

# Abstracts of the 20<sup>th</sup> Congress of the Spanish Society for Surgical Research, Albacete, October 2014

## LIMITATIONS OF PROCALCITONIN AS A MARKER OF INFECTION IN HEART SURGERY

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**Background:** Procalcitonin (PCT) is one of the mediators in the systemic inflammatory response after having undergone heart surgery. Our objective is to determine the usefulness of PCT as a biomarker of infection.

**Methods:** Study of prospective cohort (2010–2014). Out of 1298 patients operated with cardiopulmonary bypass 122 were analyzed, the ones who developed severe sepsis or septic shock. Levels of PCT, C-reactive protein, leukocytes, creatinine, lactic acid and glucose were measured daily.

**Results:** PCT levels were higher in patients with renal failure (RF) than in those who did not suffer from RF; as well as in a group of patients infected rather than the ones that were not infected ( $p < 0.0001$ ). In those patients with RF the levels of PCT did not show differences both in the group of infected patients and the control group.

**Conclusions:** In those patients suffering from RF PCT are not relevant for the diagnostic and infection monitoring.

## HEALTH-RELATED PHYSICAL FITNESS, REGULAR PHYSICAL ACTIVITY AND DIET QUALITY AMONG SPANISH CHILDREN

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**Objective:** to study the relationship between physical fitness (PF), physical activity (PA) patterns and diet quality (DQ) in primary school children.

**Methods:** 261 students aged 8–12 years participated in a cross-sectional study. Health-related PF was assessed by ALPHA-Fitness Battery, Kree Plus test was implemented to assess PA level and DQ index (KIDMED). Kolmogorov-Smirnov statistical test, a partial correlation analysis controlled for age and sex, and an analysis of variance were performed.

**Results:** Higher values of manual dynamometry, longitudinal jump, overall PF and PA were correlated with higher DQ index, while higher values in 4x10 m running test were related with poorer DQ ( $r = -$ ,  $135 p < .05$ ). The CF-ALPHA was related with DQ ( $F = 6.095$ ,  $p < .01$ ). DQ correlated with PA ( $F = 4.289$ ,  $p < .05$ ).

**Conclusions:** The Results of this study suggest that increasing PF levels among children could have beneficial effects on several health markers

## COMPARATIVE ANALYSIS OF WEIGHT PATTERNS AFTER ROUX-EN-Y GASTRIC BYPASS VS SLEEVE GASTRECTOMY IN MORBIDLY OBESE PATIENTS

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**Introduction:** To describe the weight curve during three years following Laparoscopic Sleeve Gastrectomy (LSG) and Roux-en-Y gastric Bypass (RYGB).

**Methods and Results:** Retrospective review of patients treated in period of 2005–2012. LSG Group ( $n = 122$ ): Before surgery: mean weight 132.1 kg, mean BMI 49.7 kg / m<sup>2</sup>. One year after: mean BMI 35.5 kg / m<sup>2</sup>, PEBMIL 56.3%. Three years after: mean BMI 35.9 kg / m<sup>2</sup>, PEBMIL 47.0%. RYGB group ( $n = 175$ ): Before surgery: mean weight 120.3 kg, mean BMI 45.8 kg / m<sup>2</sup>. One year after: mean BMI 31.3 kg / m<sup>2</sup>, PEBMIL 70.6%. Three years after: mean BMI 30.9 kg / m<sup>2</sup>, PEBMIL 73.5%. Comparing PEBMIL according to techniques, significant differences a year, two and three years after surgery have been found.

**Discussion and conclusion** Patients undergoing RYGB have better weight evolution than LSG. Maximum peak occurs two years after surgery. In LSG, maximum weight loss and occurs at the first, unlike other data in the literature.

## ESOPHAGEAL FUNCTION IN BARIATRIC SURGERY PATIENTS

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**Background:** Obesity is known as a risk factor for gastroesophageal reflux disease. The aim of this study was to evaluate esophageal function in bariatric surgery patients.

**Methods:** Bariatric surgery patients were studied with pH monitoring and esophageal manometry. DeMeester score, % of time with pH < 4, mean resting pressure of the LES (lower esophageal sphincter), total and abdominal LES length and LES relaxation index were analyzed.

**Results:** 70 patients (24 men; 46 women). Mean age 42 (21–65) years. Mean BMI 47 (37–72) kg/m<sup>2</sup>. DeMeester score exceeded the upper normal limit in 64% of patients. Mean LES pressure was  $18.3 \pm 8.5$  mmHg. No correlation between BMI and DeMeester scores was found. However, a weak positive correlation between BMI and LES pressure was observed.

**Conclusion** Bariatric surgery patients frequently associate pathological gastroesophageal reflux. However, these alterations do not correlate with BMI changes or modifications in LES manometric profile.

## METABOLIC CHANGES AFTER GASTRIC LAPAROSCOPIC BYPASS: REALITY OR FICTION?

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**Background:** Bariatric surgery is a part of a multimodal treatment and has shown to be the most efficient long-term measure regarding weight loss and reduction of comorbidities, although it involves long term metabolic changes.

**Methods and Results:** We studied patients undergoing gastric bypass in our center between 2001 and 2010 ( $n = 262$ ), with a BMI of 52.3. We analyzed weight changes, comorbidities and blood test Results before surgery, 6 months and 2 years later.

We achieved an improvement of seric glucose and glycated hemoglobin from the immediate postoperative regardless of weight loss ( $p < 0.001$ ). Total cholesterol decreased statistically and maintained during the follow up ( $p < 0.001$ ). Transaminase decrease was significant the first 6 months. Ferric and vitamin profile were not affected through supplements provided.

**Discussion and Conclusions:** The Interdisciplinary follow-up of the patients is a high recommendation, with nutritional evaluations to improve our Results and avoid long term complications.

# A COMPARATIVE STUDY ABOUT CARDIOVASCULAR RISK VARIABLES ON PATIENTS WHO HAVE UNDERGONE BARIATRIC SURGERY AT TALAVERA DE LA REINA'S HOSPITAL NUESTRA SEÑORA DEL PRADO

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**Introduction:** We can define obesity as the scourge for 21st century and it involves a rise of cardiovascular risk factors (CRF). Dietary treatment and regular exercise are not always strong enough methods to prevent these risks.

**Methods and Results:** Descriptive, retrospective study realized on patients who have undergone bariatric surgery in the obesity group since 2010 to 2013. Analyzed variables were; anthropometric measurement, CRF and treatments, pre and post-surgery. 29 patients were included: 26.7% were men and 73.3 were women. The average age were  $41 \pm 7.75$  years old, being alike in both sexes. The BMI were improved in 20 Kg/m<sup>2</sup> and their lipid profile (HDL, LDL, and triglyceride). The use of treatments on studied pathology decreased. That data was significant with a  $p < 0.05$ .

**Discussion and Conclusions:** Bariatric Surgery could be an effective treatment for patients suffering morbid obesity who cannot improve their health with usual techniques and previously chosen, since this surgery corrects CRF.

# STUDY OF GASTRIC EMPTYING IN MORBIDLY OBESE PATIENTS AFTER LAPAROSCOPIC SLEEVE GASTRECTOMY, WITH AND WITHOUT PRESERVATION OF THE ANTRUM

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**Introduction:** To study the relationship between the preservation or not of the antrum on the rate of gastric emptying and volume changes in morbidly obese patients who underwent laparoscopic sleeve gastrectomy (LSG).

**Methods and Results:** prospective study with two randomized intervention groups according to distances in the initial section of LSG (3 cm and 8 cm from pylorus). A scintigraphy is performed in each patient. Sequence: before surgery, at 6 months and one year after surgery. Preoperative values: 3 cm Group (n = 17): BMI 49.0 kg/m<sup>2</sup>. 8 cm group (n = 19): weight 136.6 kg, BMI 51.9 kg/m<sup>2</sup>. Six months after: Group 3 cm: BMI 38.3 kg/m<sup>2</sup>. 8 cm Group: BMI 38.4 kg/m<sup>2</sup>. One year after: 3 cm group (n = 4) BMI 34.7 kg/m<sup>2</sup>. 8 cm group (n = 8): BMI 34.8 kg/m<sup>2</sup> ( $\pm 4.5$ ). Gastric emptying is faster in group 3 cm vs 8 cm, at 6 months (35.5 min vs 62.5) and one year (52.6 min) after surgery.

**Conclusions:** two technical options behave similarly in terms of weight loss. The preservation of the antrum slows evacuation of food into the duodenum, doubling time compared to patients' 3 cm group. Despite volume increases progressively over time, the gastric emptying continues to decrease clearly.

# PHYSICAL FITNESS AND WEIGHT STATUS AMONG PRIMARY SCHOOL CHILDREN. A PILOT STUDY

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**Background:** to study the associations between health-related physical fitness (PF) level and weight status (WS) in children.

**Methods:** 196 children aged 8–11 years participated in a cross-sectional study. The PF (ALPHA-battery), weight, size, waist perimeter and body mass index ( $19.45 \pm 3.71$ ) were assessed. WS (normal, overweight or obese) was categorized according to the international standards.

**Results:** The correlation analysis showed that higher values in body mass index and waist circumference were correlated with lower performance in the 4x10m running test, Course-Navette test and overall fitness, and with better Results in the manual dynamometry test ( $p < .05$ ). High waist circumference was associated with reduced performance in jump test ( $r = -.167$ ,  $p < .05$ ). The analysis of variance showed that a high PF level is directly associated with normal WS ( $F = 6.051$ ,  $p < .01$ ).

**Conclusions:** The Results suggest that children with higher PF have lower likelihood to be classified as overweight or obese.

# TYPE 2 DIABETES MELLITUS REMISSION IN MORBIDLY OBESE PATIENTS AFTER BARIATRIC SURGERY. RESULTS FROM A RANDOMIZED CLINICAL TRIAL

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**Introduction:** T2DM evolution after bariatric surgery has been widely described. We analyze the Results of a randomized trial comparing Roux-en-Y Gastric Bypass (RYGB), Sleeve Gastrectomy (SG) and Gastric Plication (LGP).

**Methods and Results:** Randomized Clinical Trial with 15 patients at each branch. T2DM morbid obese patients with BMI  $< 43$  kg/m<sup>2</sup> were included.

Patients characteristics were comparable at baseline. Weight loss was significantly greater at RYGB 98.5% vs 81.31% (SG) and 54.09% (LGP). Fasting glycemia and HbA1c changes after 12 months were also greater in the RYGB with no differences between SG and LGP. RYGB group had better Results in terms of T2DM with 60% of complete remission after 12 months vs 40% in SG and 20% in LGP group.

**Conclusions:** Weight loss and T2DM improved in all groups. RYGB showed better Results than the other procedures.

# SURGICAL TECHNIQUE IN THE LAPAROSCOPIC SLEEVE GASTRECTOMY; ANALYSIS OF THE FIRST 100 CASES

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**Background:** Morbid obesity is a problem of health worldwide. It has been demonstrated that the surgical managing is the only one capable of contributing long-term benefits in these patients, being increasingly frequent the employment of laparoscopic sleeve gastrectomy.

**Methods:** We analyze the surgical technology performed in the 100 first sleeve gastrectomy procedures in our center and the surgical complications associated in the first two postoperative weeks.

**Results:** The average operative time was 117 minutes with a standard deviation of 44. 3% of the patients presented leak of the line of clamps 2 of which needed urgent surgery and 4 % presented bleeding receiving all of them conservative management with transfusion, nutritional support and follow-up by means of TAC up to the discharge.

**Conclusion:** Laparoscopic Sleeve gastrectomy by our equipment presents a low rate of surgical complications. Reinforcement of the gastric suture avoids postoperative hemorrhage

# PRELIMINARY EXPERIENCE OF ENDOSCOPIC DUODENO-JEJUNAL BYPASS LINER IN DIABETIC OBESE PATIENTS

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**Introduction:** We evaluate the efficacy of the Endobarrier in diabetic obese patients with poor glycemic control.

**Methods and Results:** Class I and II obese and diabetic patients were included. We analyzed parameters related to weight loss and T2DM evolution. ADA criteria were used to define T2DM evolution. 28 patients were eligible, 13 men. Mean age was 54 (33 to 65) and BMI 33.85 kg/m<sup>2</sup> (29 to 41), with on average 2 antidiabetic drugs. Fasting glycemia was 11.55 mmol/L (5.40–27.50 mmol/L) and HbA1c 8.79% (5.7 to 13.10%). 21 patients had the device explanted. 1 patient had complete remission, 1 partial remission and 3

improved. They needed less than 2 antidiabetic drugs. Insulin was removed in 8 patients. 3 months after retrieval 1 patient continued with remission and 3 improved.

**Conclusions:** This new treatment has low morbidity and promising Results, even in advanced T2DM. We observed patients with complete and partial remission and some cases insulin was retrieved.

#### AORTIC ENDOGRAFT AS NEOADYUVANT TREATMENT IN LUNG CANCER

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**Background:** Lung cancer infiltrating aortic wall requires wide resection for cancer surgery.

Aortic endograft implantation could reduce the high surgical risk for conventional surgery.

**Methods and Results:** CASE 1 59 year old male with left hilar mass infiltrating descending thoracic aorta.

Aortic endograft was implanted, left pneumonectomy and aortic resection were proceeded.

Progressive stent herniation occurs by aortic wall defect, so that a second stent is implanted to stabilize the first.

CASE 2: 64 year old male with left hilar mass with apparent involvement of descending thoracic aorta.

Aortic endograft was implanted and left pneumonectomy done. The aortic wall was not infiltrated, so resection was not needed. During follow-up no recurrence was detected.

**Discussion and Conclusions:** This change in surgical strategy could be of great help to make more patients operable, with a low morbidity and mortality due to minimal invasive approach of thoracic aorta.

#### PROSPECTIVE STUDY OF SUBCLINICAL CORONARY ARTERIOSCLEROSIS WITH CORONARY ANGIOCT IN PATIENTS WITH FAMILIAL HYPERCHOLESTEROLEMIA; PRELIMINARY RESULTS

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**Background:** Heterozygotic familial hypercholesterolemia (HFH) is characterized by high levels of LDLc and early coronary disease, having higher risk even if taking statins.

Detection of subclinical disease is important for risk stratification.

The aim of the study was to determine the burden of coronary subclinical atherosclerosis, plaques characterization, degree of stenosis and number of coronary segments involved in patients with HFH without clinical disease, by means of angioTC-

**Methods:** 107 patients were studied, age ranging 26–64 years.

In all patients calcium score and coronary angioTC were performed.

**Results:** Calcium score was 0 in 40% of patients. 1–100 in 36%, 101–400 in 16% and 8% in >400; there was a clear correlation with patients' age. 89.71% of patients had no stenosis or was <50%; 6.54% had 50–70% stenosis and 3.6% >70%, needing immediate treatment. Surgical bypass was performed in two cases.

**Conclusion** Coronary angioTC allows diagnosis of asymptomatic coronary disease in patients with HFH; risk has to be individualized allowing monitorization and treatment of significant lesions.

#### PREDICTING RUPTURE OF AORTIC ANEURYSMS; AN APPRAISAL OF MECHANICAL PROPERTIES OF THE AORTIC WALL

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**Introduction:** Complications of thoracic aortic aneurysms (TAA), namely rupture and dissection, are directly related to the aortic diameter (Laplace law), but other mechanical factors such as peak wall stress, maximum strain and molecular disarray also play an important role in assessing the risk of rupture and hence, the timing of surgical repair.

**Materials & Methods:** A node network strategy (Hosp. Puerta de Hierro-Dept. Ciencias de Materiales- Dept. Simulación ETSIC, Madrid) allowed us to thoroughly compare segments of normal aorta vis-à-vis specimens obtained from atherosclerotic, Marfan and bicuspid aortic valve patients.

In vitro studies yielded data on stress/strain curves and peak resistance of all specimens, totalling 56 samples from the ascending and 38 from the descending thoracic aorta (organ donors) as well as 26 surgical specimens. Uniaxial stress tests, residual stress (Liu & Fang) and, whenever possible, cylinder dilation tests, were carried out until the breaking point.

**Results:** The behaviour of the aortic wall is that of an anisotropic material, greatly reduced by age. However, mechanical resistance is not directly influenced by etiology of the clinical ailment, with aneurysmal wall and that from bicuspid valves, showing similar patterns of rupture.

