECTION : COMPARISON OF CEPHALAD-CAUDAD VERSUS TRANSVERSAL BLUNT EXPANSION**

Author: PAULINE LESUR

Co-Author(s): GHESQUIERE , L , GRABARZ , A , GARABEDIAN , C

Background: The main purpose of the study was to analyze the occurrence of uncontrolled extensions of hysterotomy, according to the method of blunt expansion of the uterine incision during emergency cesarean delivery. The secondary purpose was to analyze the occurrence of several post-operative complications.

Material and Methods: This before-after study was retrospective and monocentric. All women who have had an emergency cesarean section (orange and red code) during labour were included. We compared two types of blunt expansion of hysterotomy: cephalad-caudad versus transversal. The main outcome was the occurrence of uncontrolled extensions of hysterotomy.

Results: The cephalad-caudad (n = 197) and transversal (n = 575) expansion groups were similar with regard to patient characteristics. The occurrence of uncontrolled extensions of hysterotomy was lower in case of cephalad-caudad expansion (5.6% vs 8.9%, OR 0.61) as was the rate of post partum hemorrhage > 1L (10,6% vs 13.6%, OR 0.76) and the necessity of bladder integrity test (11.6% vs 16%, OR 0.73).

Discussion and Conclusion: The cephalad-caudad blunt expansion of hysterotomy in emergency cesarean section lead to a lower rate of uncontrolled extension of hysterotomy and post partum hemorrhage compared with transversal blunt expansion of hysterotomy.

Title: **TWO-STAGE TURNBULL-CUTAIT PULL-THROUGH COLOANAL ANASTOMOSIS IN DISTAL RECTAL CANCER: OUR 7-YEAR EXPERIENCE**

Author: PIRILTI ÖZCAN

Co-Author(s): KALIN , M , DUFCZGFCN , D

Background: Two-stage Turnbull-Cutait coloanal anastomosis is considered an effective alternative surgical method in the treatment of distal rectal cancer, without the need for temporary, diverting stomas and is known to prevent a variety of complications associated with stoma surgery. We aimed to present the early outcomes of cases performed in our clinic over 7 years.

Material and Methods: Data from cases performed between May 2016 and January 2023, in our clinic, who underwent lower anterior resection due to distal rectal cancer, requiring coloanal anastomosis, and therefore required two-stage Turnbull-Cutait coloanal anastomosis, were retrospectively scanned from the clinical information system. The patients' demographic data, the surgical technique performed, complications, Wexner incontinence scores, morbidity, and mortality data were evaluated.

Results: A total of 14 patients underwent two-stage Turnbull-Cutait pull-through coloanal anastomosis. The mean age of the patients was 58, and 9 (64%) were male, and 5 (36%) were female. While 10 (71%) patients received long-term chemoradiotherapy due to distal rectal cancer, 4 (29%) patients received short-term radiotherapy. In the first operation, lower anterior resection + intersphincteric resection and the colon's extraction from the anal canal were performed, and coloanal anastomosis maturation was performed 4 days after the first surgery. No ileostomy was performed in any of the cases. Patients were discharged after 5 (4-7) days following the second surgery. Ischemic findings developed in 1 (7%) case, and re-pull-through coloanal anastomosis was performed. Wexner incontinence scores were found to be

6 in 5 (38.5%) cases, 7 in 5 (38.5%) cases, and 8 in 3 (23%) cases. One (7%) patient required reoperation within the first 30 days. No mortality occurred in any of the cases.

Discussion and Conclusion: We observed that two-stage Turnbull-Cutait coloanal anastomosis leads to better quality of life and better anal function without increasing morbidity. We believe that this technique will be an effective surgical alternative procedure in selected cases.

Title: **DYNAMIC ASSESSMENT OF HUMAN ISLET SECRETION: AMOUNT OF INSULIN RELEASED AFTER GLUCOSE STIMULATION**

Author: PRIYADARSHINI PANCHATCHARAM

Co-Author(s): GMYR , V

Background: In a cell therapy programme, the evaluation of isolated human islets used for severe type 1 diabetes, using perifusion technique which involve the continuous perifusion of solution at different concentrations of glucose to evaluate the secretary capacity of beta cells by stimulation and to measure the resulting insulin secretion by collecting perifusate at regular intervals and estimated amount of insulin released during glucose stimulation.

Material and Methods: Insulin secreted per minute in low (3mM-0.54g/L)and high (15mM-2.72g/L)glucose was measured in n=134 preparations after dynamic stimulation. The islets were stimulated using 300 islets equivalents (IEq) and a perifusion flow rate of 1ml/min at 37°C with oxygen supplementation. Insulin secretion and intra cellular insulin was measured every 2 minutes using a DXI machine from Beckman Coulter.

Results: The mean age of the donors (82 males/52 females) was 51 years (min=19-maxi=81); the mean BMI was 27.6 Kg/m2 (min=18.4-maxi=44.1) and the mean number of days in the ICU prior to pancreatic harvest was 3 days (min=1-maxi=13). All perifusion curves showed a biphasic profile with a secretion index for the first phase of 4.45±3.46. Insulin secretion calculated in relation to total content was 0.010±0.008%/ml/min (±SD) in low glucose and 0.048±0.045%/ml/min at peak secretion in high glucose, corresponding for 1 IEq to an amount of insulin released/min/ml in low glucose of 0.09±0.07uUI (3.9±3pg) and in high glucose of 0.42±0.47uUI (16.9±20.3pg). The total insulin content for 1 IEq was 1047±661uUI (45±29ng).

Discussion and Conclusion: Using a large number of human pancreases we show that isolated islet beta cells secrete less than 0.05% of their insulin content after glucose stimulation. The average amount of insulin contained in 1 IEq is estimated to be 45ng. However, there were large variations observed in the amount of insulin secreted, which were attributed to the functional heterogeneity of the preparations, including donor differences and variations in the quality of the pancreas used. These results spotlight the importance of meticulously choosing and characterizing donor pancrease for use in cell therapy and emphasized to focus on standardized protocol for isolation and evaluation of islet cells for consistent results.

Title: **INTRAOPERATIVE PERFORMANCE AND OUTCOMES OF ROBOTIC AND LAPAROSCOPIC GASTRECTOMY FOR GASTRIC CANCER: IS IT WORTH IT?**

Author: RADEK POHNAN

Co-Author(s): HADAC , J , PAZIN , J , TURZOVA , A , SCHDCTZ , S , KALVACH , J

Background: Robotic-assisted gastrectomy (RG) is an evolution of laparoscopic procedures, combining elements from open surgical techniques with the advantages of a minimally invasive approach. Studies on RG are currently limited. This study aimed to compare the intraoperative performance as well as short- and mid- term outcomes of RG and laparoscopic gastrectomy (LG).

Material and Methods: A total of 60 patients (between 18 and 78 years) underwent robotic (n = 19) or laparoscopic (n = 41) gastrectomy between August 2018 and December 2021. The intraoperative performance as well as short- and mid-term outcomes of the robotic and the laparoscopic groups were compared. Total costs and charges for LG/RG were compared based on the payer and hospital cost.

Results: The RG group had a lower volume of intraoperative blood loss than the LG group (48.7 vs 86.4 mL, P = 0.042). The total number of lymph node dissections was higher (27.7 ± 6.4 vs. 18.3 ± 10.22, p < 0.001) in the RG group compared with the LG group. More lymph node dissections at the upper edge of the pancreas were performed in the RG group than in the LG (10.9 ± 3.8 vs. 5.33 ± 4.5, p = 0.001). The overall postoperative morbidity rate was 15.4% in the RTG group and 18.7% in the LG group with no significant difference (P = 0.44), No mortality was observed in either group. The laboratory data (leukocyte/ lymphocyte levels, inflammatory, Albumin and amylase) of the RG group were better than those of the LG group. No-significant differences in three-year overall survival (OS) or relapse-free survival (RFS) were observed. RG had higher costs compared to LG and a 0.9-day decrement in the length of stay.

Discussion and Conclusion: RG in the treatment of gastric cancer has demonstrated surgical and oncological safety. Robotic surgery has advantages over laparoscopic surgery for radical gastrectomy with D2 lymphadenectomy for patients with locally advanced gastric cancer. However, the mid-term efficacies of the two approaches were similar. Robotic surgical systems may reduce surgical stress responses in patients, allowing them shorter recovery and/or to receive postoperative chemotherapy earlier. RG is more costly when compared to LG.

Title: **ANTERIOR VERSUS CLASSICAL APPROACH DURING RIGHT HEPATECTOMY FOR HEPATOCELLULAR CARCINOMA: INVERSE PROPENSITY SCORE WEIGHTED ANALYSIS**

Author: RAMI RHAIEM

Co-Author(s): ZIMMERMANN , P , BRUSTIA , R , HAMMOUTENE , C , LAURENT , A , PIARDI , T , SOMMACALE , D , KIANMANESH , R

Background: Several eastern data highlighted the oncological benefit from anterior approach (AA) during right hepatectomy (RH) for hepatocellular carcinoma (HCC). However, to our knowledge, no previous western studies were published on the subject.
Herein, the oncological outcomes of the AA and classical approach (CA) during RH for HCC were compared.

Material and Methods: A retrospective inverse propensity score-weighted fashion (IPTW) case-control study was performed in 2 French hepatobiliary surgery departments. Overall (OS), Disease-free survival (DFS) and early recurrence rate (within 2 years after surgery) were analyzed.

Results: Survival analysis was performed in 114 patients (CA group: 60 patients; AA group:54 patients). Before IPTW adjustment, 3-year DFS rates were 29.4% (AA group) and 44% (CA group). No significant differences were found in DFS (HR=1.1, 95%CI :0.62-1.9, p=0.77) and OS (HR=1.2, 95%CI: 0.54-2.6, p=0.66)
After IPTW, DFS and OS analysis showed no differences between the 2 groups (p=0.77 and p=0.46 respectively). Early recurrence rates were similar before and after IPTW. The presence of satellite nodules was the only independent significant risk factor of recurrence.

Discussion and Conclusion: AA and CA did not result in significant difference in terms of DFS, OS and early recurrence after right hepatectomy for HCC, before and after IPTW.

Title: **INTRAOPERATIVE VARIATION OF PORTAL PRESSURE IS PREDICTIVE OF POST-HEPATECTOMY LIVER FAILURE AND MORTALITY AFTER MAJOR HEPATECTOMY**

Author: RAMI RHAIEM

Co-Author(s): ZIMMERMANN , P , KIANMANESH , R , RACHED , L , BRUSTIA , R , MIMMO , A , PIARDI , T , SOMMACALE , D

Background: Post-hepatectomy liver failure (PHLF) is one of the most dreadful complications following liver resection. The aim of this study was to investigate the
association between the variation of portal vein pressure (ΔPP) with PHLF and 90-days mortality.

Material and Methods: A total of 64 patients underwent a major hepatectomy between April 2014 to October 2021 with intraoperative assessment of portal vein pressure (PVP).
Preoperative evaluation of volume and function of the future liver remnant (FLR) were performed. Preoperative and postoperative data were reported and analyzed.

Results: Mortality rate was 7.8% (5 patients). Severe PHLF (grade B and C) occurred in 8 (12.5%). Median pre-hepatectomy PVP was 16.5 mmHg (13-22) and post-hepatectomy was 19.5 (15- 24). PVP increased after liver resection with a median ΔPP of 2,5 mmHg (0-4). PVP was >20mmHg in 32 patients (50%). ΔPP was inversely correlated to the future liver remnant to total liver volume ratio.

Only ΔPP was significantly associated to severe PHLF (grade B and C) (p=0.03; CI: -6.7, - 0.24) and to 90-days postoperative mortality (p=0.0002; CI: -3.2, -
1). The area under the curve (AUC) calculated for ΔPP as a predictor of 90-days mortality was 0.76. The cut-off was 4.5 mmHg with 79.66 % specificity and
80% sensitivity. This prediction was stronger in the F0-2 fibrosis subgroup (AUC: 0.94).

Discussion and Conclusion: Our study showed that ΔPP is a predictive factor of severe PHLF and 90-day postoperative mortality after major hepatectomy, with a cut-off of 4.5 mmHg. Mitigating strategies with portal inflow modulation should be discussed to reduce the risk of complications.

Title: **ORAL D-XYLOSE PLASMA APPEARANCE AS A BIOMARKER FOR INTESTINAL GLUCOSE ABSORPTION IN MINIPIGS AND HUMANS**

Author: RÉBECCA GOUTCHTAT

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Background: Increasing evidences suggest that Intestinal Glucose Absorption (IGA) plays a key role in type 2 diabetes (T2D). The use of gold-standard methods for IGA measurement with multiple glucose tracers is challenging. We proposed D-Xylose, a pentose poorly metabolized, as a new proxy to measure IGA. We evaluated its performances to use it in further T2D studies.

Material and Methods: Longitudinal studies in healthy minipigs: We first compared D-Xylose appearance with the rate of appearance of exogenous glucose (RaE) obtained with a gold-standard glucose labelled method (n=8). Then, we studied the independence of D-Xylose appearance from gastric emptying in performing mixed meal tests (MMT) after oral or intrajejunal administration (n=7). Finally, we evaluated the sensibility to change of D-Xylose appearance after an 80%-intestinal resection (n=8). Cross-sectional study in humans: To evaluate its clinical relevance, with studied the association between D-Xylose appearance and postprandial glycemic response (PGR) in subjects with different glycemic status (n=166).

Results: Longitudinal studies in healthy minipigs: D-Xylose appearance was positively associated with RaE (β=1.50, CI 95% [0.89, 2.11], p<0.001, r2=0.60). The area under curve (AUC) of D-Xylose appearance following oral and jejunal MMT administration were correlated and concordant after 180 min (r=0.89, p<0.0001 et ccc=0.93 [0.99;0.66]). The 180 min-AUC of D-Xylose appearance was decreased after intestinal resection (92±14 before vs 65±23 after, p<0.05). Cross-sectional study in humans: The 180 min-AUC of D-Xylose appearance was increased in case of impaired glucose tolerance of type 2 diabetes and a significant contributor of PGR on 30 min (β=0.47, p<0.0001, r2=0.27) and 180 min (β=0.07, p<0.0001, r2=0.20).

Discussion and Conclusion: The results of this study confirm the relevance of the D-Xylose appearance for quantifying IGA and suggest its possible use to better characterize patients at risk of T2D.

Title: **A NEW ORGAN PRESERVATION SOLUTION FOR COLD STORAGE AND OXYGENATED ORGAN PRESERVATION; FIRST RESULTS FROM A CLINICALLY RELEVANT PORCINE KIDNEY TRANSPLANTATION MODEL**

Author: RENE TOLBA

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Background: The growing discrepancy between the number of available donor organs and patients on the waiting list is challenging transplant medicine worldwide. With the goal of reconditioning and expanding the donor pool to include marginal organs, preservation methods must be further improved. The new Omnisol organ preservation solution was developed to meet current and new requirements: Optimized for cold, satic storage, as well as for dynamic preservation methods with or without oxygen. The metabolic rate of the preserved organ is greatly reduced during hypothermic storage, but remains still active and this leads to I/R injury. By using multiple buffers, antioxidants, amino acids and vitamins to support cell metabolism, the newly developed solution is used to meliorate the I/R injury after transplantation.

Material and Methods: In this study, kidney preservation after DCD (= 30 min warm ischemia) was compared with HTK or Omnisol with or without VSOP preservation in a a clinically relevant chronic autologous kidney transplantation model in pigs (n=18) with a 7 days follow up. Cold storage at 4°C was induced for 24h in each group.