**Conclusion** Both, age and diameter, result in a diminished resistance to stress. Furthermore, numerical models mirror the morphological features of aneurysms, and thus, help predict outcomes in a particular patient.

#### AORTIC VALVE-SPARING REMODELLING TECHNIQUE. INITIAL EXPERIENCE

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**Introduction:** Various valve-sparing aortic root replacement techniques have been described, with good medium to long-term Results.

**Methods and Results:** From July 2012 to May 2014, 13 patients (age range 27–76 years, median age 42.5 years, 92% male) underwent the remodelling technique in our center. 62% had a tricuspid aortic valve. 12 patients had grade III-IV/IV aortic regurgitation. An associated procedure was done in 5 cases. Median bypass and cross-clamp times were 200 (range 123–331) and 136 minutes (range 117–193) respectively. In every patient, intraoperative echocardiography showed aortic regurgitation grade 0-I/IV. There was one death related to severe respiratory failure. Median hospital stay was 8 days. At median follow-up of 15.2 months (range 2.7–25.8), echocardiography showed progression of regurgitation in only one patient (grade II/IV). Eleven patients remain in NYHA class I, and 1 (with morbid obesity) in class II.

**Discussion and Conclusions:** The aortic valve-sparing remodelling technique offers very good Results.

#### THE INCLUSION OF CLINICAL VARIABLES INCREASES THE PREDICTIVE CAPACITY OF NNIS INDEX IN HEART SURGERY

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**Background:** NNIS index is commonly used to estimate the risk of developing surgical-site infection (SSI). In heart surgical patients this index cannot be discriminated. Our objective is to identify risk factors associated to SSI that improve the predictive capacity of the index NISS.

**Methods:** A prospective cohort study in which 1278 patients were analyzed. Some clinical epidemiological variables, type of surgery, degree of contamination, operative time, ASA or reoperation and perioperative antibiotic prophylaxis.

**Results:** 1,372 proceedings were carried out. The incidence of SSI was 3%. In the logistic regression analysis some factors were linked to the incidence of SSI: diabetes mellitus (RR, 3.3; 95% CI, 1.8–5.9), obesity (RR 3.1; 95% CI 1.4–6.9),



COPD (RR, 2.9; 95% CI, 1.1–7.5) and the operative time > 300 minutes (RR, 1.0; 95% CI, 1.0–1.1).

**Conclusions:** The inclusion of certain clinical parameters to the NISS index can improve its predictive capacity.

#### RESULTS OF DIGITAL SYMPATHECTOMY IN THE TREATMENT OF POST-TRAUMATIC RAYNAUD'S SYNDROME

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**Background:** Raynaud's syndrome occurs often in Basque pelota players due to repeated traumas. We will analyze the Results of digital sympathectomy in this group of patients.

**Methods:** Since 2004 to 2011 182 digital sympathectomy procedures have been carried out in 60 male players (23.4 ± 4.4 years old) suffering from severe digital ischemia and with disability. The study methods have consisted of Doppler, plethysmography, magnetic resonance with angiographic tests and arteriogram.

**Results:** The prevailing waves in the plethysmography were “d” and “h”. In the arteriogram some segmental occlusions appear and limited with the collateral branch adjacent to the finger with severe ischemia. After having undergone surgery all the patients experienced an instantaneous remission of the pain, prompt healing of the ulcers, distal anhidrosis and return to sport after ten weeks.

#### TREATMENT OF ACUTE TYPE A AORTIC DISSECTIONS WITH FROZEN ELEPHANT TRUNK

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**Introduction:** Acute type A aortic dissection (ATAAD) is a surgical challenge. In patients with aortic arch involvement, performing a total aortic arch replacement with frozen elephant trunk (FET) is controversial.

**Methods:** From January 2011 to June 2014, 40 patients with ATAAD were admitted to our centre. Of this, 8 patients received a FET procedure (6 males, age 57 years) due to intimal tear in the aortic arch.

**Results:** Cardiopulmonary bypass, X-clamp and cardiac arrest times were 240, 150 and 55 min, respectively. The operative mortality rate was 25% (n = 2). There were not recurrent nerve palsy or spinal cord injury. During follow-up (32 ± 13 months) no patient died or required reoperation for the distal aorta.

**Conclusions:** FET technique is a promising approach in patients with ATAAD, although demands high technical skills. We believe FET improves long-term outcomes in patients with intima tear or re-entry in the aortic arch.

#### AUTOLOGOUS FAT TISSUE AS HEMOSTATIC AGENT IN VASCULAR PROCEDURES

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**Introduction:** The autologous fat tissue has been used for decades as a hemostatic agent, from the use of pedicled pericardial patches, to the use of fat spheres to fill cavities after partial nephrectomy and creating fat patches teflon coated in aortic surgery. There is also an experimental study demonstrating the effectiveness of fat in microvascular anastomosis.

**Methods and Results:** We report 10 cases as examples in vascular procedures in which we extract fat from the same surgical wound and deposit it on various minor bleeding suture lines. Hemostasis was achieved in all cases. Comparatively, it acts faster than usual hemostatics.

**Discussion and Conclusions:** There are not in vitro studies explaining the mechanism of action but could be the interleukins, TNF and PAI-1 secreted by adipocytes responsible for the inhibition of natural fibrinolysis. Free Autologous adipose tissue removed during surgery has proven to be a fast, effective, non-immunogenic and inexpensive hemostatic.

#### EXTERNAL VALIDATION EUROSCORE II IN OCTOGENARIANS UNDERGOING AORTIC VALVE REPLACEMENT

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**Introduction:** EuroSCORE has been proposed to identify patients at high risk. However, this system overestimates the actual risk, especially in octogenarians undergoing aortic valve replacement. EuroSCORE II was created to overcome these previous limitations. External validation of this model in octogenarians has not yet been evaluated.

**Methods and Results:** 387 octogenarians were studied. Observed mortality was 8.5% and expected mortality was 6.4% by EuroSCORE II. Calibration was good (p = 0.19 HL test) and power of discrimination was excellent (ROC area = 0.89). Adequate calibration was observed in the first three quartiles but not in the last one where EuroSCORE II underestimated the surgical risk (p = 0.032). Similar Results were obtained in the subgroup of patients undergoing isolated aortic valve replacement.

**Discussion and Conclusions:** EuroSCORE II is a good model for predicting mortality in octogenarians undergoing aortic valve replacement at our institution. However, underestimates the risk in patients with high surgical risk.

#### PET-CT SCAN ROLE ON AFTER MEDIASTINAL LYMPHADENECTOMY IN PATIENTS OPERATED ON EPITHELIAL PULMONARY METASTASES

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**Introduction:** The aim of this study was to determine the role of PET-CT scan on lymph node involvement in patients operated on pulmonary metastases of epithelial origin.

**Methods and Results:** Retrospective study on a prospective database from 2007–2011. We analyzed clinicopathological characteristics, positive predictive value (PPV), negative predictive value (NPV), sensitivity, specificity and diagnostic accuracy of PET-CT scan in 70 patients operated on pulmonary metastases of epithelial origin. There was transient dysphonia in 2 cases (2.9%). Mediastinal positive PET-CT scan = 15 (21.4%) patients. Lymph node metastasis = 10 (14.3%) cases.

**Results:** Sensitivity 40%, Specificity 81.6%, PPV 26.7%, NPV 89.1%, Diagnostic accuracy 75.7%.

**Conclusions:** Sensitivity and PPV of PET-CT scan were low and NPV was high.

In 14.3% of cases lymph node metastases were diagnosed.

Complications of lymphadenectomy were low.

Based on these Results, we defend systematic lymphadenectomy in surgery of pulmonary metastases of epithelial origin tumours.

#### COMPARISON OF THE ANATOMICAL-PHYSICAL AND TOMOGRAPHICAL METHODS FOR RATS LUNG VOLUME CALCULATION

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**Introduction:** The study compares the tomographical and anatomical-physical methods for the Results of the measurement calculating the lung volume (LV).

**Material and methods (Figure 1)**

Experimental study of 17 female Sprague–Dawley rats with weights 270–325 g, anesthetized with ketamine and xylazine, doing serial CT and subsequently euthanized by CO<sub>2</sub> inhalation. Average cervico-sterno-laparotomy, tracheal cannulation with Abbocath and resection of the cardiopulmonary block. Lung inflation with 3 cc of air and immediate clipping and sectioning of the left lung which is subsequently sutured to a weight with known volume and immersed in a graduated cylinder filled with water. Finally, the volume of displaced water is measured. Both methods were compared using the Student's T-test.

**Results:** (Table 1) No statistically significant differences ( $p = 0.476$ ) were observed, being the correlation 0.950 ( $p = 0.000$ ).

**Conclusions:** Our Results suggest that CT is a valid and advisable method for the measurement of LV in rats as it is a non-invasive technique.

**INTRATHORACIC RESECTION OF GIANT SOLID TUMORS USING THE KIWI OMNICUP SUCTION CUP. A SERIES OF CASES**

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**Introduction:** The obstetric suction cup systems (SCS) facilitates the handling of giant intrathoracic solid tumors (GIST) which reduces risks. We introduce a novel technique devised by one of the authors.

**Methods and Results:** Series of consecutive GIST cases adapting an SCS in thoracic surgery.

Six patients with GIST were operated from 25/02/2013 to 07/11/2014 using SCS ("Kiwi OmniCup delivery system Vacuum" TM Clinical Innovations, Murray, UT, USA). This device is capable of withstanding loads higher than 13 kg with low risk of injury. It sucks on the tumor's surface facilitating traction, handling and extraction. The Results are summarised in Table 1.

**Discussion and findings** The utilisation of this device in thoracic tumors has not been described yet in the literature. It provides better surgical field allowing traction in different directions, and facilitates the tumor removal while decreasing cardiac and tracheal compression. Larger series are required in order to statistically confirm the benefits of this technique.

**LAPAROSCOPIC TRAINING USING VIRTUAL SIMULATION: CAN REALISTIC AND LOW-COST VIRTUAL FORCEPS BE ACHIEVED?**

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**Introduction:** Different haptics with and without force-feedback are usually used by virtual simulators to perform surgeons training. Furthermore, its learning usefulness are widely demonstrated, however their use are not highly extended because they are expensive. Therefore, a new videogame peripheral device that solves these problems is presented in this work.

**Development:** Due to its morphological (high similarities) and functional (similar movements and actuators) features with ergonomics laparoscopic tools, the Razer Hydra device has been adapted to use it in virtual laparoscopic simulator such as haptic device.

In this work a preliminary study has been developed to obtain a subjective evaluation of surgeons after performing a simple virtual simulation.

**Conclusions:** The Razer Hydra device constitutes a viable alternative to current haptics based on its good preliminary scoring. This presented system is not expected to compete with force-feedback haptic devices, but it is a low-cost alternative to other haptic devices without force-feedback.

**NISSEN FUNDOPLICATION: A CASE STUDY OF DIDACTIC CRITERIA FOR COGNITIVE TRAINING BASED ON THE MISTELA ENVIRONMENT**

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**Introduction:** The MISTELA project defines a European pedagogical framework to determine didactic criteria for effective and efficient minimally invasive surgery (MIS) training in e-learning environments. This work shows a case study of contents developed using this framework for laparoscopic Nissen fundoplication (LNF).

**Methods and Results:** Based on semi-structured interviews, 17 didactic criteria for contents on LNF for basic surgical training were established, grouped in: anatomy; equipment and instrumental; indications and contraindications; and complications. The course is built in 5 didactic modules, including the above-mentioned sets, plus the steps of an LNF using augmented videos. The content has been positively evaluated by 13 European expert surgeons out of whom 10 rated the course distribution as suitable.

**Discussion and Conclusions:** The MISTELA project presents a European framework for MIS training based on e-learning. This work shows its application to LNF, indicating that also other MIS procedures can be added to the framework.

**IMAGE-BASED SIMULATION IN A REALISTIC LEFT-HEART**

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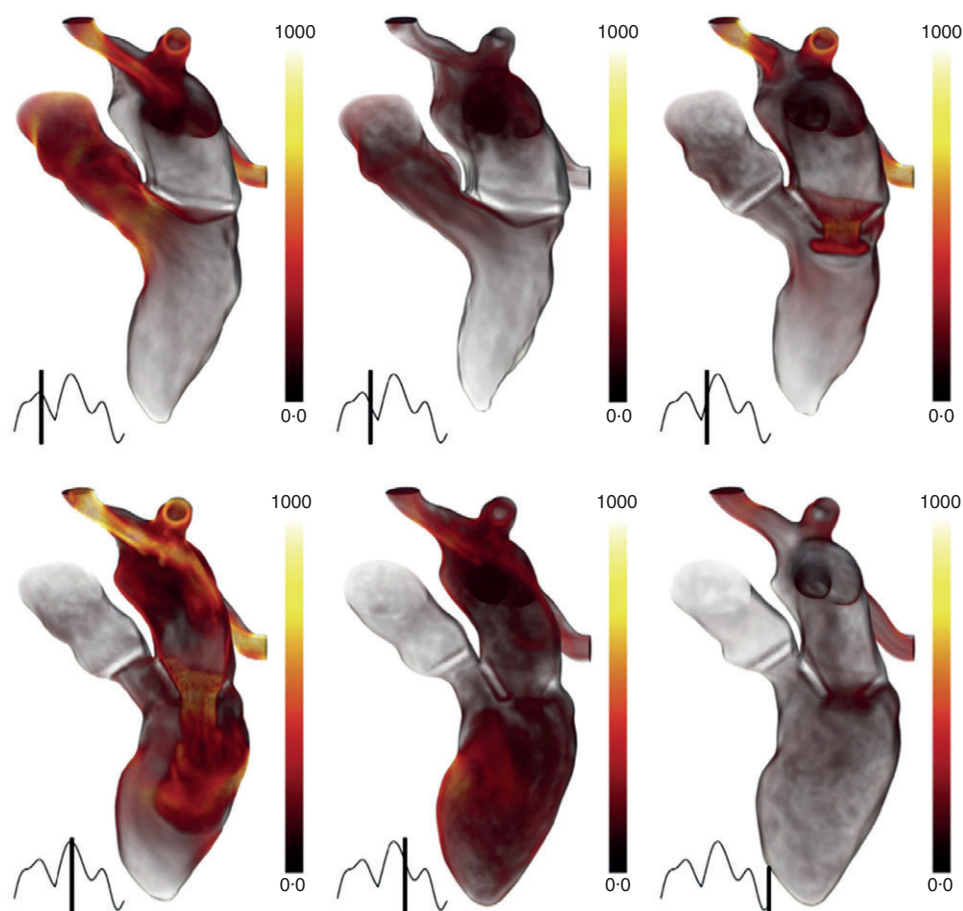
**Introduction:** A numerical framework and its application to a patient left heart have been exposed. This numerical framework only requires gated 4D images of a patient heart and global morphological parameters of the mitral valve as input data for the computation.

**Methods and Results:** A numerical domain is extracted from one 3D medical image and the heart wall movements are automatically calculated to follow the heart wall displacements recorded in the 4D medical images.

A computation of the blood flow in a full left heart including the left ventricle, atrium and the aorta has been conducted in this domain.

In the left atrium, the flow reported shows a clear swirling motion, that maintains blood in motion even without net blood flow coming from the pulmonary veins. Furthermore, the well-known mitral jet, preceded by an energetic vortex ring, is also observed.

**Discussion and Conclusions:** The classical large recirculating cell, characteristic of the flow during diastasis, can be seen in the phased-averaged velocity fields. All these features have been reported several times in the literature, both in numerical and experimental studies and by medical imaging.



Volume rendering of non-dimensional vorticity magnitude of the phase-averaged velocity fields at different times of the simulation.

First row, left plot:  $t/T = 0.25$ . Center plot:  $t/T = 0.35$ . Right plot:  $t/T = 0.45$ . Second row, left plot:  $t/T = 0.55$ . Center plot:  $t/T = 0.65$ . Right plot:  $t/T = 0.99$ . Sketch of the inflow flow rate is reported with a time indication.