Results: Renal function was demonstrated in all groups by recovery of renal function parameters (creatinine and urea) and by successful recovery of clearance function up to 7 days. Both urea and creatinine, showed a relevant increase with a peak after POD3-4 after renal transplantation (Urea 21.19 mmol/l SD 6.75;Crea 978.63 µmol/l SD 153,15) However, there was a significant improvement in both parameters with the application of the new preservation solution Omnisol ($p<0.01$ POD5). Neutrophil gelatinase-associated lipocalin (NGAL) was significantly increased in the first days POD1-3 postoperatively; The Omnisol VSOP group could show a significant reduction in IRI damage ($p<0.05$) at POD1 and both Omnisol groups at POD3 ($p<0.01$).

Discussion and Conclusion: These results suggest the use of Omnisol with or without +VSOP is able to ameliorate the I/R injury after transplantation in this clinically relevant pig model.

Title: **PREVALENCE OF HANDS TUMORS IN A CITY OFFICE PRACTICE**

Author: ROMAIN BAILLOT

Co-Author(s): MAULER , F , PAPALOEFZOS , M

Background: Tumors in the hand are a challenge for the practitioner due to the variety of existing lesions. The hand has significant anatomical complexity, resulting in a high number of different tumors. The majority of these lesions can be treated by the practitioner. Benign cystic tumors are well known to specialists, here we will focus on firm tumors. Good knowledge of the variety of these lesions is crucial for planning adequate treatment. The purpose of the study is to provide a reminder of the different types of firm tumors in the hand by listing all hand tumors followed and treated at the Geneva Hand Clinic for the past 10 years. This will allow us to identify the prevalence of frequent lesions and mention several atypical lesions. Data from patients treated at the Geneva Hand Clinic highlights a specific prevalence of urban patients treated in the city outside of public hospitals.

Material and Methods: We will analyze all pathological analyses sent to the laboratories by each of the physicians at the Hand Clinic from 2012 to 2022. The data retained will of course be the pathology found, the size of the lesion if possible, the age and sex of the patient.

Results: The results are not ready yet but will be for June.

Discussion and Conclusion: We hope to provide a vision of the practice that is not present in the current literature and thus provide primary care medicine with a general idea of what is expected in our practice. Finally, we will provide a reminder of the management in order to complete the article.

Title: **INNOVATIVE CONCEPTS TOWARDS INTRA-ARTERIAL PHOTODYNAMIC THERAPY**

Author: SABRINA HOUTHOOFD

Co-Author(s): FOURNEAU , I , VUYLSTEKE , M , MORDON , S

Background: Atherosclerotic cardiovascular disease is a worldwide health problem associated with high morbidity, mortality and cost of care. Without exception, all interventions designed to treat atherosclerotic occlusive disease are prone to restenosis. The prevention and treatment of restenosis in the lower extremity are among the greatest unmet challenges in vascular surgery. Among several new therapeutic approaches to tackle the problem of restenosis, photodynamic therapy (PDT) presents a promising alternative. The use of PDT in atherosclerosis has faced some drawbacks. The choice of the photosensitizer (PS) and the way of administration is an important key to success [1]. The systemic administration of PS causes important cutaneous photosensitivity. Local administration of PS through intra-arterial delivery of the PS could solve this problem [2-3]. This study aimed to investigate the uptake

of locally administered PS Indocyanine Green (ICG) in balloon-injured atherosclerotic plaques of New Zealand rabbits.

Material and Methods: 20 New-Zealand White rabbits (all approximately 4-5kg, 4 months old) were fed a diet containing 1% cholesterol for 12 weeks to create an atherosclerotic rabbit model. In 20 rabbits, injured atherosclerotic plaque was obtained by dilatation of the aorta and iliacs. ICG at a concentration of 5mg per 1ml was used as PS and was locally injected in the aorta. Different sets of contact time of ICG with the plaque were evaluated (5 to 30 minutes). Microscopic analysis of frozen samples of aorta and iliacs was performed to detect uptake of ICG in the plaque.

Results: Three rabbits died before performing the surgical procedure. In 17 rabbits the surgical procedure was performed as planned. After ICG injection, a clear fluorescence signal in the atheromatous plaque was seen only in rabbits with at least 20 minutes contact time. As expected, no fluorescence was observed in atheromatous plaque without ICG injection.

Discussion and Conclusion: Discussion and Conclusion: Our study proves accumulation of ICG in the atherosclerotic plaque after local delivery. To our knowledge this is the first in-vivo study to proof uptake of ICG in atherosclerotic plaque after local administration. Together with endovascular light activation of the accumulated PS this could lead to highly selective approach of atherosclerotic plaque or the use of PDT in inhibition of intimal hyperplasia. Further experiments combining local administration of ICG and utilizing endovascular light activation of ICG in atherosclerotic plaque is under way to verify these findings. These experiments will hopefully answer the question if local ICG-PDT could be effective for management of atherosclerosis in de novo or restenosis lesions.

Title: **IMPORTANCE OF EARLY DIAGNOSIS AND TREATMENT OF ACUTE MESENTERIC ISCHEMIA-WSES GUIDELINES AND RECOMMENDATIONS**

Author: SADAF HANIF

Co-Author(s): SALEM , M

Background: Acute mesenteric ischemia (AMI), a potentially fatal vascular emergency that can be benefited with early diagnosis and effective restoration of mesenteric blood flow to prevent bowel necrosis and decrease mortality. The long-standing issues with delayed bowel infarct diagnosis have only slightly improved the survival rates. Bowel necrosis is the common consequence, which is caused by many pathophysiologic mechanisms. Total mortality ranges from 60% to 80%, and the incidence has reportedly increased with the impending challenges.

Material and Methods: The search will be conducted by using the databases: Without restrictions on location or publication types: Medline, Central, and Scopus, Cochrane, Embase, ProQuest, PubMed.

Results: The mainstays of contemporary care are early diagnosis and prompt surgical intervention, both of which are necessary to lower the significant mortality linked to this condition. The development of endovascular methods along with cutting-edge imaging techniques may open new possibilities of early detection and treatment. The World Society of Emergency Surgery (WSES) has presented the most recent and useful guidelines for the identification and management of AMI. The greatest opportunity to improve outcomes in this disease process is through early identification and treatment.

Discussion and Conclusion: A high index of suspicion based on a history of sudden onset of abdominal pain, acidosis, and organ failure is by far the most crucial piece of evidence. In order to make the diagnosis, this clinical scenario should trigger imaging (CTA). The patient should be examined to determine bowel viability, re-establish vascular flow, and resect non-viable bowel in parallel with rapid resuscitation and after careful evaluation of the CTA. Therefore, it's crucial to use damage control strategies and keep up critical care resuscitation. A planned re-evaluation of the bowel with any necessary additional resection, anastomosis, or stoma is essential. Acute care surgeons, radiologists, anaesthesiologists, and vascular surgeons must work closely together.

Title: **SURGICAL MANAGEMENT OF SECONDARY PERITONITIS, AN EXPERIENCE OF 212 CASES IN FIVE YEARS**

Author: SALAH MANSOR

Co-Author(s): ZAROUR , A , DAWDI , S , SULIMAN , I , ALI , A , ALJUMAILI , H , GHALI , M

Background: Secondary peritonitis is a common serious surgical condition, that can cause significant morbidity and mortality. Postoperative abdominal abscesses are its commonest complication. our aim is to analyze how the type of peritonitis, whether general or localized, can influence the formation of postoperative abdominal abscesses and the use of surgical drains to minimize this complication.

Material and Methods: A retrospective study was conducted on patients who underwent surgical treatment for secondary peritonitis over a 5-year period in the acute care surgery unit, of Hamad Medical Corporation, Doha, Qatar. Patients' age, gender, indications for surgery, intraoperative findings, surgical procedure, antibiotic use, postoperative complications, postoperative intervention, surgical re-exploration, and hospital stays were among the data collected.

Results: A total of 212 patients were admitted during the study period. 112 (52.8%) patients had localized and 100 (47%) had generalized peritonitis. The age was 37 on average. Perforated appendicitis was the cause of secondary peritonitis in 150 (70.8%) patients, perforated peptic ulcers in 45 (21.2%), perforated colon in nine (4.3%), perforated small bowel in five (2.4%), perforated gallbladder in two (0.9%), and perforated gastric ulcer in one patient (0.5%). A postoperative abdominal abscess was diagnosed in 25% of the patients with

generalized peritonitis and 22.3% of those with localized peritonitis. Surgical drains were placed in 152 (71.6%) patients, and 38 (25%) of them developed a postoperative abdominal abscess.

Discussion and Conclusion: Secondary peritonitis is categorized as either localized or generalized. Patient's age, gender, perforation location, type of contamination, duration of inflammation, associated diseases, including malignancy, and treatment delay, all have a significant impact on outcomes. Secondary peritonitis frequently causes a postoperative abdominal abscess, which can result in significant mortality, morbidity, and protracted hospital stay. Many factors, including failure to manage the source, treatment delay, improper antibiotic, diabetes, and surgical technique, can increase the likelihood of postoperative abscess formation. We found no significant statistical difference between both peritonitis types and the development of a postoperative abdominal abscess (P 0.646).
The safety and efficacy of drains in preventing intraperitoneal abscesses and the optimal time for removal have been extensively studied. Drains have been shown to increase the incidence of prolonged hospital stays. Thus, there is currently little evidence of benefit for abdominal drains in secondary peritonitis, but controversy remains. The use of drains dropped in recent years due to the many studies showings that drain does not adequately drain the peritoneal cavity. The authors' opinion and most of the literature is that routine insertion of abdominal drains is not necessary and may be harmful, we found the rate of postoperative abdominal abscess in patients with surgical drains was the same rate as in those without. There was no statistically significant difference between surgical drain insertion in reducing postoperative abdominal abscess formation (P 0.439), suggesting that drains do not reduce postoperative abscess. The postoperative abdominal abscess is common in patients operated on for secondary peritonitis, and whether the peritonitis was localized or diffused, or a drain was placed at the initial surgery had no measurable significance on the postoperative abdominal abscess formation.

Title: **CONTAINED VASCULAR HEPATIC INJURIES AFTER LIVER TRAUMA: A MONOCENTRIC RETROSPECTIVE ANALYSIS.**

Author: SÉBASTIEN FREY

Co-Author(s): MASSALOU , D , BAQUE , P , BENTELLIS , I

Background: The liver is along the spleen the two most common organs injured in abdominal trauma. For the last thirty years, a major shift in the management of liver trauma has been seen, resulting in a considerable decrease in the mortality rate. The last revision of the A.A.S.T. classification for liver trauma in 2018 introduced the concept of vascular injury or active bleeding contained within the liver parenchyma. In current practices, this is represented by either pseudo aneurysms (PA) or arteriovenous fistula (AVF). Although rare, contained hepatic vascular injuries (CHVI) are often feared due to their risk of delayed rupture. However, the current knowledge on CHVI is scarce: no risk factor has been validated and no guidelines on their management have been set. We review our experience at our level one trauma center

and identify risk factors of CHVI, evaluate the associated morbidity, and propose a management protocol.

Material and Methods: In our prospectively maintained database on abdominal trauma, all liver traumas from January 1st 2005 to December 31st 2020 were considered for inclusion. Patients were included if they were 16 years of age or older and had an abdominal CT scan with arterial and portal phases contrast upon admission or following immediate surgery. CT scans were reviewed by two radiologists blinded to the diagnosis, in search for PA and/or AVF. Patients were divided into groups whether or not a CHVI was diagnosed. Univarious and multivarious analyses were performed for variables with a p-value ≤ 0.05 to identify independent risk factors. A third analysis was performed, comparing the modalities of management of CHVI (non-interventional versus interventional which includes embolization or surgical management).

Results: 318 liver traumas (32.5 %) were included in this study. Blunt trauma (84.3 %) was the main mechanism of trauma and the most common cause of liver injury was motor vehicle accidents (63.5 %). CHVI was diagnosed in 27 patients (8.5 %), including 20 PA (74.1 %) and 8 AVF (29.6 %). Five PA (25 %) and 2 AVF (25 %) were diagnosed following the index CT. The mean time of diagnosis of CHVI was 6.5 days (0-31) and the mean size was 12.6 mm (3-46). Liver trauma was at higher risk of CHVI when of A.A.S.T. grade ≥ III and when both right and left livers were injured with an odd ratio as high as 4.0 and 3.5, respectively. Only delayed hemorrhage was associated with CHVI. In the case of CHVI, 13 patients were managed conservatively and 14 patients had an interventional treatment. Spontaneous thrombosis occurred in all cases. Patients in the interventional group all had a diameter superior to 10 mm.

Discussion and Conclusion: A management algorithm is proposed following these results for the management of CHVI. To date, this is the widest cohort of CHVI among liver trauma. Two risk factors of CHVI have been validated: trauma with A.A.S.T. grade ≥ III and injuries involving both right and left livers. Cautious follow-up should be performed for these liver traumas. Non-interventional management is feasible for asymptomatic CHVI ≤ 10 mm.

Title: **VIRTUAL CONSULTATIONS – BARRIERS TO APPLICATION IN CLINICAL MEDICINE**

Author: SHENTHIUIYAN THEIVENDRAMPILLAI

Co-Author(s): GOH , YM , THIRUPPATHY , K

Background: Virtual consultations have been increasingly used in healthcare since the COVID pandemic. It has shown to improve patient's access to healthcare, decrease demand on already stretched resources and increase efficiency. Despite an increase in uptake in out of hospital care its use in secondary and tertiary healthcare services has been limited and has declined since the COVID pandemic. This study aimed to identify limitations to implementation and utilisation of virtual consultations.

Material and Methods: A cross sectional questionnaire was developed by identifying key barriers and advantages to telemedicine addressed in literature. Initial evaluation of this questionnaire was evaluated by a small sample of five individuals selected by probability sampling alongside additional questions addressing comprehension, language, recall, interpretation and repetition. Feedback and responses to this were used to refine the questionnaire. The final questionnaire was sent out to all consultants, general practitioners and nursing staff offering virtual consultations within a single hospital trust.

Results: A total of 152 participants responded to the survey. Nine responses had incomplete datasets and 11 were excluded from the study as they did not offer outpatient consultations. The final study population consisted of 132 respondents. 52% (n=62) of the respondents were Consultants and 38% were local GPs. Overall, 73% of staff had a very favourable or slightly favourable opinion of their experience of virtual consultations as opposed to 6.9% of participants having a "very unfavourable" opinion. These findings were independent of years in service. Gynaecologists (17%) and Orthopaedic surgeons (20%) had the highest proportion of staff who least favoured virtual consultations, mainly due to the inability of examining patients or ensure accurate assessments. We also further analysed the confidentiality issues related around virtual consultation. Only 9 % of respondents could confidently guarantee confidentially during the consultation.

Discussion and Conclusion: In conclusion, this survey has demonstrated an acceptance of virtual consultations. A large proportion of those surveyed recognized that it offers staff and patients the added benefits of remote working and flexibility. It has also highlighted the importance of selecting suitable patients for virtual consultants as to avoid rescheduling. Greater training and infrastructure is required in ensuring confidentially.

Title: **AN AUDIT OF ACUTE SCROTAL PAIN AND SCROTAL EXPLORATION FOR SUSPECTED TESTICULAR TORSION IN THE PAEDIATRIC POPULATION AT A DISTRICT GENERAL HOSPITAL**.

Author: SHENTHIUIYAN THEIVENDRAMPILLAI

Co-Author(s): THEIVENDRAMPILLAI , T , THOMAS , J

Background: Testicular torsion (TT) is a surgical emergency and requires prompt surgical exploration and management. The recent Getting it Right First Time (GIRFT) review into paediatric urology highlighted the challenges of managing scrotal pain and the issues with delayed and missed diagnosis of TT. The clinical audit was designed to measure the current practice within Royal Berkshire Hospital NHS Trust with regards to the management of children with acute scrotal pain. The National guideline for the management of paediatric torsion currently recommend that all scrotal explorations should occur within 3 hours of decision to operate and provision of surgery locally. Exploration within six hours of symptom onset has been shown to result in the highest salvage rates.