#### INITIAL EVALUATION OF A NOVEL ELECTRONIC INSTRUMENT BY THE PERFORMANCE OF BASIC MICROSURGICAL SUTURING TASKS

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**Background:** The purpose of this study is to objectively evaluate the use of a novel electronic forceps on several microsurgical basic tasks.

**Material and Methods:** Three expert microsurgeons (>100 microsurgical procedures) performed four suturing exercises on different angles (45° and 135°) using two different types of suture (polypropylene 8/0 with 5 mm taper needle; Nylon 9/0 with 4 mm circular needle). An end-to-end anastomosis was also practiced on a vascular microsurgical training simulator. For all exercises was used a surgical microscope. A microsurgical needle holder was utilized by the dominant hand for the execution of each of the exercises, while on the other hand (non-dominant hand) was used a Dumont n°3 forceps or the new electronic device (Electronic forceps, SERVOMEDICS SL, Barcelona, Spain). The instrumental movements that were traced during the execution of each task were recorded using an electromagnetic tracker (Aurora, Northern Digital Inc., Waterloo, Canada).

The time spent on each exercise and other measures based on the use of the instruments were analyzed. Each exercise was recorded and the videos were evaluated by an experienced microsurgeon using a previously validated global rating scale described for microsurgical procedures. To compare the Results obtained for each type of instrument the Wilcoxon test with significance value of  $p < 0.05$  was used.

**Results:** For all exercises the distance traced by the instruments, acceleration and gentleness of movements had significant differences between the use of both types of instruments ( $p < 0.05$ ), getting the electronic device unfavorable values. Evaluating the quality of execution, the electronic instrument got significantly lower values regarding the tissue respect ( $p = 0.008$ ), efficiency of movements ( $p = 0.04$ ), instrument handling ( $p = 0.033$ ) and surgical fluency ( $p = 0.027$ ).

**Conclusions:** The new device is usable for the performance of basic exercises in microsurgery.

We consider that a period of training with this new instrument may improve the efficiency of the instrument movements. The evaluation made and the microsurgeons comments will be considered for future versions of the instrument.

#### USE OF PARAVERTEBRAL INJECTION OF BOTULINUM TOXIN TO CONTROL SCLIOSIS PROGRESSION IN PINEALECTOMIZED CHICKEN

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GRANTS: Sociedad para el Estudio de las Enfermedades de Raquis (GEER)

**Background:** Severe and progressive idiopathic scoliosis has no satisfactory treatment since high rates of morbidity and mortality are associated.

**Methods:** Surgical pinealectomy was performed in 52 Broiler chickens to induce progressive scoliosis. We compared the scoliosis progression between a control group and an intervention group assigned to paravertebral injection of botulinum toxin electromyographically assisted. Conventional x-ray and anatomopathologic studies were conducted. Cobb angle method was used to measure spine deformation.

**Results:** Mean scoliosis values observed were 34,45° and 14,08° for control group and paravertebral injection of botulinum toxin group respectively ( $p < 0.05$ ).

**Conclusions:** Paravertebral injection of botulinum toxin restrains scoliosis progression in pinealectomized chickens. Botulinum toxin injection has shown minor complications for many clinical applications. Further studies are necessary to validate this therapy as an alternative to control progressive idiopathic scoliosis.

#### LIPOFILLING USE IN IMPROVING RESULTS OF BREAST SURGERY

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**Introduction:** To present our series of patients has been carried out Lipofilling Technical in the University General Hospital of Ciudad Real.

**Methods and Results:** A descriptive, retrospective series of patients treated surgically for breast cancer candidates for breast reconstruction using autologous fat graft in the period of time between 2010 and 2013. Results Our series consists of a total of 40 female patients with a mean age of 44.9 years (40–54). The mean hospital stay was 23 hours without complications in the short or long term. 15 (37.5%) patients have reported sinking volume loss. In 6 patients have undergone the procedure again.

**Discussion and Conclusions:** We conclude that, in our experience for two years, autologous fat can be a convenient technique to allow regeneration of affected areas, providing elasticity to tissues in patients with cosmetic defects after breast cancer.

#### PSOAS ABSCESS, AN UNCOMMON PATHOLOGY? A REVIEW OF 42 CASES

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**Background:** Psoas abscess (PS) is uncommon. However its incidence has increased; only in 1998 the reports were 87 cases.

**Material and Methods:** Retrospective review of 42 patients with PS from 1991 until 2013.

**Results:** 28 male patients (66%); average age 59 years (7–90). Fever and lumbar pain were the most frequent symptoms. Primary PS: 15 patients (36%) Positive psos sign: 17 cases (40%), palpable mass: 24 (57%); abdominal or hip pain: 12 (28%). Recurrence 2 cases (4%), sepsis 14 cases (39%). Mortality 9.5%. 20 patients were diagnosed with a CT scan (100% sensitivity), 13 with ultrasound and 9 with both. Every patient received I.V. antibiotics associated with percutaneous drainage in 8 cases (9.5%) and with surgery 34 patients (89.5%). The most common germ was *Stph. Aureus* (28%).

**Conclusions:** PS diagnostic is made by CT scan or ultrasound. PS treatment requires antibiotics and immediate drainage, with special focus for the primary pathology.

#### ISOLATION AND CULTIVATION OF COLONIC STEM CELLS IN OUR CENTER

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**Introduction:** The intestinal stem cells are located in the Lieberkühn crypts, there are between 4–6 stem cells per crypt. In 2011 the first protocols for isolation and cultivation of human colonic stem cells were described (Jung et al., Nature Medicine, 2011).

**Methods:** Since September 2013 the project has been developed in our center. The protocol is divided in a clinical and a laboratory phase. In this study we have included 21 patients with CRC of which 76% (16) were male.

**Results:** The mean age was 71 years. 62% (13) were left colon tumors the remaining 38% (8) of the right colon. In 100% (21) of tumors diagnosis was adenocarcinoma. Only 9% (2) was objective metastasis (lung and liver) in the preoperative study.

**Conclusion:** The standardization of the isolation and cultivation of colonic stem cells allows specific cell study that in the future would contribute to the development of multiple therapeutic options.

#### A FEASIBILITY STUDY OF MINILAPAROSCOPY AND SINGLE INCISION SURGERY FOR THE TREATMENT OF EXPERIMENTAL GASTRIC SUBMUCOSAL PSEUDOTUMORS

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**Introduction:** We evaluate the feasibility and effectiveness of the single-site surgery and minilaparoscopy during intragastric treatment of experimental submucosal pseudotumors in the pre-pyloric area.

**Methods and Results:** Six healthy female pigs underwent a creation of submucosal pseudotumor near the pylorus. The treatment combined minilaparoscopy or single-incision intragastric surgery with endoscopy. The pseudotumors were resected and the gastric mucosal layer was closed using intragastric sutures. A one-month clinical follow-up and a histological examination were accomplished in all animals. More technical limitations were encountered during the single-incision surgery regarding the minilaparoscopic surgery. The perforation of gastric wall was the main complication encountered. No alterations of the gastric emptying or digestive symptoms were observed. Total operative time ranged from 70 to 130 min.

**Discussion and Conclusions:** The combinations of minilaparoscopy or single-incision approach with endoscopic vision were determined technically feasible, safe and useful to remove this type of lesions in an experimental model.

#### EFFECT OF HYPERTHERMIA ON THE PROLIFERATION OF CC-531 CELLS "IN VITRO"

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**Background:** Prior to induce hyperthermia on whole animals as a therapeutic approach against liver tumors, it is necessary to check their sensitivity to hyperthermia in vitro.

**Methods:** CC-531 colorectal cancer cells were subjected to 47°C for 30', 45' or 60'. The experiment was carried out both in normal cultures (RPMI + 10% FCS) and in cultures with All-trans Retinoic Acid (ATRA).

**Results:** Exposure for 30' showed no effect. When prolonged to 45', the number of cells was slightly increased 24 h. later. However, following 60' of hyperthermia 22% of the cells died ( $p < 0.05$ ), and the effect was yet more evident after 24 h. (70% reduction;  $p < 0.001$ ). In ATRA treated cultures, exposure to hyperthermia showed similar effects to non-treated cultures; after 60', 30% of the cells died, and a reduction to 60% was seen after 24 hours ( $p < 0.05$ ).

**Conclusions:** Sixty minutes exposure of the cultures to 47°C reduced by more than 50% the number of cells 24 hours later.

#### SPECIFICITY OF RGD-MAGNETIC-NANOPARTICLES FOR COLORECTAL CANCER CELLS GROWING IN THE RAT LIVER

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**Background:** RGD are thought to selectively adhere to integrins from cancer cells and endothelial cells from tumor vessels.

**Methods:** US-guided injection of CC-531 cells into the rat liver were allowed to grow for 30 days; then, RGD-MNP were delivered through the splenic artery; 12 h later, MR was performed and the livers removed for histology and ICP-MS detection of Fe.

**Results:** After RGD-MNP infusion, Fe content was increased by 45% in the tumor tissue (71.25 µg vs 49.0 µg). Histological analysis showed that Fe was selectively located beside the endothelium of tumor vessels and inside the peripheral stroma of the tumor. In the normal liver tissue Fe was retained inside the Kupffer cells. MR also showed the Fe being placed in the periphery of the tumor masses.

**Conclusions:** MNp adhere to endothelial cells in the tumor and are also retained inside the fibrovascular tumor tissue. However, they are also captured by Kupffer cells.

#### CLINICAL UTILITY OF PLASMA EXOSOMES IN THE DIAGNOSIS OF COLON CANCER

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**Introduction:** Plasma exosomes by participating in physiological and pathological processes of cells to transfer information and to access them through minimally invasive methods could play a key role in the diagnosis, prognosis and monitoring of cancer.

**Methods and Results:** Was collected at the University Hospital of Albacete, 34 samples from patients with colon cancer and 33 control subjects using the same protocol isolation, extraction and determination of protein concentration. The result obtained ( $p < 0.05$ ) suggest that patients with colon cancer have higher levels of exosomes than healthy subjects without any significant difference with respect to sex and age. The power as a diagnostic test after applying the ROC curve was medium.

**Discussion and Conclusions:** Patients with colon cancer have significantly higher levels of exosomes than healthy subjects irrespective of age and sex. These Results leave open the possibility of the clinical utility of the quantification of exosomes as a noninvasive test for the detection of colon cancer.

#### A COMPARATIVE ANALYSIS BETWEEN THREE-DIMENSIONAL AND TWO-DIMENSIONAL LAPAROSCOPY ON INTRACORPOREAL SUTURING PERFORMANCE

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**Introduction:** The aim of this study was to evaluate the effect of 3D imaging system on laparoscopic suturing performance.

**Methods and Results:** Thirteen novices and ten experts carried out three sutures with 2D and 3D laparoscopic imaging systems. Two blinded expert surgeons assessed score and total time was registered. Participants completed a questionnaire on a 5-point-rating scale. Statistical significant differences ( $p = 0.039$ ) were observed between novices and experts for both imaging systems in time and score. Experts performed the suture faster with the 3D system ( $p = 0.045$ ). Both novices and experts obtained higher scores with the 3D system ( $p = 0.045$ ;  $p = 0.020$ ). 64.29% of participants preferred the 3D system and depth perception was the characteristic best rated ( $4.25 \pm 0.59$ ).

**Discussion and Conclusions:** 3D systems improve the task of reducing laparoscopic suturing time and it is the preferred choice for most of trainees. Further studies are needed to establish the benefits and cost-effectiveness of 3D systems.

#### PREDICTORS OF RECURRENCE IN BREAST CANCER AFTER CONSERVATIVE SURGERY

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**Background:** Breast-conserving surgery and radiotherapy is the treatment of choice for early-stage breast cancer, but a minority of them will develop a recurrence. The purpose of this study is to identify the predictors of recurrence after conservative surgery.

**Methods:** We enrolled 96 women treated by conservative surgery for breast cancer. According to the exclusion criteria, we finally obtained 81 cases with a follow-up of 5 years. We analyzed the recurrence rate and clinicopathological factors which may be associated. The Kaplan-Meier method and the Cox regression analysis were performed to evaluate the overall survival and predictors respectively.

**Results:** There were 11 recurrences (13,6%). Univariate analysis demonstrated that nuclear grade and tumour size are significantly statistically predictor factors and multivariate analysis revealed that nuclear grade is a predictive factor of breast cancer recurrence adjusted for tumour size, vascular invasion and cellular proliferation index (HR: 5.22; CI 95% 1.29-21.0;  $p = 0,02$ ).

**Conclusion:** Nuclear grade and tumour size are recurrence predictive factors in patients who underwent cancer-conserving surgery.

#### TUMOR HYPERTHERMIA INDUCED BY RGD-MAGNETIC-NANOPARTICLES EXPOSED TO HIGH-INTENSITY SHORT WAVE RADIOFREQUENCY ELECTRIC-FIELDS

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**Background:** Hyperthermia induced with RGD-Magnetic-Nanoparticles (MNp) might be useful to induce necrosis of liver tumors.

**Methods:** CC-531 colorectal cancer cells were inoculated into the liver of WAG syngeneic rats. One month later, once confirmed by US the existence of a tumor in the liver, MNp were inoculated into the liver through a catheter placed in the splenic artery. Next day, the animals were subjected to high-intensity short wave radiofrequency electric-field (16' at 16 kA/m & 5' at 10 kA/m), and the temperature in the peritoneum, normal liver and tumor was recorded.

**Results:** In control animals temperature was raised by 6.3 °C in normal tissue and 6.15 °C in tumor. In MNp treated animals, temperature was increased in 9.4 °C and 8.8 °C, respectively, while Fe concentration in tumor tissue was doubled (85.8 µg vs 49.0 µg). The percentage of MNp trapped in the liver of the animals was estimated to be between 55% and 95%. In three out of four animals, the pathologist estimated that a strikingly high percentage of tumor tissue was necrotic (85%-99%), while only those hepatocytes more close to the tumor were affected.

**Conclusions:** These preliminary Results are encouraging, but need further confirmation.

#### INFLUENCE OF MESENCHYMAL CELLS AT THE TUMOR GROWTH IN A MODEL ANIMAL ORTHOTOPIC XENOGRAPH OF HUMAN PANCREATIC ADENOCARCINOMA

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**Introduction:** Human fibroblasts peritumoral (FTP) stimulate tumor growth. Since obtaining FTP is not available to any laboratory, we find out if the use of a commercial line of human mesenchymal cells would have a similar effect to FTP.



**Methods and Results:** Mesenchymal human cell line HBMMSC, cell line of human pancreatic adenocarcinoma Capan1, male SCID mice of 12 weeks old and 25 g weight, FTP obtained from surgical specimens. The cells were injected into the head of the pancreas: one million Capan1, 100.000 HBMMSC or FTP. Experimental groups: I, Capan1 + HBMMSC; II, Capan1 + FTP; III, Capan1; IV, HBMMSC; V, FTP. Animals were sacrificed a month later. In parallel, animals were sacrificed at 3, 7 and 21 days to monitor tumor growth and to check the existence of human FTPs through specific stain protocol 11A1. Analysis: necropsy of animals with macroscopic examination of the lesions. Tumor volume calculated in mm<sup>3</sup> using the formula major axis x (minor axis)<sup>2</sup> x 0,52.

	I: 3 animals Capan1+ HBMMSC	II: 6 animals Capan1+ FTP	III: 6 animals Capan1	IV/V: 3 each one HBMMSC/ FTP
% Tumor incidence	66	100	100	0
Mean tumor volume mm <sup>3</sup>	4,6 (0,7-8,6)	121 (59-315)	2,8 (0,01-11)	0
Liver metastases (%)	30	80	0	0

**Discussion and Conclusions:** The HBMMSC associated to Capan1 not stimulate tumor growth as FTP, which would not be useful to obtain an animal model for aggressive pancreatic cancer. Mesenchymal cells and FTPs by themselves do not produce tumor. Human FTPs are identified in xenotransplants.

#### EFFECTS OF GLUTAMINE ON INFLAMMATORY MARKERS AND OXIDATIVE STRESS IN RADIOTHERAPY-TREATED PATIENTS WITH PELVIC/ABDOMINAL CANCER

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**Introduction:** The aim of this study was to determine the effect of glutamine administration on inflammation and oxidative stress in radiotherapy-treated patients with abdominal/pelvic cancer.