Material and Methods: Data of all emergency paediatric scrotal exploration was collected prospectively over a 15-month period from April 2018- July 2019 for the first cycle. The

inclusion criteria for the following audit was male patients aged 0-16 years of age that underwent scrotal exploration. A subsequent second cycle was performed, and data was collected retrospectively over a 12-month period from September 2021- September 2022. We collected data on demographics, onset of pain and time from decision to operate to arrival in theatres. We further analysed the positive scrotal exploration rate and data on the negative scrotal explorations.

Results: 44 patients underwent scrotal exploration for suspected TT during the first cycle. The median age was 13 with a positive exploration rate of 34%. The median time from decision to operate to arrival in theatres was 76 minutes with 96% of cases meeting the 3 hour target.
47 patients were identified during the second cycle. The median age was 12 years of age with a positive exploration rate of 32%. 45 cases fulfilled the 3 hour target. The most common cause for negative exploration was torted hydatid making up 31% and 53% in cycle 1 and 2 respectively.

Discussion and Conclusion: Overall, our compliance against national guidelines remained consistently high and this is largely due to the paediatric service cover. It appears the Covid pandemic has not impacted the ability to manage these patients promptly. The positive exploration rate remains high at 32% and around 96% of cases were taken to theatres within the three hour target. We should continue our current practice of scrotal exploration in cases of suspected TT and encourage timely referral.

Title: **THE PROGNOSTIC ROLE OF METHYLATED CIRCULATING TUMOUR DNA DETECTED IN HEALTHY SUBJECTS LATER DIAGNOSED WITH COLORECTAL CANCER IN THE HUNT STUDY**

Author: SIV STAKSET BRENNE

Co-Author(s): LAUGSAND , EA , XANTHOULIS , A , MADSEN , PH , PEDERSEN , IS , SKORPEN , F , HVEEM , K , KRARUP , HB

Background: Todays tools for predicting prognosis for colorectal cancer (CRC) patients are suboptimal. Hence, the aim of this observational study was to determine whether known colorectal circulating tumour DNA (ctDNA) markers found in plasma before clinical diagnosis of CRC can contribute to prediction of poor prognosis.

Material and Methods: This population-based cohort study included patients diagnosed with CRC within 24 months following participation in the Trøndelag Health Study (HUNT). Known methylated ctDNA biomarkers of CRC, were analyzed by PCR in plasma. Poor prognosis (PP) was defined as recurrence or death within 5 years following diagnosis. Candidate predictor variables were identified by Cox regression analyses, and combined into a Poor Prognosis risk score. The results was reproduced in an independent validation set of samples.

Results: The 106 patients diagnosed with CRC were randomly divided into a test set (n=81) and a validation set (n=25). The independent predictors of PP were age >80 years, CEA >5µg/l, Stage IV and the biomarkers BCAT1, FLI1, IKZF1, SEPT9, SDC2, SLCA1 and WNT5A ($p<0.05$).

When combining the risk factors, a score of ≥6 defined High Risk of Poor prognosis. Model discrimination was good in both test set (c-statistics=0.84, p<0.001) and validation set (c-statistics 0.86, p=0.005).

Discussion and Conclusion: Pre-diagnosis methylated ctDNA markers show promising capability to contribute to Poor prognosis prediction in CRC, and could guide more personalized treatment plans.

Title: **CYSTIC LYMPHANGIOMA OF THE GALLBLADDER IN CHILDREN: A CASE REPORT**

Author: STEVY MIAMPIKA, ARNAUD DELAFONTAINE

Co-Author(s): MIAMPIKA, S, DELAFONTAINE, A, NDIE, J, ABANEH, AK.

Background: The aim of this work is to highlight a very rare intra-abdominal localization of cystic lymphangioma in children

Material and Methods: Retrospective study about a case of cystic lymphangioma of the gallbladder diagnosed and managed in July 2017 in the pediatric surgery department of the Hospital Center of Valenciennes.

Results: We report the observation of a 12-year-old patient who stayed in the pediatric surgery department of the Valenciennes Hospital Center in July 2017 for an intra-abdominal cystic mass revealed by subcostal and right flank abdominal pain associated with respiratory discomfort. Abdominal ultrasound found a multicystic formation on the lower aspect of the liver. The CT scan and MRI revealed a large cystic formation of liquid density measuring 8.5x6x5cm without fistulous pathway in the right hypochondrium, suggesting a cystic lymphangioma in the gallbladder. The patient had undergone a laparoscopic cholecystectomy removing the cystic mass. The anatomical results revealed a cystic lymphangioma lesion in the subserosal tissue of the gallbladder, without malignancy. The postoperative course was simple and the patient was discharged three days after the surgery.

Discussion and Conclusion: Abdominal cystic lymphangioma is diagnosed in children during the first two years of life. This abdominal localization is dominated by involvement of the mesentery. The literature reports only 3 cases of localization in the gallbladder, making this localization an exception. Preoperative diagnosis is often difficult because of the often frustrating symptomatology. However, abdominal pain was the main symptom in our patient. Cross-sectional imaging is usually sufficient to make the diagnosis. The treatment is essentially surgical in this context. The literature reports some cases of laparotomy; however, laparoscopic surgery has significantly improved the prognosis and postoperative course of patients. Cystic lymphangioma of the gallbladder is a rare pathology with a frustrated symptomatology. Cross-sectional imaging allows the diagnosis and its surgical management has been improved with the advent of laparoscopy. Its prognosis is good when the management is early.

Title: **RADIATION RISK OF SURGEONS DURING VASCULAR AND TRAUMA SURGERY**

Author: TEDDY S VIJFVINKEL

Co-Author(s): ENGELS , M , JANSSEN , C , SCHEEPENS , K , VERHOEVEN , VW , HENDRIKS , BH , VAN DEN DOBBELSTEEN , JJ , VAN DER ELST , M

Background: In current vascular and trauma surgery, imaging techniques using X-rays are an indispensable part of the workflow. At the same time, radiation creates a risk for both patient and medical staff. The ALARA principles provide measures to keep radiation exposure as low as reasonably achievable. However, procedure-specific scattered radiation load is unknown and targeted feedback is non-existent. Therefore, this study aimed to determine the radiation exposure of surgeons in order to understand adherence to guidelines and target areas for improvement.

Material and Methods: A single-site prospective observational cohort study was conducted. Data on scattered radiation exposure was collected using Philips DoseAware dosimeters during vascular and trauma surgery requiring X-rays. Surgeons were equipped with dosimeters on the forehead and on both wrists; all other staff wore dosimeters on top of the lead apron at chest height. The total radiation dose used during surgery was retrieved from the C-arm. A ratio between used and received radiation was then calculated to compare procedures.

Results: During this study, 159 procedures were included consisting of 135 trauma surgeries and 24 vascular surgeries. The dosimeter on the left wrist of the primary vascular surgeon received the highest radiation dose of all dosimeter locations and was significantly higher compared to the mean dose at the left wrist of the primary trauma surgeon: 172,23 µSv (SD ± 98,25) vs 9,56 µSv (SD ± 7,65), p<0,001. The mean doses received by the primary surgeon all significantly exceeded those received by the secondary surgeon, for both vascular and trauma surgery. The anaesthesia assistant was exposed to the smallest radiation dose with a combined mean of 0,78 µSv (SD ± 1,43) per procedure. All staff members received significantly more radiation during vascular surgery compared to exposure during trauma surgery, although this difference reduced when corrected for the total radiation dose used.

Discussion and Conclusion: This study gives a unique insight in the distribution of scattered radiation during vascular and trauma surgery. It clearly demonstrates that the primary surgeon, and specifically the left arm, receives the most scattered radiation throughout the procedures, albeit acceptable and still far below the annual threshold of 20 mSv. Furthermore, this study confirms a significantly higher radiation dose is used and received during vascular surgery in comparison to trauma surgery. With these insights, procedure-related feedback systems should be developed to alert medical staff to take specific precautions and to improve their radiation awareness and hygiene accordingly.

Title: **QUANTITATIVE EVALUATION OF THE ABDOMINAL WALL MECHANICAL BEHAVIOR BY A NEW CONNECTED ABDOMINAL BINDER: A PRELIMINARY STUDY**

Author: THIERRY BEGE

Co-Author(s): JOPPIN , V , GUEROULT , P , MASSON , C

Background: Abdominal wall hernias result from a mechanical conflict between forces acting on the wall (mainly intra-abdominal pressure (IAP)) and its ability to deform. An abdominal binder instrumented with sensors has been developed to non-invasively quantify the deformation during straining.

Material and Methods: A prospective study was conducted on eight healthy subjects. External deformations were evaluated by a patented connected binder instrumented with resistive sensors covering anterolateral area. IAP was evaluated by intragastric ingested sensor (SmartPill™, Medtronic), and wall muscles deformation by dynamic MRI (semi-automated segmentation method applied to rectus abdominis (RA) and lateral muscle (LM)). The relationship between these signals has been investigated during Valsalva maneuver.

Results: The binder provided time-related mapping of the abdominal deformation. Two different patterns were individualized corresponding to RA and LM areas. Deformation rate (mean 1.21mV/s for RA and 1.66mV/s for LM) and maximum signal (mean 3.03mV for RA and 4.24mV for LM) were recorded. These binder patterns were both correlated with the deep deformation in abdominal muscles observed in MRI (Pearson R=0.89 for RA, and R=0.94 for LM; $p<0.005$). The binder patterns were also significantly correlated with the IAP variation (Pearson R=0.98 for RA and R=0.99 for LM; $p<0.005$).

Discussion and Conclusion: This non-invasive connected and instrumented abdominal binder simply and quickly reflects the abdominal wall muscles deformation and IAP variation during Valsalva maneuver. A larger study is needed to investigate inter-individual variability, and to evaluate the links between quantitative mechanical behavior and surgical outcomes during hernia surgery.

Title: **INCIDENCE OF DELIRIUM & NEUROLOGICAL EVENTS IN CARDIAC SURGERY & TAVI PROCEDURES AT CARDIOTHORACIC CENTRE TICINO (CCT) .A SIX-YEAR RETROSPECTIVE ANALYSIS.**

Author: THOMAS THEOLOGOU

Co-Author(s): CALAMAI, P, THEOLOGOU, T, DEMERTZIS, S

Background: Post-operative delirium, TIA and CVA are well-known neurological complications after cardiac surgery. They can have permanent or temporary effects to the patients' health. When transitory, they can be resolved under treatment without evident sequelae; however, in some cases they can lead to longer hospital stay and sometimes to death. The aim of our

analysis is directed towards an internal quality control. Therefore, it focuses on the incidence of these complications and outcomes of the patients treated in our institution. The analysis aims to identify potential risks and predictive factors of post-operative neurological comorbidity in our setting, the consideration of which could potentially improve the quality of our care in this group of patients.

Material and Methods: Retrospective analysis of 1913 patients between January 2014 and September 2019 who underwent different types of cardiac surgery procedures [AVR, MVR, CABG, combined procedures (AVR+CABG, MVR+CABG), mini AVR, mini-MVR, and aortic complex procedures] and TAVI procedures at the CCT. Our first analysis was conducted in order to observe the postoperative incidence of delirium, CVA and TIA. Subsequently, basic demographic and clinical characteristics - such as age, gender, Euroscore II, CPB and Cross-clamp time, type and urgency of surgery - were compared between patients who suffered from postoperative neurologic complications vs. patients with none. Finally, we compared those characteristics between patients with delirium vs. patients with CVA and TIA.

Results: 1740 out of 1913 patients operated were considered eligible for our study and their data were analyzed in order to identify the incidence of delirium, CVA and TIA. Cumulative incidence of delirium was 7.41%, CVA and TIA 2.13%. Patients with neurologic complications were older, they had higher Euroscore II, they underwent longer periods of cardiopulmonary bypass and of cross-clamp time. There was a higher percentage of women. These patients were more likely to undergo complicated and urgent surgical interventions. The population of patients with delirium and the one with stroke were similar except for the subdivision of elective and urgent operations. Finally, the most of patients with those complications had previous history of psychotropic medication and/or neurologic pathologies.

Discussion and Conclusion: The study shows that delirium is a fairly frequent complication in a cardiac surgery setting. Instead, strokes remain well known complications, however they are rarer events. For both these types of complications, elderly patients, with elevated Euroscore II, who undergo urgent and complex interventions, with long CPB and cross-clamp durations are at higher risk. The study showed as well that most of patients with delirium and/or stroke are on pharmacological treatment preoperatively or have a neurological history.

Title: **TYPE B AORTIC DISSECTIONS IN CANTON TICINO .TWENTY-YEAR INCIDENCE & OVERALL MANAGEMENT**

Author: THOMAS THEOLOGOU

Co-Author(s): MATTICH, O, THEOLOGOU, T, DEMERTZIS, S.

Background: Aortic dissections represent the maximum manifestation of acute aortic syndromes. They can present as acute, subacute, or chronic. They are relatively rare but potentially life-threatening conditions with a bad prognosis. The mortality in the acute setting is about 1-2% per hour and represent an absolute emergency. Therefore, it is of a paramount importance to recognize and treat aortic dissections immediately. The aim of the present

thesis is to perform a retrospective analysis of the incidence, clinical presentation, types, treatment, and outcomes of patients presenting with aortic dissection type B treated at the Institute Cardiocentro Ticino (ICCT) in the last 20 years.

Material and Methods: A retrospective study conducted on 258 patients who suffered from acute aortic syndrome. For the present study, only 76 patients analyzed who presented at the ICCT in Lugano from 2002-2022 suffered with type B aortic dissection. A radiological follow up with an ECG gated CT scan to assess the dimensions of the aorta was performed at 12 months in all patients. Ethical approval from the hospital committee granted. Fully informed with written consent patient's data analyzed using descriptive statistics and processed with Microsoft Excel system. Mean and SD values have been analyzed in tables and figures.

Results: During the twenty-year period (2002-2022), 258 patients presented with acute aortic syndrome at the ICCT in Lugano in Switzerland. After reporting all the demographics of the patients, the present thesis took into analysis only a group of the 76 patients who presented with type B aortic dissection. Of the 76 patients, 75% resulted to be males while the remaining 25% were females. Hypertension resulted to be the main cardiovascular risk factor (86%). TEVAR was performed in 53% of the patients (47.5% in acute and 52.5% during follow-up). In 50% of the patients, more than three anti-hypertensive drugs used to control their hypertension. Among the patients, 51% presented with aortic dissection with a flap, 29% with PAU and 20% with IMH. At the one-year follow up most of the conservatively treated patients were having an increasing rate of the dimensions of the aortic diameter on average by 7.6 mm. Patients that treated with TEVAR showed a regression of their aortic diameter on average by 0.67 mm.

Discussion and Conclusion: At the ICCT, the incidence of aortic dissections is increasing over the last 20 years and is higher in male population. Hypertension is the main cardiovascular risk factor followed by tobacco use and diabetes. Diabetes is more a risk factor for IMH and PAU than flap dissection. After the first year's follow up, patients with an AoD with a flap who treated conservatively with medical therapy showed an increase in their aortic diameter. On the contrary, those treated with TEVAR presented a regression of their aortic diameter. Moreover, the thrombus diameter in patients with IMH who treated with TEVAR showed a higher level of regression compared to those treated only conservatively.

Title: **STENT-FREE RATES POST RENDEZVOUS PROCEDURE FOR COMPLEX URETERIC STRICTURES; A 10-YEAR EXPERIENCE**

Author: THRSHEGAN THEIVENDRAMPILLAI

Co-Author(s): CHACON GARCIA , M , THEIVENDRAMPILLAI , S , MAQBOUL , F , JANARDANAN , S

Background: Urologists commonly encounter complex ureteric strictures secondary to benign and malignant pathologies. These strictures can be successfully passed using conventional antegrade and retrograde stenting. However, when these fail, a combined approach termed

the 'Rendezvous Procedure' first described in 1985 and termed the 'Rendezvous procedure' by Watson can be used to successfully negotiate through impassable strictures. However, without treatment of the underlying pathology, most patients remain stent dependent. We present our 10-year outcome of stent-free rates post Rendezvous stenting.