**Methods and Results:** Patients were included in glutamine (30 g glutamine /day) or placebo group (30 g casein /day). Blood samples were collected before radiotherapy, and after two months of treatment. The expression of the inflammatory markers IL-1 $\beta$  and COX-2 increased significantly after radiotherapy in the placebo group, but not in those who received glutamine. TLR4 and CD14 antigen expression did not change throughout the study in any of the groups. The expression of the antioxidant enzymes SOD, GPx, Cat and GR increased following treatment in the placebo group and remained unchanged in the glutamine-treated group.

**Discussion and Conclusions:** The Results suggest a possible protective effect of glutamine on oxidative and inflammatory damage caused by radiotherapy in patients with abdominal/pelvic cancer.

#### SURGICAL RESEARCH IN THE UNIVERSITY HOSPITALS OF MADRID. HAVE SURGEONS INCREASED IN TWO DECADES THEIR CONTRIBUTION TO CLINICAL RESEARCH?

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**Background:** Teaching hospitals have spread in the last decades in Madrid. Has surgical research – research performed by surgeons – grown proportionately?

**Objectives:** Evaluate the trends of surgical research in teaching hospitals through the analysis of a survey performed in 1989 and 2011.

**Methods:** A survey was sent to a random sample of surgeons of 12 teaching hospitals (n = 537) of Madrid in 1989 and of 7 (n = 363) in 2011.

**Results:** From 1989 to 2011, surgeons with a PhD degree have increased from 40% to 70%. In 2011, 73% of surgeons declared publishing at least 2 papers in national and 49% in international journals, compared to 45% and 12% respectively in 1989. Private research funding experienced a twofold increase in the 22-year period compared to a 1.5-fold decrease in public funding.

**Conclusions:** In the last two decades, surgeons of university hospitals in Madrid have increased significantly their contribution to clinical research and academic education.

#### MELATONIN AMELIORATES HEPATIC FIBROSIS IN MICE

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**Introduction:** We investigated whether melatonin ameliorates fibrosis and limits the expression of fibrogenic genes in mice treated with carbon tetrachloride (CCl<sub>4</sub>).

**Methods and Results:** Mice received CCl<sub>4</sub> 5  $\mu$ l/g body wt i.p. twice a week for 4 or 6 weeks. Melatonin was given at 5 or 10 mg/kg/day i.p. beginning two weeks after the start of CCl<sub>4</sub> administration. Treatment with CCl<sub>4</sub> at both 4 and 6 weeks resulted in fibrosis evidenced by  $\alpha$ -smooth muscle actin (SMA) positive liver cells and an increase in the mRNA levels of collagen I and collagen III. Melatonin successfully attenuated liver injury, as shown by histopathology and decreased levels of serum transaminases. Immunohistochemical staining of  $\alpha$ -SMA indicated an abrogation of hepatic stellate cells (HSCs) activation by the indol.

**Discussion and Conclusions:** Data obtained suggest that attenuation of multiple profibrogenic gene pathways contributes to the beneficial effects of melatonin in mice with CCl<sub>4</sub>-induced liver fibrosis. CO-

#### THROMBOPROPHYLAXIS IN GENERAL SURGERY

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**Background:** The objective of this study is to identify thromboprophylaxis in our center and its improvement after the application of some corrective measures.

**Methods:** A cross-sectional study was engaged on surgical patients in our hospital until the final discharge during the periods May 2011 and April 2013. After the baseline study, we prepared a series of thromboprophylaxis lectures and incorporated recommendations for the discharge report. Based on the ACCP guides, we analyzed the use of thromboprophylaxis and we compared the Results of both periods.

**Results:** After incorporating our recommendations, we obtained an improvement over all periods, most significant being achieved however during the pre-surgical treatment phase p < 0.06 and p < 0.026 during hospitalization.

**Conclusions:** Surgical patients have high risk of TED. The prescription of thromboprophylaxis in our center is inappropriate. The knowledge of health professionals play an important role in the improvement of thromboprophylaxis.

#### OUR EXPERIENCE WITH RESECTION OF THE HEAD OF THE PANCREAS WITH RESECTION OF THE SECOND PORTION OF THE DUODENUM

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**Introduction:** Cephalic pancreatectomy with resection of the second portion of the duodenum is carried out especially in the treatment of an intraductal papillary mucinous tumor of the pancreas (IPMN). We have started its development in benign or low-grade malignancy cases.

**Methods and Results:** Between June 2010 and May 2013, we operated on 9 patients: 7 males, 2 females, aged between 17 and 72 years. Diagnostics: Pancreatic endocrine neoplasia, 3 cases. Ampulloma, 2 cases. IPMN, 1 case. Cholecholel cyst, 2 cases. Recurrent Pancreatitis, 1 case. No mortality. Postoperative hospitalization was between 12 and 77 days. The most frequent complication was gastrointestinal intolerance. Over the long-term, one patient presented

recurrent pancreatitis due to stenosis Wirsung-jejunostomy anastomosis. One patient died at 6 months due to cerebrovascular accident.

**Discussion and Conclusions:** This is a complex technique, but in the long term it offers better gastrointestinal control and preservation of pancreatic function.

#### INITIAL EXPERIENCES WITH ALPPS TECHNIQUE IN LIVER RESECTION

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**Introduction:** A surgical technique called ALPPS (Associating Liver Partition and Portal Vein Ligation for Staged Hepatectomy) has been introduced for massive liver surgery. It consists of portal ligature with liver transection and posterior resection after hypertrophy of the liver remnant.

**Methods and Results:** Case 1 Male, 49 years with sigma carcinoma and bilateral liver metastases. Good response after neoadjuvant therapy. CT day 7, 57% hypertrophy. No complications. Discharged 6th day.

Case 2 Male, 70 years with a Klatskin tumor type IIIa. CT day 7, hypertrophy at 50%. Complications: Biloma, ascites, hepatic encephalopathy. Discharged 56th day.

Case 3 Male, 63 years with Cholangiocarcinoma in LHI and segments V-VIII. CT day 9, 20% hypertrophy. Complications: Cardiac arrhythmia. Discharged 18th day.

**Discussion and Conclusions:** ALPPS can improve liver resectability. The inclusion of all cases in an international database could give true indications and limitations of the technique.

#### HISTOPATOLOGIC AND BIOCHEMICAL RESULTS OF ADIPOCITIC STEM CELLS PRE-DIFFERENTIATED TO HEPATOCYTES THERAPY IN AN EXPERIMENTAL LIVER FAILURE MODEL SECONDARY TO MICROSURGICAL CHOLESTASIS

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**Introduction:** In humans, liver fibrosis is present in chronic liver disease. Stem cells therapy could reverse biliary fibrosis and improve liver function.

**Methods and Results:** After 2 weeks of microsurgical extrahepatic cholestasis in 150 male Wistar rats, they were assigned to 2 groups: liver parenchymal injection of either human adipocytic stem cells pre-differentiated to hepatocytes or normal saline. Both groups were sacrificed at 8 weeks.

In the cholestatic rats with a xenotransplantation of adipocytic stem cells, a significant decrease in liver fibrosis ( $p < 0.05$ ) and biliary proliferation ( $p < 0.05$ ), as well as a great increase ( $p < 0.01$ ) in the hepatocyte content were found. In these group of rats, also lower levels of serum bilirubin and gamma-glutamyl transpeptidase, with higher proteins and albumin levels, were shown.

**Discussion and Conclusions:** The treatment with mesenchymal stem cells could be a new useful method to improve histological and biochemical disorders associated to chronic liver diseases in humans.

#### SIMULATOR FOR LAPAROSCOPIC VENTRAL HERNIA REPAIR LEARNING AND TRAINING

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**Background:** Nowadays, the use of simulators is an important tool in the acquisition of surgical dexterity. There are many platforms and exercises for

training in endoscopic surgery. However, just a few of them allow to reproduce abdominal wall procedures. Our aim was to describe the use of a physical simulator for laparoscopic ventral hernia repair training.

**Methods:** We developed a thermoplastic physical simulator reproducing human abdominal cavity dimensions. The consistence and thickness of the abdominal wall was simulated using foam plaques reinforced at the interior surface to facilitate mesh fixation.

**Results:** As shown in the video, this simulator allows us to reproduce the steps in middle line laparoscopic ventral hernia repair. This includes trocars placement, defect measurement and mesh fixation using bilateral approach.

**Conclusion:** This simulator allows laparoscopic ventral hernia repair training in a safe environment and with acceptable costs, compared with other alternatives such as animal experimentation.

#### THROMBOEMBOLISM PROPHYLAXIS IN THE COLORECTAL UNIT. ARE WE DOING THE RIGHT THING?

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**Background:** The aim of this study is to establish the risk of thromboembolic events and evaluation of the use of venous thromboembolism prophylaxis after discharge.

**Methods:** We made a retrospective observational study including all patients who were operated during 2012, in the Colorectal Unit. Basing on the Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy we analyzed if our patients have received appropriate thromboembolic recommendations at discharge.

**Results:** We performed 579 elective surgeries in the Colorectal Unit, 26 patients were excluded because of therapeutic doses of anticoagulation. Analysing our group, 240 patients had very low risk of an embolic event, 50 low risk, 37 moderate and 185 high risk. 55.5% of our patients received appropriate thromboembolic recommendations at discharge.

**Conclusions:** Patients undergoing Colorectal Surgery have a high risk for an adverse thromboembolic event. Only half of our patients receive appropriate thromboembolic recommendations. After discharge, 1.2% suffered thromboembolic events.

#### CARCINOID TUMOURS OF THE APPENDIX FROM 21.230 CONSECUTIVE EMERGENCY APPENDECTOMIES

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**Background:** Appendiceal carcinoid tumors (ACT) are rare. Its prevalence varies between 0,1-0,9 in appendectomies.

**Methods:** A retrospective study of all patients with histologically confirmed diagnosis of ACT appendectomized in our hospital from January 1985 to September 2014 was undertaken by reviewing surgical records.

**Results:** 49 patients were diagnosed of ACT in 21.230 appendectomies. The incidence was 0.23%. Simple appendectomy was performed in 44 cases (90%); 5 patients underwent right hemicolectomy. The tumor was located in 31 patients (63%) at the tip, in 8 (16%) in the middle third and in 10 (20%) at the base. All patients with tumor size <2 cm were cured by simple appendectomy. 5 patients who underwent right hemicolectomy remained free of recurrence during a mean follow-up of 30 months (range 18-49 months).

**Conclusions:** ACT are rare. Appendectomy seems to be appropriate treatment for tumors < 2 cm. Right hemicolectomy is indicated for all tumors > 2 cm.

#### PRIMARY APPENDICEAL ADENOCARCINOMA. THE EXPERIENCE AT "LA PAZ" UNIVERSITY HOSPITAL

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**Introduction:** The primary adenocarcinoma of the appendix (PAA) is rare; it represents 0,03% of appendicular pathology.

**Methods and Results:** Retrospective review of the patients diagnosed of PAA during 47 years (1967–2014) in our Hospital. Age, gender, preoperative diagnosis, performed surgery, pathology and postsurgical evolution were analysed. 44 patients were included; 57% males. Preoperative diagnosis was acute appendicitis in 22 cases, followed by appendiceal inflammatory mass (27%). Right hemicolectomy was performed 2–12 weeks after appendectomy. Following mean time was 8,2 years (4 months–32 years); 11 patients died between 4 months–5,3 years posthemicolectomy. Tumor location was ileum (72%), being identified as mucinous adenocarcinoma in 12 patients. In 37 cases, the tumor infiltration exceed the muscular layer reaching the serous membrane.

**Conclusions:** The PAA is a rare tumour (in our series 0,01 of 53019 appendectomies). Preoperative diagnosis is very uncommon; clinical onset is similar to the acute appendicitis and treatment requires right hemicolectomy.

#### EXTRAPULMONARY RESPIRATORY SUPPORT. A SINGLE INSTITUTION EXPERIENCE WITH 54 CASES

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**Introduction:** Extrapulmonary respiratory support (ERS) was implemented in 54 cases of acute ventilatory derangement with or without congestive heart failure. In all cases, mechanical ventilation was futile in providing an adequate gas exchange.

**Patients and Methods:** Indications for ERS included, 1) acutely decompensated candidates on our transplant (heart or lung) waiting-list, 2) primary graft (heart or lung) failure, and 3) adult respiratory distress syndrome (ARDS). Support was carried out with a commercially available (ECMO, Cardio-Help®) membrane oxygenator-centrifugal pump unit, either in a veno-arterial (VA- ECMO = 25 pats) or veno-venous (VV-ECMO = 14 pats) configuration. Intravascular lung assist (iLA) with the Novalung R device was used in 9 additional cases as a bridge-to-lung transplant, while intravenous oxygenation with a hollow-fiber oxygenator (IVOX R) was used in 6 more cases.

**Results:** In 25 cases, VA-ECMO was a strategy as a bridge-to-transplant in 10 cases, and post-transplant recovery in 15 more cases. VV-ECMO encompassed 6 cases of primary lung dysfunction and 8 cases with ARDS. In all instances, ERS was followed by an immediate normalization of gas exchange parameters and cardiac biomarkers levels.

Overall survival was 64,7% in the ECMO group, while 7 pats in the iLA group were successfully transplanted and 4 cases in the IVOX group were successfully weaned.

#### PROTECTIVE EFFECT OF OZONE IN AN EXPERIMENTAL MODEL OF PULMONARY FIBROSIS

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**Introduction:** Pulmonary Fibrosis (PF) is an interstitial lung disease in which oxidative stress is implicated. Ozone (O<sub>3</sub>) is capable of enhancing the antioxidant defense.

**Method and Results:** 18 Sprague–Dawley male rats (300–350 g) were randomly divided into 3 groups (n=6): a) Bleomycin (BLM), b) Sham, c) BLM+ozone (BLM+O<sub>3</sub>). BLM was administered intratracheally (2,5 U.I/kg). O<sub>3</sub> was rectally administered daily for 2 weeks prior to BLM (20–50 ug) and 48 h after BLM, administered 3 times/week (50 ug/dose) until sacrifice. PF was evaluated by Ashcroft method (0–8) and mRNA expression of genes related to oxidative stress was determined at 28 days. The lungs treated with O<sub>3</sub> showed fewer injured areas. The Ashcroft score: Sham: 3.49±0.17; BLM: 6.55±0.34; BLM+O<sub>3</sub>: 4.75±0.73 (p=0,009). Changes were observed in the expression of Hsp27, VEGFA, Nfκβ, IL-6, IL-1, Col-4 and Tgβ1.

**Conclusions:** Treatment with O<sub>3</sub> significantly reduced the degree of PF at 28 days. Its protective effect is mediated genetically.

#### PROTECTIVE EFFECT OF OZONE ON CHRONIC REJECTION IN A MODEL OF EXPERIMENTAL LUNG TRANSPLANTATION IN RATS

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**Introduction:** oxidative stress are involved in chronic rejection (CR) of lung transplantation (LT). Ozone (O<sub>3</sub>) is capable of enhancing the antioxidant defense.

**Methods and Results:** 36 inbred Sprague–Dawley male rats (300–450 g) were randomly divided: (i) control (n = 6); (ii) Sham (n = 6); (iii) LT (n = 12); (iv) LT-O<sub>3</sub> (n = 12, 6 donors and 6 recipients). LT was performed with cuffs. O<sub>3</sub> was rectally administered daily, starting 10 days before surgery (0,4–1 mg/Kg) and after LT it was administered 3 times/week (1 mg/kg) until sacrifice. Histological and gene expression changes were analyzed at 3 months.

No signs of CR were observed in O<sub>3</sub> group, while all of the LT group showed a severe CR. O<sub>3</sub> significantly decreased the expression of EPAS1, Hsp27, Prdx-6, GPX-3, Vega-a, SFTP-a1, SFTP-b, CLDN5, Plvap, Klf-2, THBD, DSIP, FMO.

**Conclusions:** O<sub>3</sub> has significantly delayed the appearance of CR at 3 months. It may represent a new option for patients undergoing LT.