Material and Methods: 42 patients underwent a total of 47 Rendezvous procedures between 2011 and 2020 in a single institute. In 22 patients, the ureteric strictures were secondary to malignancies, whilst, in 20 patients, ureteric strictures were caused by benign pathologies. 10 patients underwent the Rendezvous procedure after previously failed antegrade and retrograde stenting attempts.

Results: 45 of the 47 procedures were successful, with a technical success rate of 96%, with no associated morbidity or mortality, and with a median length of stay of one day. The Rendezvous procedure was successful in 9 of 10 patients who had previous failed attempts at antegrade and retrograde stenting. Despite the high success rate, 27 of the 42 patients (64%) remained stent dependent, as the underlying disease could not be treated. More specifically, of the 27 patients, 16 were related to cancer, seven were secondary to anastomotic strictures in an ileal conduit, one was due to radiation fibrosis and one for complex impacted stone, and two were secondary to bladder outlet obstruction surgery. At the end of the ten-year period, 22 patients (54%) had died, of which 20 patients were still stent dependent.

Discussion and Conclusion: Despite having a high technical success rate of 96%, a large proportion of our patients remained stent dependent, as the underlying pathology was still present. The performance status of these patients was generally poor and as a result, complex reconstruction surgery was not feasible. As such, we view this procedure not as a treatment of complex stricture, but as an alternative method to allow temporary decompression in co-morbid patients with limited life expectancy.

Title: **BACTERIAL STUDY IN RUPTURED AND UNRUPTURED INTRACRANIAL ANEURYSM WALLS WITH PCR TECHNIQUE IN A FRENCH POPULATION**

Author: TUONG LU

Co-Author(s): DEVALCKENEER, A, DELHEM, N, ABOUKAIS, R.

Background: The mechanisms behind intracranial aneurysm development, structural weakening and rupture have been studied widely but the etiology remain unknown. Previous studies detected both oral bacterial DNA (streptococcus mitis- group, fusobacterium nucleatum , …) and bacterial-driven inflammation (toll-like receptors) in ruptured and unruptured intracranial aneurysm walls in finnish population known to have a higher rupture risk. A previous study conducted in our institution (CHU de Lille, France) did not conclude to the presence of bacteria in aneurysms wall by PCR technique using 16S ribosomal RNA. The aim of this study is to search for the presence of oral and pharyngeal bacterial DNA in ruptured and unruptured intracranial aneurysms in a french population with specific bacterial and bacterial-driven inflammation markers (TLRs, CD14) primers in a larger population sample.

Material and Methods: A total of 10 ruptured (n = 5) and unruptured (n = 5) intracranial aneurysm walls specimens were harvested prospectively during surgical clipping operations in the university hospital of Lille (France) from 2020 to 2022. Aneurysmal sac tissue was analysed using a real-time quantitative polymerase chain reaction to detect bacterial DNA from several oral species with specific primers. Samples of superficial temporal artery, middle meningeal artery and dura mater from each aneurysm patient were used as control samples.

Results: Detecting the existence of bacterial DNA in the walls of aneurysms located in the oral and pharyngeal region in the French population could enhance our comprehension of the pathophysiology underlying this ailment. This finding could pave the way for implementing preventive measures for patients affected by brain aneurysms.
The first results are expected in the coming weeks.

Discussion and Conclusion: This finding could pave the way for implementing preventive measures for patients affected by brain aneurysms.

Title: **DROPPED HEAD SYNDROME : EXAMPLE OF THREE-STAGE SURGERY**

Author: TUONG LU

Co-Author(s): LEROY, HA, ASSAKER, R.

Background: Cervical spine scoliosis is a rare pathology, and surgical treatment is often complex and carries a high risk of complications. There is currently no consensus on the best management strategy.

Material and Methods: We present a clinical case report of a 57-year-old female patient with a two-year history of depression and nocturnal sleep in a seated position with her head in flexion.

Results: The patient gradually developed cervical deformity with kyphosis centered on C5 in the sagittal plane and with right-sided convexity in the coronal plane, partially reducible on dynamic radiographs. There was no focal neurological deficit or pain, but there was alteration of the horizontal gaze and quality of life. The patient underwent three-stage surgery under EMG monitoring, including : 1/ posterior laminectomy from C3 to C6 with piezoelectric scalpel and Smith-Peterson osteotomies, placement of screws in the lateral masses of C2 and C3 and pedicles of T1 to T4 under neuronavigation; 2/ anterior triple discectomies from C4 to C7; and 3/ posterior placement of rods and autologous bone grafts. Follow-up at 2 years revealed no sensory-motor deficit, natural posture and head position, and restored horizontal gaze and quality of life.

Discussion and Conclusion: Cervical scoliosis surgery can be performed with either anterior, posterior, or combined approaches, and techniques range from simple posterior osteotomy

to corporectomy. Various instrumentation is available for correction, stabilization, and arthrodesis, including anterior cervical plate, cage, screws, hooks, and rods.

Title: **N-ACETYLCYSTEINE AND CURCUMIN REVERSE IEC-6 CELL DAMAGE IN IN VITRO ISCHEMIA/REPERFUSION MODEL**

Author: UNAI MONTEJO

Co-Author(s): HERRERO DE LA PARTE , B , GARCEDA-ALONSO , I , ALONSO-VARONA , A

Background: Mesenteric Ischemia/Reperfusion Injury (IRI) occurs as a consequence of insufficient blood perfusion to the gut. When blood flow is restored, reactive oxygen species (ROS) are generated, which result in inflammatory responses, neutrophil infiltration and, ultimately, aggravated tissue damage. Thus, the control of oxidative stress and inflammation results key in the prevention and treatment of IRI.
Here, we have evaluated the in vitro efficacy of two compounds with antioxidant activity, N-acetylcysteine (NAC) and curcumin, in enterocyte cultures exposed to an IRI in vitro model based in oxygen and glucose deprivation and reperfusion (OGD/R).

Material and Methods: IEC-6 rat enterocytes (ATCC) were cultured in DMEM with 10 % FBS, at 37 °C and 5 % CO2 atmosphere. The cells were first seeded in 96 well plates (5x103 cells/well) and the culture medium substituted for Hank's buffer (glucose deprivation medium) with different concentrations of NAC (0.06-2 mM) or curcumin (0.15-5 µM), or complete medium as control. The plates were then incubated for 4 h in a hypoxic chamber at 37°C or in a normoxic incubator as control. After the oxygen and glucose deprivation period, the medium of the wells was removed, and fresh DMEM with different antioxidant concentrations was added to restore the glucose and follow the treatment. The plates were then incubated for another 24 h in a conventional incubator to simulate reperfusion. Finally, the viability of the cells was quantified with PrestoBlue™, a resazurin-based dye.

Results: Oxygen deprivation alone resulted in negligible damage to the cells, while glucose deprivation resulted in a 15 % loss of viability with respect to the cells maintained in basal conditions; however, the cells subjected to both oxygen and glucose deprivation saw a reduction of up to 84 %, representative of the damage seen in IRI. Treatment with 0.25 mM NAC or 1.25 µM curcumin resulted in a 4.5-fold increase in viability with respect to the OGD/R group, reversing almost completely the effect of OGD/R. Greater concentrations had a negative effect on viability due to increasing cytotoxicity, while lower doses showed less therapeutic effect.

Discussion and Conclusion: OGD/R had a devastating effect on IEC-6 cell viability; however, NAC and curcumin were able to almost completely prevent the damage caused by reoxygenation, improving the cell viability to levels similar to those of the cultures deprived only of glucose. Thus, this study paves the way for in vivo trials of these two antioxidants for the treatment of mesenteric ischemia-reperfusion injury. Nonetheless, oxidative stress and

inflammation biomarkers should also be studied to better understand the mechanism of action of these treatments.