#### ADVANCED HUMAN COLON CANCER ANIMAL MODEL

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**Introduction:** Advanced colon cancer (stage III / IV) has a poor prognosis despite all therapeutic efforts. An animal model that simulates as closely as possible this condition to test new therapeutic strategies for possible clinical application is needed. Available animal models are few effective as the incidence of liver metastases is low after many weeks of evolution. We present a new model that obviates these drawback Methods

SCID mice, male, 12 weeks old, 25 g in weight. Cell line HT29 human colon adenocarcinoma. Peritumoral fibroblasts (FTP) obtained from surgical specimens. 6 SCID mice received a million and a half FTP HT29 150,000 in the pancreatic head. Controls three types: I, transplant in the right colon of mice slices of fresh surgical specimens of human pancreatic adenocarcinoma; II, HT29 transplant in the right colon; III, only FPT. The animals were sacrificed a month later.

**Analysis** Necropsy of animals with macroscopic examination of the lesions. Tumor volume calculated in mm<sup>3</sup> using the formula x major axis (minor axis) 2 x 0.52. Pathology.

**Results:** 5 animals developed a large tumor in the pancreas, all with numerous liver metastases and three with pulmonary metastases. Controls with only FTP did not develop tumor. In the other models, only one developed liver metastases and no lung.

	Heterotopic model (Pancreas Head) : 5 HT29+FTP	Orthotopic Model (Right Colon): 8 Slices	Orthotopic Model (Right Colon): 5 HT29
Average tumor volume (mm <sup>3</sup> )	783 (284–2083)	49 (0,5–65)	175 (14–266)
Liver metastases (%)	100	0	20
Lung metastases (%)	60	0	0



**Conclusions:** Transplantation of tumor cells from colon adenocarcinoma in the pancreatic head associated with FPT is a useful model to test new therapies for advanced human colon cancer

#### GRAFT LOSS AND COMPLICATIONS OF KIDNEY TRANSPLANTATION: REVIEW OF OUR CASES (2003–2012)

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**Introduction:** Kidney transplantation is the best treatment option for patients with terminal renal failure. But this procedure is not free of complications due to immunosuppression, comorbidities, the donor organ and the surgical technique. These complications are cause of morbi-mortality and graft loss in short or medium term.

**Methods and Results:** Descriptive retrospective study of 218 transplants (10 dual) of cadaver donors between January 2003 and December 2012. We analyze complications, causes of graft loss and graft and receptor survival. 31 implants (14.22%) were lost. The most frequent cause was vascular thrombosis with 13 cases (41.94%), followed by perioperative exitus and nephropathy with 7 each one, 2 graft neoplasm, 1 rejection and 1 postoperative hemorrhage. The graft survival rate was 94.4% per year and 87.7% at 5 years. Receptor global survival was 98.6% per year and 96.5% at 5 years.

**Discussion and Conclusions:** In our study, vascular thrombosis is the most common cause of graft loss. All complications exposed, with the exception of thrombosis, have similar Results according to literature reviewed, as well as survival rates at 1 and 5 years of the graft and receptor.

#### EXPERIMENTAL UTERINE TRANSPLANTATION IN A SHEEP MODEL: COMBINATION OF MICROSURGICAL AND LAPAROSCOPIC TECHNIQUES

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**Introduction:** The aims of this study were to assess the feasibility and safety of an experimental uterine autotransplant model, including laparoscopy and microsurgical techniques.

**Methods and Results:** Ten ewes underwent laparoscopic ovariohysterectomy. End-to-end anastomosis with continuous suturing was used in the veins and end-to-end anastomosis with non-continuous suturing was used in the arteries. The cervix was sutured and the uterus was fixed to the pelvic cavity. Two-months follow-ups included ultrasonography, hysteroscopy, uterine angiography and exploratory laparoscopy. Hormone levels were analyzed. All transplants were carried out successfully. The ischemia time was 187 minutes. The total operative time was 374 minutes. At 1-month follow-up, one animal showed a closed cervix. The exploratory laparoscopy showed abdominal adhesions. Pregnant animals were obtained by artificial insemination techniques.

**Discussion and Conclusions:** The combination of laparoscopy and microsurgery for the uterine extraction and vascular anastomosis is an interesting option for the uterine autotransplant in an experimental model.

#### DEVELOPMENT OF THE FIRST PHYSICAL SIMULATOR FOR TRAINING ON TEMPOROMANDIBULAR JOINT ARTHROSCOPY

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**Introduction:** Arthroscopy of the temporomandibular joint (TMJ) has different complications, making it very difficult the learning process. Currently,

training of surgeons is performed using human cadavers. The aim of this work was to develop a physical simulator to train TMJ arthroscopy.

**Method** A previous survey completed by maxillofacial surgeons was used to identify functionalities to be included in the simulator for training novice surgeons. A collaborative methodology in which designers received continuous feedback from expert surgeons was followed.

**Results:** A physical simulator consisting of a human head that reproduces the TMJ was developed. This simulator is made up of different plastic materials and reproduces all internal and external anatomical structures related to the TMJ. The simulator is characterized by different pathologies such as synovitis or adhesions.

**Conclusions:** This simulator is the first physical simulator for training novice surgeons in this technique, introducing important changes in the current training system.

#### BONE EFFECTS AFTER LOCAL APPLICATION OF OSTEOPROTEGERIN AND ZOLEDRONATE IN A RAT MODEL

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**Background:** The aim was to assess the effects after local application of recombinant fusion protein osteoprotegerin (OPG-Fc) and Zoledronate on bone and periodontal ligament in an experimental rat model.

**Methods:** First maxillary molars of 12 Sprague–Dawley rats were displaced mesially using a calibrated spring connected to an anterior mini-screw. Zoledronate (16 µg) and OPG-Fc (5.0 mg/kg) were injected in the experimental groups respectively. Structural and immunohistochemical studies and tooth movement measures were performed.

**Results:** Both experimental groups showed a potent reduction in mesial molar movement. OPG-Fc group demonstrated only 50%, 33%, and 22% of the total movement compared to controls at 7, 14, and 21 days, respectively ( $p < 0.001$ ). For Zoledronate group, the reduction had a statistically significant 53%, 48% and 32%, respectively ( $p < 0.001$ ).

**Conclusions:** Local delivery of OPG-Fc or Zoledronate inhibits bone resorption altering tooth movement. OPG-Fc was more effective than Zoledronate in blocking osteoclasts' activity in this animal model.

#### DOES SURGICAL TREATMENT DELAY AFFECT TO PAIN AND FUNCTION IN ROTATOR CUFF TEARS 6 MONTHS AFTER SURGERY?

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**Background:** Rotator cuff injury is a common cause of shoulder pain and disability.

The goal was to study whether surgical delay of more than 6 months influenced pain and function in patients with complete rotator cuff tear.

**Material and Methods:** A retrospective study of 31 patients with rotator cuff tear between March 2012 and March 2013 which were divided in 2 groups (operated patients before and after 6 months). Constant Scale and EVA for pain were used.

**Results:** The mean age of the patients was  $62.74 \pm 1.56$ . Men had more pain and worse function 6 months after surgery, with no statistical significance ( $p > 0.05$ ). The average value of the Constant score was  $73.3 \pm 22.65$ . U test Mann–Whitney test for independent samples was used to answer the hypothesis.

**Conclusions:** Significant differences among operated patients before and after 6 months were not found in terms of postoperative pain ( $p = 0.268$ ) and function ( $p = 0.632$ ).

#### INCIDENCE OF ADVERSE EVENTS IN OSTEOPOROTIC HIP FRACTURE OPERATED PATIENTS AT COMPLEJO HOSPITALARIO UNIVERSITARIO DE ALBACETE IN 2013

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**Background:** The aim was to detect the adverse events (AE) suffered by our patients with operated osteoporotic hip fracture (HF), using the “trigger tool” method, and to quantify the damage level. We also wanted to evaluate the utility of the “clopidogrel” trigger tool to detect AE.

**Methods:** Screening of the 296 medical records of the patients who underwent HF surgery in 2013 using the “Surgical trigger tool kit”. Evaluation of the incidence and utility of the “use of clopidogrel” trigger tool.

**Results:** We detected 138 AE and 134 perioperative AE per 1000 patient-day. 35% had a positive “use of clopidogrel” item, and among these patients there were 33 AE. Only 8% of patients didn’t suffer any damage.

**Conclusions:** At least 25% of patients who underwent HF surgery in 2013 suffered AE. The incidence of AE is 134 per patient day. The “use of clopidogrel” trigger tool is an acceptable item to detect AE.

#### SAFETY PATIENT PERCEPTION IN THE ORTHOPAEDIC DEPARTMENT AT COMPLEJO HOSPITALARIO UNIVERSITARIO DE ALBACETE FROM TWO POINTS OF VIEW: PATIENTS AND MEDICAL STAFF

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**Introduction:** Patient Safety has experienced an important media impact since the publication of the paper “To Err is Human”. In Spain, in the ENEAS study, the incidence of Adverse Events in relation with the medical care was 9,3%; 42,8% of them are considered avoidable.

**Methods and Results:** We carried out a survey among the inpatients in the moment of discharge, and another survey among the medical staff asking over different facets of Patient Safety.

**Discussion and Conclusions:** Perception of Patient Safety among the patients has been positive. They appreciate the received information. A little percentage is aware of the possibility of suffer an adverse event.

Global perception of Patient Safety among the medical staff has been positive, but we have to improve the communication of adverse events, the coordination among units, the support from the hospital managers to the Patient Safety, the learning and the feed-back.

We also have to promote the Patient Safety Culture in our department.

#### USE OF THE INFORMED CONSENT IN THE DEPARTMENT OF ORTHOPAEDIC SURGERY AT COMPLEJO HOSPITALARIO UNIVERSITARIO DE ALBACETE

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**Background:** The informed consent is very important in the patient autonomy model and it is fundamental in Orthopaedic Surgery. We wanted to study the use of it in our department.

**Methods:** A retrospective review of the medical history of 102 patients who underwent an orthopaedic surgery from January 2014 to March 2014. We checked a list of quality items in their informed consent documents.

**Results:** 17% of patients didn’t have an informed consent document. 58% of these patients underwent an urgent surgery. Most of patients (62%) didn’t have a specific document and only 7% did know their personalized risks. 78% of documents were given by medical residents.

**Discussion and Conclusions:** The lack of informed consent document is especially frequent in urgent surgeries. Usually, the document is given by a resident and in a third of them, the pathology is too complex for the level of knowledge of the resident.

#### BENEFITS OF A PROTOCOL FOR PROSTATIC TRANSRECTAL SATURATION BIOPSY UNDER SEDATION VS ROUTINARY OUTPATIENT PROSTATIC BIOPSY

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<sup>5</sup>Department of Pathology, University Hospital of Salamanca’s Complex (Spain)

**Introduction:** Our aim is to describe a protocol for prostatic saturation biopsy under sedation vs routine outpatient biopsy.

**Methods and Results:** Retrospective observational study of patients who underwent ultrasound-guided, transrectal prostatic biopsy.

Group R (n = 230): routine prostatic biopsy: 5 cores/lobe, local anaesthesia, outpatient regime.

Group S (n = 233): 12–14 cores/lobe, with sedation, day-surgery regime (DSR). Inclusion-criteria for DSR:

- Urology: Negative/non-conclusive routine biopsy with increasing PSA > 0.375 ng/ml in 6 months. Morbidities that advise greater complications’ prevention.

- Anaesthesia: ASA I-III with stable disease, BMI < 35, age < 85 years, procedure’s duration < 90 min.

Average age 64.32 years (42–81), younger in group S (p = 0.0013).

After-biopsy admissions (bleeding, fever): 1.29% in S; 2.61% in R. 1 exitus in S. Efficiency: 46.05% in R; 63.18% in S. Satisfactory pain-control and comfort in 99% of S.

**Discussion and Conclusions:** Transrectal saturation biopsy under-sedation is a procedure that provides comfort, quality-of-life and high diagnostic efficiency in patients with significant morbidities and non-conclusive previous biopsies.

#### ERECTILE DYSFUNCTION AND QUALITY OF LIFE

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**Objective:** To value quality of life (QL) in patients diagnosed or erectil dysfunction (ED) in Primary Care (PC)

**Methods:** All participants were recruited in Health Centers of Albacete and Cuenca provinces included in the study.

**Variables Analysis:** Numerous variables were analysed : anthropometric, sociological, toxic habits and biochemical parameters; diseases: diabetes, hypertension and hyperlipidemia and likewise concomitant disease and data over these diseases and drugs used.

Likewise SHIM questionnaire and ED according to SHIM..Lissat 8 questionnaire validated to assay life quality in patients with ED.

**Results:** Of the 210 people selected, 179 correctly completed the questionnaire, 85,2%. The mean age was 64,5 ± 11,6 years. When analysing all the study variables in relation to the main variable, presence o absence of ED, age was seen to play an important role in the appearance of this one. In our study the supplied test Lissat 8 demonstrated that ED affected health-associated quality of life, was statistically significant for two items, sexual life and economic situation, and came close to a significance relationship for the other general life and working life items.

**Conclusions:** There is a clear worsening of QL in patients with ED.

#### INFLUENCE OF THE BODY MASS INDEX IN VARIABLES DEPENDENT ON THE SURGICAL TECHNIQUE IN NEPHRECTOMIES PERFORMED FOR DIFFERENT PATHOLOGIES

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**Introduction:** Our aim was to study any differences in the surgical outcome with respects to the body mass index (BMI) and surgical technique in nephrectomies.

**Methods and results:** Retrospective, comparative study of medical records of 529 adult-patients who underwent nephrectomy between 1996 and 2012.

13 groups were set regarding the pathological Results:

C1.Non-tumoral pathologies.

C2.Angiomyolipoma.

C3.Oncocytoma.

Carcinomas:

C4.Transitional.

C5.Sarcoma.

C6.Clear-cell (CCRC) Fuhrman I.

C7.CCRC-II.

C8.CCRC-III.

C9.CCRC-IV.

C10.Chromophobe.

C11.Papillary type-I.

C12.Papillary type-II.

C13.Bellini duct.

145 women;384 men. In 9.07%, permanent consequences appear (paraesthesia, chronic pain, incisional hernia).

CCRC-II:

\* The greater the BMI, the longer the surgical-time ( $p=0.027$ ).

\* No differences in the average-BMI in men with and without complications ( $p=0.2110$ ), neither in women ( $p=0.4110$ ).

\* Tendency towards greater surgical-time with greater tumours ( $p=0.5652$ ).

**Discussion and conclusions:** Greater BMI in patients operated by CCRC Results in greater surgical-time.

Patients operated by sarcoma and higher BMI showed a tendency towards more complications.

#### COMPLICATIONS AND FAILURES IN OUR EXPERIENCE WITH REMEEEX (EXTERNAL MECHANICAL REGULATOR)

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**Introduction:** We show the Results in our experience with REMEEEX®, including severe complications.

**Methods and Results:** Retrospective study of 60 women diagnosed of complex/refractory stress urinary incontinence (SUI) who underwent surgical treatment with REMEEEX® between October-1999 and December-2013. Previous procedures: 5 Burch, 10 Marshall-Marchetti-Krantz, 23 TVT, 22 TOT, 22 simultaneous colporrhaphies.

Simultaneous colporrhaphy and REMEEEX® in 5 patients.

Ordinary admission before 2003, short-stay regime since 2003. Control after 24–48 hours and successive visits until regulation.

Dry 68.33%. Mixed urinary incontinence with bladder diverticula 10.09%. Mild SUI 9.13%. Urgency 13.60%.

**Severe complications:** 1)W58y with disabling SUI after multiple surgeries. 2)W80y obese, cardiac patient with anticoagulant/antiplatelet treatment, developed cataclysmic pelvic hemorrhage. 3)W73y paraplegic, developed an infected vaginal stone over an extruded REMEEEX suture.

**Discussion and Conclusions:** REMEEEX is an effective, safe procedure in refractory SUI. The knowledge of severe cases demands maximizing precautions and informing patients appropriately about procedure's expectations and risks.

#### INTRAOPERATIVE AND POSTOPERATIVE COMPLICATIONS OF NEPHRECTOMIES IN CORRELATION TO THE SURGICAL APPROACH

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**Introduction:** Our aim was to study the complications in patients who underwent nephrectomy.

**Methods and Results:** Retrospective, comparative study of medical records of 529 adult-patients who underwent nephrectomy between 1996 and 2012.