Title: **HETEROGENEITY BETWEEN DONORS FOLLOWING GABA ADMINISTRATION TO TRANSDIFFERENTIATE HUMAN A-CELLS INTO INSULIN-SECRETING B-CELLS IN VITRO AND IN VIVO**

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Background: The transplantation of human islets remains a spectacular method that reserved for a privileged few. A treatment against diabetes must be cheap and accessible even to third-world countries. GABA, identified by molecular screening, induces conversion of α-cells to β-cells, by nucleocytoplasmic translocation of the α-cell specific transcription factor, ARX, in murine and human islets in vitro and in vivo (collaboration with U1190). Murine studies have proven to be controversial and only one publication shows an increase in human β-cells and plasma insulin levels. The aim is to confirm in vitro and in vivo the effect of GABA on human islets and understand the heterogeneity of response between donors for future clinical application in human islet transplantation.

Material and Methods: Human islets have been used in agreement with the Agence de la BioMédecine. In vitro, human islet preparations were cultured ± GABA (50µM) in 3D for 15 days (n = 6) or 30 days (n= 3). In vivo, 7 human islet preparations transplanted into immunodeficient mice were treated ± GABA (20µM), administered daily by intraperitoneal injection for 28 days (n= 6 mice : 3 Control and 3 Treated) with weekly monitoring of blood glucose, weight, human C-peptide levels. The percentage of Insulin, Glucagon in islets was determined by the quantification of the surface area in vitro, of the volume by planimetry in vivo thanks to immunofluorescence labeling.

Results: GABA induced a slight conversion of α-cells to human β-cells in vitro and in vivo : In vitro @14 days : β-cells percentage represents 68.91% ± 3.75% in Control versus 74.64% ± 5.39% in GABA, α-cells percentage represents 31.09% ± 3.75% in Control versus 25.36% ± 5.39% in GABA. In vitro @ 28 days : β-cells percentage represents 74.95% ± 5.39% in Control versus 79.39% ± 5.55% in GABA, α-cells percentage represents 25.05% ± 5.39% in Control versus 20.61% ± 5.55% in GABA. In vivo @ 30 days : β-cells percentage represents 63.04% ± 4.69% in Control versus 66.21% ± 5.99% in GABA, α-cells percentage represents 36.96% ± 4.69% in Control versus 33.79% ± 5.99% in GABA. In 1 month, GABA had no impact on blood glucose, weight and human C-peptide levels ($p>0.05$). A heterogeneity between donors has been observed: 66.66% responders in vitro (14 days) / 100% (28 days) / 57.14% in vivo. Other evidence of the biological activity of GABA has been demonstrated as neogenesis of α-cells in ducts cells, increase in the number of Nkx6.1+ β-cells and nucleocytoplasmic translocation of ARX.

Discussion and Conclusion: The effect of GABA on the transdifferentiation of α-cells into β-cells in human islets appears to be moderate and heterogeneous between donors but enhances NKX6.1 expression in β-cells. Future studies will provide more evidence, in addition to Insulin and Glucagon at the transcriptomic and proteomic level, on the involvement of GABA in transdifferentiation as well as on the identification of donor characteristics that may influence the response to GABA.

Title: **IDENTIFICATION OF PRE- INTRA- AND POST-OPERATIVE PREDICTIVE FACTORS INFLUENCING THE PRIMARY PATENCY OF FEMORO-POPLITEAL AUTOLOGOUS VEIN BYPASSES.**

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Background: Femoropopliteal bypass (FPB) is one of the most frequent procedure in vascular surgery. Keeping a patent bypass at 1 year remains a real challenge. Several factors seem to influence the primary patency. We aim to identify the pre-, intra- and post-operatives' factors influencing primary patency at 1 year in patients with either peripheral artery disease (PAD) and popliteal artery aneurysm (PAA).

Material and Methods: A retrospective analysis was performed for all consecutive patients undergoing below-the-knee (BTK) FPB in autologous vein surgery in our tertiary department between January 2010 and December 2020. Patients with PAD (intermittent claudication - IC and critical limb threatening ischemia – CLTI), with PAA were included.

Results: In total, 383 FPB in autologous vein were performed. Indications for surgery were IC, CLTI, PAA and traumatic or iatrogenic in 275 (72%), 102 (27%) and 6 (1.6%) patients, respectively. At 1-year, the global primary patency was 61%. The risk factors for thrombosis at 1 year were history of diabetes and fémoro-popliteal PTA stenting and proximal anastomosis performed on prosthetic donor axis. while the good prognostic factors were reverses saphenous FPB, and realization of a FPB for the treatment of a PAA.

Discussion and Conclusion: In our study, some patients or surgical procedure characteristics represented a risk factor for thrombosis at one year.Diabetes and a history of PTA stenting of the femoro-popliteal axis was significantly associated with lower primary patency at one year. This comorbidities has already been identified as a poorer prognostic factor in may studies. We showed a significant difference in primary patency in favor of reverse VGS bypasses and FPB for PAA. The primary patency at one year highlighted in our study (61%) is lower than the literature (69% to 81.4%). Can be attributed to significant heterogeneity between the studies analysed considering populations that are not comparable. We present a real-life study from a regional critical ischemia reference center. This center bias can influence the severity and complexity of the lesions presented by our patients. Surgical site infection or a serious CV event postoperatively was associated with poorer primary patency at one year, like in the literature.

Amputation rate in our study (10%) is lower than those in the literature estimated between 20 and 30% at 1 year. Our study has limitations: this is a retrospective, non-randomized study, patients' selection method (PMSI) and data collection based on reports may contain errors. Despite of this, our study is very comprehensive by considering many clinical, paraclinical and anatomical criteria at the different stages of patient care, unlike previous work. Several factors influence the patency of autologous FPB. Some are related to aetiology, patients and their comorbidities or surgical technique. The use of the venous graft in an inverted position and the fight against surgical site infections seem to be one of the major factors in maintaining primary patency. The management of CV risk factors and optimal medical treatment also seems essential to reduce the risk of postoperative CV events leading to bypass thrombosis.

Title: **CONSIDERING THE ROLE OF GENERAL SURGEONS AGAINST MAJOR OR MEGA-DISASTERS, INCLUDING NBC/CBRNE HAZARDS AND THE DISASTER MEDICINE COMPENDIUM**

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Background: The risks of natural disasters (earthquakes, hurricanes, etc.) as well as Nuclear, Biological and Chemical (NBC) or CBRNE (R: radiological, E: explosive) hazards and those of combined type are increasing worldwide. The roles of general surgeon are studied mainly based upon the comprehensive viewpoints of systematizationor or disaster medicine compendium.

Material and Methods: The research mainly focuses on the so-called ccomplex or combined major disasters: i.e. 1)Tōhoku Earthquake/Tsunami and Fukushima Nuclear Plant Incident(N) 2011 in Japan, 2) Kashiwazaki-Kariwa Plant Incident(N) after Chuetsuoki earthquake 2007 in Japan, 3)Chernobyl plant(N) 1986 in Ukraine, 4)COVID-19(B), 5)Tokyo Subway and Matsumoto Sarin Incidents(C) 1994 and 1995, and 6) September11 attack(E) 2001, USA. Most of them were actually treated by our medical teams on scene.

Results: The response was not enough, because of the insufficient preparedness, especially lack of education/knowledge and equipment, How to use PPE or personal protecting equipment and specific medicine are not accustomed. These problems were often followed by the large number of victims, especially the vulnerable people during escape/evacuation, in the shelter or refuge.

Discussion and Conclusion: Specialized therapies/technique are essential based upon each cause of harmful materials: N:nuclear, B:biological , C:Chemical, as well as specified surgical technique. However, bird'-eye view or overall points of support, including mental support and medical care for chronic diseases are also important. However, several problems are left to resolve. How to determine the rule of refuge etc.? Do you expertized to make triage, to guarantee the safety of medical staff and victims, check the fit-test or leak-test? The relevant education is varied and not easily performed.

Conclusions: In the event of complex hazards including NBC or CBRNE, surgical skills are necessary. However, above-mentioned themes have been partly accustomed to general surgical/intensive care teams, although more sufficient training in advance is necessary. These has been points of emphasis for us since 2005, since the Disaster Medicine Compendium, was published tentatively which continues to be updated today for resilient society.