8 groups were set regarding the surgical approach:

C1.Left anterior open nephrectomy.

C2.Right anterior open.

C3.Right partial open.

C4.Right laparoscopic.

C5.Right lumbotomy.

C6.Left lumbotomy.

C7.Left partial open.

C8.Left laparoscopic.

145 women; 384 men. Median age 65.51 years (19–87).

Significant differences in surgical time between the different approaches were found ( $p=0.000836$ ).

More general complications in C1 than in C2 ( $p=0.048$ ), C3 ( $p=0.0466$ ), C6 ( $p=0.013$ ) and C8 ( $p=0.045$ ).

Significant differences in the perioperative bleeding volume ( $p=0.0049$ ): lower in laparoscopic than in open approaches, and the greatest in left partial open nephrectomy.

**Discussion and Conclusions:** Open partial nephrectomies are those with the most intraoperative bleeding, highest surgical time and most complications postoperatively, with no influence in survival.

#### HISTOLOGY AND ANTROPOMETRIC VARIABLES IN PATIENTS UNDERGOING NEPHRECTOMY

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**Introduction:** Our aim is to study anthropometric differences in patients who underwent nephrectomy.

**Methods and Results:** Retrospective, comparative study of the medical records of 529 adult-patients who underwent nephrectomy between 1996 and 2012.

13 groups were set regarding the pathological Results:

C1.Non-tumoral pathologies.

C2.Angiomyolipoma.

C3.Oncocytoma.

C4.Transitional carcinoma.

C5.Sarcoma.

C6.Clear-cell carcinoma (CCRC) Fuhrman I.

C7.CCRC-II.

C8.CCRC-III.

C9.CCRC-IV.

C10.Chromophobe carcinoma.

C11.Papillary type-I carcinoma.

C12.Papillary type-II carcinoma.

C13.Bellini duct carcinoma.

145 women; 384 men. Lower age in groups C2, C5 and C9; greater age in C1, C4 and C11 ( $p=0.005065$ ). Lower body mass index (BMI) in groups C1, C9 and C13, greater in C2 and C3 ( $p=0.257221$ ).

**Discussion and Conclusions:** The relationship between renal pathology and gender is variable, having female-predominance in angiomyolipomas and male-predominance in Bellini duct carcinoma.



In most-aggressive histological subtypes of tumours, lower age and BMI are found (constitutional syndrome). Patients with benign tumour-pathology resemble anthropometrically the general population.

#### INFLUENCE OF TRANSOBTURATOR TAPE'S SURGERY IN URINARY TRACT INFECTIONS

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**Introduction:** Stress urinary incontinence (SUI) and urinary tract infections (UTI) are prevalent diseases. We investigate the relationship between transobturators tape's surgery (TOT) and UTI development in women.

**Methods and Results:** Retrospective study of 420 women who underwent TOT for SUI from April-2003 to October-2011.

Group A: Patients without UTIs prior to TOT (n = 294). After surgery: 85% dry, 10% persistent SUI, 5% urgency; 4% de novo UTIs with good response to antibiotics for 6 days (immediate postoperative-time). 2% sporadic-UTIs in the whole period.

Group B: Patients with UTIs prior to TOT (n = 126). 47.61% recurrent-UTIs; 52.39% sporadic UTIs. After TOT: 79.36% dry; 10% UTI treated with antibiotics for 6 days and bacterial vaccine for 3 months. UTI disappeared in 82%; 8% sporadic-ITU in the whole period.

**Discussion and Conclusions:** After eliminating any bias associated with tape, technique and surgeon's skills, SUI's correction may decrease the number of UTI and improve the quality-of-life.

#### PRACTICE AND RESULTS OF PROSTATIC HEALTH'S SURVEILLANCE WITH REGARDS TO PROSTATE CANCER IN OUR AREA

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**Introduction:** We investigate the practice and Results of prostatic health's surveillance with regards to prostate cancer (PC) in our area.

**Methods and Results:** Multicentric-transversal study of the prevalence of systematic surveillance on PC.

Group A (n = 518): men liable to surveillance in specialized-assistance at the hospital.

Group B (n = 350): men liable to surveillance in Primary Care assistance in rural areas.

Similar average age (p = 0.5699): GA 60.27years; GB 59.86years. PSA-determination in 70.27% of GA and 5.27% of GB. Twenty patients in GA and 13 in GB underwent prostate-biopsy. Five cases of PC were found in each group (p = 1.000). Family-history of PC in 2% of GA and 2.41% of GB; one patient of GA developed PC.

**Discussion and Conclusions:** Although guidelines do not favor a systematic investigation for PC, it is a regular practice in both specialized and primary-care. Further wider studies to find the value of a reference-determination for PC-surveillance are advisable.

#### PREDICTION OF TESTOSTERONE VALUE AS A TOOL TO FACILITATE TO TACKLE ERECTYL DYSFUNCTION FROM PRIMARY CARE

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**Objectives:** TO determine one or several mathematical formulae through predictive statistic that let us determine the testosterone value through anthropometric variables, analytics and clinicals questions easy to obtain inside of Health Center offices.

**Methods:** Sampling random study in males aging 40–70 years from four populations (n = 862). 458 (53,13%) came to office. Patients who complies metabolic syndrome criteria were recruited.

**Results:** Through multiple lineal regression, logistic multinomial regression, classification trees and Naive Bayes ranks have got several mathematical formulae very sensitives for numerical calculus of testosterone from variables easy to obtain during office time.

**Conclusions:** The use of this mathematical formulae to determine a testosterone's calculate value would involve tackle ED in Health Centers office's without necessity to determine such parameter by analysis.

#### TESTICULAR TUMORS OF THE HOSPITAL OF ALBACETE. YEARS 2001–2012

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**Introduction:** Our aim is to analyze the incidence of testicular tumors in Albacete

**Material and Methods:** Retrospective review of patients undergoing testicular tumor surgery from 2001 to 2012.

**Results:** 114 radical orchiectomy were performed. Mean age was 38 years. 51% right, 46% left and 3% bilateral. 95 patients presented a single lesion. The most frequent reason for consultation was testicular enlargement, followed by testicular pain, consistency increase was a 13%. 5 patients with history of ipsilateral cryptorchidism. Germinal tumors: 45 pure seminomas, 32 mixed, 17 embryonal carcinoma, 3 mature teratoma, 1 yolk sac tumor. Of the non-germinal 10 were Leydig cells, 1 Sertoli cells, 4 lymphomas B diffuse and one metastatic mucinous adenocarcinoma. 42 patients became negative tumor markers after treatment. 10 residual mass surgeries were performed. 8 patients have died.

**Conclusions:** The most common tumor in our area is pure seminoma although less than in other series. The most common mode of presentation is increasing size.

#### RELATIONSHIP BETWEEN THE GLEASON SCORE BEFORE AND AFTER RADICAL PROSTATECTOMY

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**Introduction:** Our aim was to study the relationship between the Gleason-score before and after radical prostatectomy (RP).

**Methods and Results:** Retrospective, multicentric study of a sample of 265 patients who underwent RP between March-2009 and March-2013 in 2 level-four and 5 tertiary-hospitals. Variables: Age, PSA, TNM and Gleason score before (preQ) and after surgery (postQ), prostate's volume, type of prostatectomy [laparoscopic (LP), open retropubic (OP), robot-assisted (RobP)].

Average age 63.19years (45–72).

Level-four hospitals: RobP12.5%, OP45%, LP42.5%.

Tertiary-hospitals: OP63.82%, LP37.17%.

PSA preQ 8.73 ng/ml (SD4.23). Volume 41,02 cc (SD18,48). Positive cores 33.20% (SD22.59). Gleason: preQ 6.40(SD0.69), postQ 6.72 (SD0.71),  $p=0.0034$ . PSA postQ 0.061 ng/ml (SD0.139).

No differences in Gleason preQ when comparing positive/negative margins ( $p=0.2197$ ).

PSA preQ is more associated with Gleason postQ than with preQ ( $p=0.0041$ ).

**Discussion and Conclusions:** Significant differences between the Gleason score before and after surgery were found. Pre-surgical PSA is associated with post-surgical Gleason score and percentage of positive-margins.

#### GIANT SUBCAPSULAR BILOMA AFTER BLUNT ABDOMINAL TRAUMA

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**Introduction:** Bile leaks are a rare complication secondary to blunt abdominal trauma. We report a case recently operated in our center.

Case report: A 58-year-old man presented with diffuse abdominal pain. Three weeks before he had an accidental fall. He associated anorexia, vomiting, mild jaundice and abdominal distension. A CT showed a large hepatic subcapsular fluid collection of 25 x 9 cm. Emergency surgery was performed founding a large subcapsular biloma that was drained. After surgery the patient completed 14 days of broad spectrum antibiotics. He was discharge 22 days after surgery.

**Conclusions:** The incidence of bile leaks after blunt abdominal trauma is between 1-6%. The onset is insidious and with unspecific signs. Diagnosis requires high index of suspicion. Delay in the diagnosis increases morbidity and hospital stay.

#### BILIARY OBSTRUCTION CAUSED BY PORTAL CAVERNOMA

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**Introduction:** Portal cavernoma consists of a network of venous channels, which replaces a previously stenosed or occluded portal vein.

**Clinical case:** A 56-years-old male presented with abdominal discomfort, fever and jaundice. Laboratory values: AST 146U/L, ALT 148U/L, FA 320U/L, GGT 602U/L, total bilirubin 4,1 mg/dl, direct bilirubin 2,8 mg/dl. Abdominal ultrasound: portal cavernoma transompression and splenomegaly. Cholangio magnetic resonance: extrinsic compression of the third mean of the common bile duct due to portal cavernoma. An ERCP was performed: stenosis of the the common bile duct with proximal dilatation and plastic biliary stent was placed. The outcome was favourable. The patient was discharged 12 days after admission.

**Discussion:** Biliary obstruction due to portal cavernoma is a rare and little-known entity. Hematemesis and splenomegaly are the most common manifestations of portal cavernoma. Diagnostic method of choice are doppler abdominal ultrasound and cholangio magnetic resonance. Biliary stent provides good Results in uncomplicated cases.

#### EPIPHRENIC DIVERTICULUM: DIAGNOSTIC PROCEDURE AND THERAPEUTIC ALTERNATIVES

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**Introduction:** Esophageal diverticula are sacculations associated with motility disorders. The prevalence is unknown, because the lack of symptoms.

**Case:** 62 years old male patient, with hypertension, heart and kidney failure. Refers severe dysphagia during the last year. Initially diagnosed of achalasia, the patient underwent Heller myotomy and Nissen fundoplication. Months after surgery a radiography and a barium transit was done revealing a large epiphrenic diverticulum. Mechanical section of the diverticulum was done through a right thoractomy. Before discharge, the patient was in the ICU 15 days due to cardiac decompensation and kidney failure. No symptoms observed in subsequent outpatient check-ups.

**Discussion and Conclusions:** In symptomatic cases, the choice is surgery. The surgical technique and the approach can vary; going from a total removal or the use of myotomy and antireflux techniques. The laparoscopic approach is nowadays increasing, but it is not free from risks and requires experienced surgeons.

#### EFFECT OF QUERCETIN TREATMENT ON LIPID METABOLISM DEREGLATION ASSOCIATED WITH NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD)

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**Introduction:** Lipid metabolism-related gen deregulation contributes to NAFLD-associated lipid accumulation and some natural compounds as flavonoids seem to be able to reduce it.

**Methods and Results:** C57BL/6J mice were fed a methionine and choline deficient diet (MCD) supplemented or not with quercetin. Huh7 cells were treated with MCD medium with or without quercetin or the PI3K inhibitor LY294002. MCD induced FAT/CD36 expression that was correlated with the increase of lipid accumulation and accompanied by AKT activation in both in vivo and in vitro models. Quercetin treatment ameliorated FAT/CD36 upregulation and AKT phosphorylation, as well as NAFLD activity score in mice. PI3K inhibition by LY294002 showed the upregulation of FAT/CD36 by AKT activation.

**Discussion and Conclusions:** These Results place quercetin as a potential therapeutic strategy for preventing NAFLD progression, at least in part by PI3K/AKT pathway blockage and subsequent FAT/CD36 downregulation. Supported by BFU2013-4814, LE135U13 and GRS1000/A/14. CIBERehd is funded by Instituto de Salud Carlos III.

#### EFFECTIVENESS OF AFFERENT LOOP STIMULATION PRIOR TO ILEOSTOMY CLOSURE

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**Introduction:** We believe that stimulation of the efferent loop is essential to prevent atrophy of the excluded intestinal segment and, therefore, postoperative ileus while also preventing complications.

**Methods and Results:** For the stimulation of the efferent loop, we began with 300 cm<sup>3</sup> of warm saline including a thickener in the saline solution (Resource Thickener®, Nestlé Healthcare Nutrition, Vevey, Switzerland) introduced through a Foley catheter, increasing the stimulation to 500 cm<sup>3</sup> weekly. One week before surgery for the reconstruction, stimulation was done daily, while including in the solution the contents of a container of sodium lauryl sulfoacetate and trisodium citrate for antegrade preparation of the excluded segment.

**Discussion and Conclusions:** The future demonstration of the usefulness of this procedure using comparative prospective studies to analyze the benefits of intestinal stimulation prior to ileostomy closure would require establishing protocols for patients to do each day at home to stimulate the excluded segment.

#### CONGENITAL DIAPHRAGMATIC HERNIA IN THE ELDERLY. A DIAGNOSTIC CHALLENGE!

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**Introduction:** Diaphragmatic hernias occur when abdominal contents pass into the chest cavity through a defect at the level of the diaphragm.

**Methods and Results:** 91 years old patient visited the emergency department with abdominal pain. The patient presented a history of several previous admissions for respiratory infections. Due to the changeable clinical analysis in the laboratory and radiological, due to the pathological clinical analysis, symptoms and radiological findings of intestinal obstruction, an abdominal pelvic CT was requested which showed previous right diaphragmatic hernia.

Surgical intervention was indicated, using laparoscopic approach; identifying double defect in the diaphragm including the small bowel and incarcerated colon. We proceeded to reduce all herniated contents, the normality of the diaphragmatic hiatus was checked and the defect was closed with a Psysiamesh® fixed with tacks.

**Discussion and Conclusions:** Diaphragmatic hernias represent both clinical and surgical challenges. The minimally invasive surgical techniques are, when in expert hands, a treatment option

#### TRAUMATIC ABDOMINAL WALL HERNIA by low energy impact

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**Introduction:** TAWH is a strange entity defined as a herniation through disrupted musculature and fascia, associated with adequate trauma, without skin penetration and no evidence of a prior hernia defect at the site of injury.

**Methods and Results:** A 60 years old male patient presented to emergency room after an accidental fall, with epigastric pain and increase of abdominal perimeter.

CT scan revealed hemoperitoneum without active hemorrhage and a supraumbilicus trauma herniation.

The patient was taken up for surgery and we found herniated omentum and blood due to splenic trauma. Reparation of abdominal injuries was made and a primary wall closure.

**Discussion and Conclusions:** Diagnostic is made by physical examination and image, preferably CT scan due to associated lesions.

There is no consensus about when to repair, the tendency is to do it immediately. Mesh use should be done when there is no evidence of abdominal contamination, important defects and we cannot have a tension free closure.

#### MULTIPLE STAB BOWEL INJURY

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**Introduction:** Abdomen is one of the most affected areas in assaults by shooting or stabbing. In patient hemodynamically stable the external appearance of wounds does not indicate internal damage, so it is necessary to do an imaging test.

**Material and Methods:** Here we present a 26 years old man hemodynamically stable and with signs of peritonitis who showed two knife wounds: in left hypochondriac region and right iliac region. Abdominal CT showed pneumoperitoneum.

We decided to perform urgent laparotomy and we observed a perforation in proximal jejunum and in cecum, without hemoperitoneum. Washing of the abdominal cavity and primary suture were performed.

The patient was discharged one week later.

**Discussion and Conclusions:** Some factors that indicate the need for urgent laparotomy are pneumoperitoneum, peritonitis, hemorrhagic shock or visceration of internal organs.

It is essential to have protocols for abdominal trauma (by stab or gunshot) in order to reduce the mortality in these patients.

#### PRIMARY BREAST LYMPHOMA

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**Introduction:** Because of the low incidence of lymphoma in breast disease as there are no specific mammographic or clinical features that distinguish it from other breast tumors, primary breast lymphoma is rarely considered when a breast lump mass is evaluated.

**Methods and Results:** A 80 years old woman, self detection nodule of retroareolar palpable module in right breast. Lesion biopsy guided by US showed an anatomopathologist diagnosis as fibrofatty breast tissue infiltrated with primary non-Hodgkin diffuse large B" self lymphoma". The scintigraphic study demonstrate focal increase uptake and the cervical thoracic abdominal CT doesn't show pathological and adenopathy evidence. Given the correlation of clinical data and evaluation of the oncology department chemotherapy was started with good Results so far.

**Discussion and Conclusions:** Primary breast lymphomas are rare but must be considered in the differential diagnosis of palpable breast lumps (mass).

#### LAPAROSCOPIC APPROACH IN INGUINAL HERNIA REPAIR: METHODS OF FIXATION

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**Introduction:** Inguinal hernia surgery has developed with the Introduction of laparoscopy. Mesh fixation is nowadays in discussion.

**Methods and Results:** Retrospective revision of 97 patients operated for L1-L2 inguinal hernias by laparoscopic totally extraperitoneal approach used low density preformed mesh by 5 expert surgeons, divided into 3 homogeneous groups for the fixation of the mesh: fibrin glue, resorbable tackers and no fixation. We measure postoperative pain and recurrence.

We have registered 3% recurrences, one in fibrin glue group and two in tackers group. 95% donot have postoperative pain a week after surgery. Other 5% represent 3 patients of the fibrin glue group with no pain at 1st month and two patients of the tackers group with slight persistent pain after 1st month.

**Discussion and Conclusions:** We have no recurrence neither pain in no fixation group, so we can affirm in our serie the lack of mesh fixation does not increase recurrences and improve postoperative pain.

#### COLONOSCOPIC PERFORATION: WHICH PATIENTS CAN BE TREATED WITH CONSERVATIVE TREATMENT?

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**Introduction:** Colonic perforation due to diagnostic or therapeutic colonoscopy is associated with a high rate of morbidity and mortality. The different therapeutic options are conservative treatment, endoscopic treatment or surgical treatment.

**Clinical case:** Here we present the case of a 70 year old man with medical history of prostate adenocarcinoma and actinic proctitis. After episode of rectorrhagy, colonoscopy was performed. The endoscopy showed a bleeding ulcer with actinic aspect in the middle rectum. After hemostasis, we observed a small perforation. CT showed small bubbles of extra-luminal gas adjacent to middle rectum, below the peritoneal reflection. As the patient was hemodynamically



stable and did not have signs of peritonitis, we decided treatment with digestive rest and antibiotics (Meropenem).

**Discussion and Conclusion:** Colonic perforation is a potentially serious complication of colonoscopy. The most frequently affected area is rectosigmoid colon. Treatment should be individualized according to the clinical symptoms and medical history of each patient.

#### RETROPERITONEAL SCHWANNOMA: A CASE REPORT

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**Introduction:** Schwannomas are tumors that originate in Schwann cells from peripheral nerves. They're usually benign and mostly located on the neck, mediastinum and limbs. Retroperitoneal Schwannomas are rare (0.7–2.7%).

**Case report:** A 68-year-old woman presented with abdominal pain. The CT and MRI revealed a cystic mass between the psoas, iliac muscle and femoral nerve. A midline laparotomy showed a 6 cm mass arising from the femoral nerve. The mass was resected with a neurostimulation technique with preservation of a 10–20% of the nerve. The histopathology confirmed the diagnosis of Schwannoma. After the surgery, the patient presented paresis of the quadriceps muscle. A year after surgery there was no sign of recurrence.

**Discussion:** The most frequent symptom of retroperitoneal Schwannomas is abdominal pain (57%). Diagnosis is mostly by CT. MRI enables identification of their origin. Treatment is complete surgical extirpation by laparotomy

#### CHAGAS DISEASE DEBUT AS SIGMOID VOLVULUS: A CASE REPORT

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**Introduction:** Chagas disease is an endemic zoonoses in Latin-America but it is becoming an emerging problem in countries such as Spain and United States due to emigration. Gastrointestinal manifestations are the second most common cause of Chagas's complications.

**Case report:** A 34-year-old woman with a previous sigmoid volvulus solved by endoscopic devolvulation presents with abdominal pain. The patient was diagnosed of a new episode after a simple abdominal radiography, CT scan and colonoscopy. Chagas disease was suspected and serological analyses confirmed the diagnosis. Systemic affectionation was dismissed and surgery was indicated. A sigmoid resection with intestinal anastomosis was performed. The excised part showed an acute inflammation of the intestinal wall with numerous eosinophils, consistent with parasitic disease exclusively at colonic level.

**Discussion and Conclusions:** Chagas disease presenting as sigmoid volvulus is very unusual in Spain but we should be aware of this possibility in young patients coming from Latin America.

#### YODURIA AND TSH IN PREGNANTS

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**Introduction:** The iodine is essential during the pregnancy and breastfeeding for a correct fetus' neurological development. We want to find out if appropriate

levels are reached after the administration of iodine, and also the iodine's nutritional state in a subpopulation of pregnant in Asturias, a region of Spain.

**Methods:** Yoduria ( $\mu\text{g/L}$ ) and the TSH ( $\text{mU/L}$ ) were measured in 118 pregnant, before and after the oral administration of iodine ( $200 \mu\text{g/day}$ ), through HPLC and electrochemiluminescent immunoassay, respectively. 35 pregnant were excluded for not accomplishing the standards.

**Results:** In the subgroups with severe and slight deficiency, a 23% did not reach the desirable minimum level after the supplementation.

**Conclusions:** 1. A 36% of pregnant presented deficiency of iodine. 2. The administration of iodine does not assure completely the normalization. 3. The supplementation seems safe, since it does not carry appreciable changes in the TSH. 4. It seems desirable the readjustment of the iodine's dose according to its basal level.

#### CLOSURE OF AORTO-PULMONARY ARTERIES BY THORACOTOMY IN PATIENTS WITH PULMONARY ATRESIA AND VENTRICULAR SEPTAL DEFECT

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**Introduction:** Pulmonary atresia is a complex cyanotic heart disease characterized by the absence of communication between the right ventricle (RV) and pulmonary artery (PA). As a result, there are anomalous pathways directing venous blood to the lungs.

**Methods and Results:** Neonate was diagnosed of pulmonary atresia and perimembranous ventricular septal defect (VSD). Catheterization showed two aorto-pulmonary collateral branches. VSD closure and aorto-pulmonary collateral arteries were ligated by median sternotomy. Days after surgery, catheterization and MRI demonstrated two collateral branches directed towards the right lower lobe. This time, the surgical approach was a right postero-lateral thoracotomy. Aorto-pulmonary arteries were located and successfully ligated.

**Discussion and Conclusions:** The ultimate goal of this complex pathology is the closure of the VSD, achieve an adequate communication to the PA and eliminate systemic-pulmonary arteries. The existence of aorto-pulmonary collaterals is still considered a strategic challenge. Its closure by thoracotomy is an excellent alternative.

#### AORTIC VALVE-SPARING REMODELLING TECHNIQUE. INITIAL EXPERIENCE

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**Introduction:** Various valve-sparing aortic root replacement techniques have been described, with good medium to long-term Results.

**Methods and Results:** From July 2012 to May 2014, 13 patients (age range 27–76 years, median age 42.5 years, 92% male) underwent the remodelling technique in our center. 62% had a tricuspid aortic valve. 12 patients had grade III-IV/IV aortic regurgitation. An associated procedure was done in 5 cases. Median bypass and cross-clamp times were 200 (range 123–331) and 136 minutes (range 117–193) respectively. In every patient, intraoperative echocardiography showed aortic regurgitation grade 0-I/IV. There was one death related to severe respiratory failure. Median hospital stay was 8 days. At

BASAL YODURIA SUBGROUPS	(N = 83 cases) %	Basal yoduria median	2nd yoduria median	P	Basal TSH median	2nd TSH median	P
Severe deficiency: <75	13	58 (48–65)	279 (153–437)	0,001	1,79 (1,4–2,76)	2,37 (1,28–3)	NS
Slight deficiency: 75–149	23	106 (97–130)	209 (151–340)	0,0002	2,01 (1,68–2,78)	2,72 (2,02–3,24)	
Appropriate: 150–299	37	211 (192–239)	251 (179–333)	0,013	2,1 (1,36–2,91)	2,52 (1,65–3,12)	
More than appropriate: 300–500	17	390 (336–436)	314 (190–410)	0,1	1,71 (1,22–2,4)	2,12 (1,52–2,76)	
In excess: >500	10	651 (568–720)	167 (56–436)	0,06	1,28 (1,21–1,81)	1,54 (1,17–1,9)	

median follow-up of 15,2 months (range 2,7-25,8), echocardiography showed progression of regurgitation in only one patient (grade II/IV). Eleven patients remain in NYHA class I, and 1 (with morbid obesity) in class II.

**Discussion and Conclusions:** The aortic valve-sparing remodelling technique offers very good Results.

#### ENDOCARDITIS BY WHIPPLE: AN UNDERESTIMATED ENTITY

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**Introduction:** Whipple's disease is characterized by weight loss, gastrointestinal disorders and polyarthralgia. Reported cases of endocarditis caused by this bacteria are very rare.

**Methods and Results:** Patient with history of arthritis was admitted for congestive heart failure. Echocardiography showed severe mitral and aortic regurgitation. During surgery, vegetations are found in both valves needing to be entirely removed. Mechanical prostheses number 23 and 27 were implanted in aortic and mitral position. Valves culture were positive for *Tropheryma whipplei*. The patient was, when discharged from hospital, asymptomatic and echocardiography showed both prostheses functioning normally. A year later the patient was asymptomatic with no evidence of infection.

**Discussions and Conclusions:** Endocarditis caused by *Tropheryma whipplei* usually have no signs of infection or Duke criteria making the diagnosis difficult and delaying the diagnosis. The presence of a chronic, insidious endocarditis with negative blood cultures should make us suspect this rare etiology.

#### TREATMENT OF POST-TRAUMATIC ANEURYSMS OF ULNAR ARTERY (HYPOTHENAR EMINENCE SYNDROME)

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**Background:** The aneurysms caused in the ulnar artery might be originated by repeated traumatism in the hypothenar eminence. The objective is to revise the treatment and Results of the treatment of this pathology.

**Methods:** A sample of seven aneurysms in the ulnar artery was analyzed. The patients were assessed through medical history, physical examination and imaging tests (eco Doppler and arteriogram).

**Results:** Allen's test was positive as a consequence of microembolisms due to thrombosed aneurysm. The arteriogram depicted irregular profiles with occluded or aneurysmatic segments and occlusions of the digital arteries. The surgical treatment consisted in a resection without applying either reanastomosis of the ends of the artery or the interposition of a venous autograft. The mean follow-up period was  $16 \pm 5$  months in which the patients were asymptomatic, without any sign of digital ischemia.

**Conclusions:** The Results of the surgical resection were excellent.

#### USE OF MONITORING CENTRAL VENOUS OXYGEN SATURATION (SCVO<sub>2</sub>) IN CARDIAC SURGERY

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**Introduction:** ScvO<sub>2</sub> is the earlier indicator of the relation between O<sub>2</sub> consumption and tissues supply. It is modified during anesthesia and other situations in which O<sub>2</sub> tissues supply decreases and O<sub>2</sub> extraction increases.

**Case description:** 34-year old male with functional class deterioration presents Anomalous Pulmonary Venous Drainage (TAPVD) with lower lobe vein draining into Left Atrium (LA), left upper lobe vein draining into the Innominate Vein (IV), right pulmonary vein drainage only with inferior vein cava, HTP and right lung hypoplasia. Elective surgery for correction DVPA. ScvO<sub>2</sub> of 89% is reported for the mixture of oxygenated blood from TAPVD to the superior vein cava. During surgery venous collector is observed with dual return to VI and AI so the collector is linked at its junction with the VI maintaining union with AI. Jump oximetry were reduced ScvO<sub>2</sub> <80% after ligating the collector. ScvO<sub>2</sub> remain > 70%.

**Conclusions:** The intraoperative ScvO<sub>2</sub> major surgery values consumption, supply and tissue perfusion allowing interventions to prevent hypoxia. It serves as a marker of surgical changes integrating cardiopulmonary hemodynamics situation.

#### ANALGESIC EFFECT OF TOPICAL SEVOFLURANE IN PAINFUL VENOUS ULCERS

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**Introduction:** Venous ulcers are a major health problem. Ulcer complications, specially pain reduces quality of life of the affected ones.

Sevoflurane is a inhaled halogenated anesthetic with hypnotic effect, but has not been demonstrated to have effects in the peripheral nervous system.

**Material and Method:** We present 76 random applications of sevoflurane in patients with no infected and painful venous ulcers.

We performed a quantitative assessment of pain before and after application of 3 ml pure sevoflurane directly on the lesion, using a numerical scale (1 = no pain, 10 = unbearable pain). We also quantify the analgesic demand.

**Results:** In first application the average pain reduction was  $5.33 \pm 0.71$  points (95% CI 4.79-5.87). Overall pain decreases  $6.075 \pm 1.23$  (95% CI 5.76-6.39) points. Analgesic consumption decreased 50% on average in treated patients.

**Conclusion:** Topical application of sevoflurane has been shown effective to control pain in refractory venous ulcers.

#### MULTIMODAL POSTOPERATIVE RECEPTOR ANALGESIA AFTER KIDNEY TRANSPLANT: THE ROLE OF TRANSVERSUS ABDOMINIS PLANE BLOCK

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**Introduction:** Postoperative pain after renal transplantation can be severe, and administration of systemic analgesia is limited. Kidney transplant recipients are ideally suited for obtaining the maximum benefit from transversus abdominis plane block (TAP block) due to the classic abdominal incision.

Our goal is to assess the efficacy of analgesia by TAP block using the visual analogue scale (VAS) 3, 6 and 12 hours after renal transplantation.

**Material and Methods:** We present a series of 3 cases, in which TAP block was performed intraoperatively with direct visualization and using an aseptic technique, with 10 ml of 0.5% bupivacaine and a vasoconstrictor.

**Results and Conclusions:** The VAS value was (1,3,3) after 3 hours, (1,2,4) after 6 hours and (3,1,3) after 12 hours, respectively. The preliminary Results are promising. We are considering the use of TAP block as part of a multimodal postoperative analgesic regimen for kidney transplants.

#### PERIOPERATIVE COMPLICATIONS ANALYSIS OF SURGICAL RESECTION OF PHEOCHROMOCYTOMA (PC)

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**Background:** Pheochromocytoma (PC) is a rare tumor of the adrenal gland that release catecholamines. It is responsible for underestimated alterations in vascular tone, arrhythmias and endocrine-metabolic alterations. The aim of this study was to review the influence of complications during the perioperative period.

**Methods:** 27 patients who underwent a programmed surgery of PC resection.

**Results:** Preoperative: Mean ASA: III.  $\alpha$ -blocker 93%. Department: 52% General surgery and 48% Urology. Type of surgery: laparoscopy 52%. Intraoperative complication: hypertension 63%, hypotension 59%, Arrhythmia 31%. Bleeding 350 cc.

**Postoperative complications:** 31% hypertension and 15% hypoglycemia. Surgery complications: 11% bleeding, 7% surgical abscess and 4% wound infection. 1 reoperation. Total death 2 patients. Days average stay days in critical care unit 1. Mean APACHE II 7.

**Conclusions:** Patients with PC of our population have intermediate preoperative risk despite the complex management required. The use of laparoscopic surgery has increased in recent years and is associated with fewer days of hospitalization, bleeding and mortality. Intraoperative complications are mainly hemodynamic instability. Mortality is slightly lower than expected by APACHE II.

## A HOSPITALIST: A SUPPORT IN SURGICAL PROCEDURES TO BE MORE EFFICIENT

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**Introduction:** Integration of hospitalists and surgical teams may improve the postoperative care of complex patients. Our objective is to describe the outcomes of a hospitalist program in a surgical department

**Methods:** Criteria for hospitalist involvement in care and an early discharge program had been defined in advance. A retrospective analysis of a prospectively collected database, including patients admitted between January 1st and December 31st 2013 was carried out. Demographic features and length of stay (LOS) and readmissions were studied.

Results 379 patients were evaluated. The mean age was  $72 \pm 14$  years. There was no difference in sex distribution (190 women and 189 men). Colorectal cancer was the most frequent diagnosis (colorectal cancer 39%, abdominal wall hernias 10%, bowel obstruction 9% and non-malignant biliar disease 6%). The majority of them had comorbidities (91%) and 35% some kind of dependence. The most frequent medical postoperative complications were: heart failure 17%, pneumonia 9%, surgical wound infection 8% and atrial fibrillation 7%. 21% was included into EDP. LOS was 6.9 days, 1.7 less than in 2012. Readmissions within 30 days of discharge were 7%, 1% point less than previous year.

**Conclusions:** Medical co-management of surgical high risk patients (multimorbidity, complex chronic illness and/or dependent) by hospitalists and surgeons and the development of early discharge programs improve the postoperative outcomes, with shortening of LOS and a reduction in readmissions.

## ASSESSMENT OF AN ANAESTHESIA PROTOCOL FOR IMPLANTING VALVE BIOPROSTHESIS IN SHEEP

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**Background:** It is vital to develop new approaches on implanting valve prosthesis which minimize rejection from receptors, consequently improving their functional nature, reliability and durability.

Choosing the animal model is one of the most important decisions to be made before starting a biomedical study. Secondly, a suitable anaesthesia protocol can improve survival rates, increasing ethical acceptance and efficiency of these

experiments. Thus, by using the right anaesthesia model, we can be certain the animal is not suffering, reduce mortality, optimize performance and guarantees the quality of the study.

**Methods:** Sixteen sheep were used in this study. Preanaesthesia consisted of midazolam and metadone, induction with propofol and anaesthesia maintenance with fentanyl combined with propofol during the phase of extracorporeal circulation or sevoflurane during the rest of the period of anaesthesia. Fenilefrine was used as an inotropic support and atracurium was used as a neuromuscular inhibitor. The ventilation parameters were  $FiO_2 = 0.4$ ; normal volume = 9–10 ml/kg; Ti:Te: 1:3, PEEP: 4–8. After finishing the extracorporeal circulation phase, ventilation was reassumed following the previous parameters and starting alveolar recruitment manoeuvres. Heart rate, blood pressure, oxygen saturation, etCO<sub>2</sub> and temperature were monitored every ten minutes. Arterial gasometry were also carried out throughout the procedure. The time of reassuming spontaneous ventilation, the time of extubation and mortality were considered.

**Results:** The combination of fentanyl and sevoflurane provides high haemodynamic stability, with rapid and safe recovering from anaesthesia as well as adequate analgesia in heart surgery. The use of propofol during the phase of extracorporeal circulation provided stable cardiovascular anaesthesia without intraoperative awakenings.

**Conclusions:** The anaesthesia protocol described in this study has proved adequate for implanting valve bioprosthesis in sheep as it provides haemodynamic and respiratory stability, little perioperative problems, easy and safe recovery from anaesthesia and a low mortality safe.

## NURSING BEST PRACTICE GUIDELINE “ASSESSMENT AND MANAGEMENT OF PAIN”. IMPLEMENTATION OF RECOMMENDATIONS IN THE SURGICAL AREA OF GENERAL HOSPITAL OF ALBACETE: RESULTS 2013 – 2014

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**Background:** Inadequate pain management after surgery becomes a problem in 46 to 53 percent of adults.

**Methods:** The Surgical Area of General Hospital of Albacete is adopting the guideline “Assessment and Management of Pain”, offered by The Registered Nurses’ Association of Ontario (RNAO). This guideline provides evidence-based recommendations for nurses and other members of the inter-professional team who are managing people with presence of any type of pain.

**Results:** Between June 2013 and June 2014, a sample of 1449 patients (53% male) that underwent recommendations provided by the guideline, was evaluated. Presence of pain was documented in 64.6% of the sample. The assessment of pain using a validated tool increased from 34% (June 2013) to 70.8% (June 2014) ( $p < 0.0001$ ). The pain intensity average was 2.9 on a scale of 0 to 10. A 13.9% of patients have had a severe pain. The pain intensity average was statistically different when compared in women (average 3.12) and men (2.7) ( $p < 0.0001$ ), also in different surgical specialties (average 4.01 in gynecological surgery). The pain intensity has been shown to decrease with age (Pearson  $-0.091$ ,  $p = 0.011$ ).

**Conclusions:** Pain assessment has increased systematically. It is necessary to adjust the strategies and ensure effective pain control.

## FLOOR OF THE MOUTH HEMATOMA DUE TO DIFFICULT INTUBATION

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**Background:** The hematoma of the floor of mouth is an important pathology associated mainly to taking anticoagulants and local trauma.

**Methods:** The case of a female patient with a history of treatment with anticoagulants for 3 weeks.

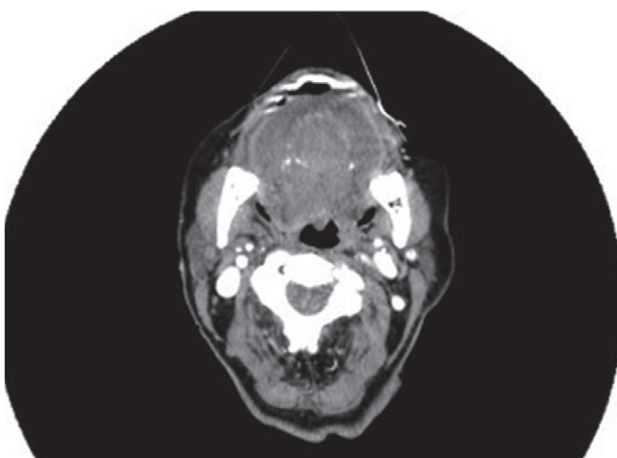
Which presents a cardiac arrest, which required advanced CPR with difficult tracheal.



Then presents a tongue thrust, with base of tongue edema, difficulty speaking and to close the mouth.



TC where no collections or areas of bleeding was observed, only a diffuse and symmetric soft tissue of the mouth floor increase is requested.



Surgical drainage of the floor of the mouth was performed, and a contusion is observed on the back of the tongue, this being the cause of the hematoma, produced by the difficult intubation.



**Conclusions:** When a patient is in a life-threatening situation, where the urgency of the urgency is more important than the possible complications, which can handle a posteriori.

A very difficult intubation associated with taking blood thinners can cause a hematoma floor of the mouth, where diagnosis usually not a problem, but there are situations that may mislead added a quick diagnosis.

## INCIDENCE OF CHROMAFFIN TISSUE TUMORS OPERATED IN HOSPITAL GENERAL UNIVERSITARIO DE ALBACETE

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**Background:** Pheochromocytomas (PC) and paragangliomas (PG) are catecholamine-secreting tumors. They differ in terms of their suprarenal location (90%) or extra-adrenal (10%). The aim of this study is to describe pheochromocytomas (PC) and paragangliomas (PG) treated in our hospital during the past 15 years.

**Methods:** Retrospective study of 66 patients with pathologic diagnosis of PC and PG.

**Results:** Average age 56 years (Min 32, Max 77). PC 41%, PG 59%. Gender: Male 25,6%, female 72,4%. Type of tumor: PG 59%, FC 41%. Department of surgery: Urology 39%, Vascular surgery 33%, General surgery 15%, Otolaryngology 6%. Tumor localization: adrenal 42%, carotid sinus 35%, retroperitoneum 6%, bladder 5%, glomus tympanicum 3% and others 9%.

**Conclusions:** Our data shows a higher incidence of PG than in the general population. The extradrenal location is also higher than in other series. Further studies are needed to review about the relate causes.

## PREDICTORS OF POSTOPERATIVE LIVER FAILURE AFTER MAJOR LIVER RESECTION

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**Introduction:** Liver resection of primary and secondary malignancies has becoming increasingly important in recent decades.

**Objective:** Describe the risk factors of postoperative liver dysfunction.

**Methods and Results:** Retrospective study. Inclusion criteria were patients undergoing elective hepatectomy. The study period was between 2013 and 2014. We included 35 patients. The sex and age have little influence on mortality. We have been identified perioperative risk factors: chronic renal failure, MELD index > 10, treatment with chemotherapy and cirrhosis. The most common complications in the postoperative period are coagulopathy, acute renal failure and liver failure. Patients who received chemotherapy with fluorouracil formulations presented a higher incidence of liver failure. Patients with increased need for blood products have developed more complications.

**Discussion and Conclusions:** A good preoperative assessment can minimize the risk of liver failure. Liver remnant functionality will depend on the amount of residual liver but also depends on its quality. Safety margins over cirrhosis or has received any aggression (chemotherapy) should be higher.

## INTERMEDIATE UNIT INTEGRATED ORAL SURGERY

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**Objective:** To evaluate the Results of an oral surgery unit Integrated Primary Care.

**Design:** Observational descriptive study

**Setting:** Patients on the waiting list for Maxillofacial Surgery, Albacete.

**Participants:** 1042 patients were evaluated from the waiting list.

**Main Measurements:** Type consultation, pending or carried Activity, No Days, calendar type, spoke out surgery, wisdom teeth first monographic Consultations, Consultations longest successive small interventions, successive queries. Reduction Maxillofacial waiting list.

**Results:** 30 specific conferences, which were reviewed 1042 applications pending since late 2011 and 2012 waiting list, of which about 35% were resolved by other public or private means, were performed for 4 months 46% were resolved in unit and 19% needed specific treatment.

During this time 455 patients have declined in absolute numbers and also LE 55 new monthly entering either.

**Conclusions:** 1. The incorporation of dentistry has improved the management of the waiting list to be highly effective in solving processes and their subsequent decline. 2. The relationship between dentistry and maxillofacial surgery allows a better approach and management of the waiting list of patients, increasing the quality and efficiency of care with greater professional satisfaction. 3. It is advisable to periodically check the patients in hospital waiting list.

#### RECONSTRUCTION OF FACIAL DERMATOFIBROSARCOMA PROTUBERANS WITH A FREE ANTEROLATERAL THIGH PERFORATOR FLAP

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**Background:** Dermatofibrosarcoma Protuberans (DFSP) is a rare cutaneous malignant tumor, characterized by a high rate of local recurrence (50%), rarely metastasizes and CD 34 + in the immunohistochemical (IHQ).

**Methods:** A 52 years old male patient with right preauricular skin tumor of five months evolution; biopsy: mesenchymal tumor. Complete excision of the lesion was performed with margins.

**Results:** Diagnosis: DFSP with positive margins, so we perform superficial parotidectomy, removal of selective lymph nodes in submandibular region and reconstruction of the defect with a free anterolateral thigh (ALT) perforator flap. The result confirmed the complete removal of the lesion with sufficient margins of safety, with involvement of the superficial lobe parotid without infiltration of submandibular lymph nodes; so it was decided in oncology committee not to perform adjuvant therapy.

**Conclusions:** DFSP has a high rate of local recurrence so is necessary to plan a comprehensive and aggressive surgical approach to achieve disease - free margins.

#### SECONDARY SURGERY IN BREAST AUTOLOGOUS RECONSTRUCTION USING FREE ABDOMINAL TISSUE

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**Background:** Breast reconstruction (BR) using abdominal free flaps has become the therapeutic choice in patients with suitable donor site. The completion of this reconstructive technique requires a variable number of ancillary procedures.

**Methods:** Patients who underwent BR with abdominal free flap at La Paz University Hospital between 2010 and 2013 were reviewed. The inclusion criterion was completion to nipple reconstruction. Number and kind of secondary procedures and surgeries, and elapsed time to complete BR were determined.

**Results:** 68 patients underwent BR using abdominal free flap. 45.6% completed BR. The average of procedures, surgical steps and elapsed time was 3.2, 2.4 and 15.5 months respectively. The ancillary procedures were: liposuction (48.4%), mastopexy/reduction (41.9%), augmentation (9.7%), scar revision (61.3%) and inframammary fold revision (25.8%).

**Conclusions:** Surgeons and patients may know the need for secondary surgeries to become this treatment in the best choice in BR for selected patients.

#### THE INFLUENCE OF HISTOLOGIC DIAGNOSIS IN A RARE SUBCUTANEOUS NEOPLASM: 2 CASES OF OSSIFYING FIBROMYXOID TUMOR IN THE PAST 20 YEARS IN A TERTIARY HOSPITAL

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**Background:** Ossifying fibromyxoid tumor (OFT) is a rare neoplasm of soft tissues, originally described as benign, though various atypical and malignant forms with a more aggressive behaviour have been reported in recent years.

**Methods:** The occurrence and behaviour of this tumor over the past 20 years at the La Paz University Hospital (Madrid) was investigated.



Fig. 1 Nasal ala defect (Pre-surgical)

**Results:** Only 2 cases were found. No recurrence or metastasis have been reported so far.

**Conclusions:** Due to its controversial histopathological diagnosis and origin, OFT has gradually become considered as less of a benign tumor and more as having a potential for metastasis and local recurrence. Incidence of this tumor is conditioned by diagnostic anatomopathological criterias, and should be considered a tumor of intermediate malignancy and of uncertain differentiation.

#### NASAL RECONSTRUCTION WITH FRONTAL FLAP

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**Background:** Some surgical techniques have been developed to improve facial defects, such as: direct closures, cutaneous grafts, flaps, etc.; where the principal objective is the aesthetic reconstruction, which tries to restore the facial symmetry.

**Methods:** This is a clinical case of a female patient, with a history of squamous cell carcinoma in the right nasal ala, a surgical intervention is made in which is accomplish the extirpation of the lesion with wide margins (Fig. 1.)

**Results:** The technique used was an interpolated forehead flap where the supratrochlear pedicle is preserved and placed on the nasal defect (Fig. 2). In a second section a flap closure is made with free margins (Fig. 3).



Fig. 2 Frontal flap on the right nasal ala.





Fig. 3 Results after surgery.

**Conclusions:** The facial cosmetic defects involve a significant psychological effect, therefore it is imperative to raise a reconstructive solution for returning an aesthetically more favorable appearance.

#### TRANSMEDIASTINAL APPROACH IN LUNG SURGERY

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**Introduction:** The transmediastinal approach to bilateral pulmonary lesions has been described as an alternative surgical technique in patients with pneumothorax and biapical bullae, and anecdotally, for resection of metastatic lesions.

**Methods and Results:** Patient with previous colon adenocarcinoma (T3N0M0) presented 2 new nodules in LSD and LII (adjacent to the descending aorta). By right thoracotomy both nodules were resected. The LII nodule was approached through the mediastinum, accessing between the right inferior pulmonary vein and the pericardium above, and esophagus and column in the backplane. Histopathology confirmed metastases in LSD and LII tumours.

**Conclusions:** There is little literature on transmediastinal approach to bilateral pulmonary lesions and is almost anecdotal for resection of metastases. In the published cases described the anterior and apical access for resection of bullae. Present this unusual case illustrating a technique for basal and posterior transmediastinal access, useful in selected cases.

#### MANAGEMENT AND EVOLUTION OF MALIGNANT TRACHEOESOPHAGEAL FISTULA DIAGNOSED AT OPERATING ROOM, RECONSTRUCTION WITH AUTOLOGOUS PERICARDIUM GRAFT

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**Background** The acquired tracheoesophageal fistula (TEF) is usually malignant and the surgical treatment is exceptional. We report the case of a woman, scheduled for surgery due to squamous cell esophageal cancer (SCEC), intraoperative diagnosis of TEF and their successful repair.

**Methods:** 44-year-old woman diagnosed with SCEC, which required preoperative chemoradiotherapy and also metal stent. At surgery an air leak was perceived. Right posterolateral thoracotomy approach: there was a defect in the membranous trachea (3 cm) affecting the distal trachea, both main bronchi and esophagus. Tracheal edges without malignancy. Tracheal repair with autologous pericardial patch, pedicle flap of serratus muscle to protect it. Tubulization and gastric pull-up, esophagectomy and esophagogastric anastomosis.

**Results:** fibrobronchoscopy (17<sup>th</sup> day): well integration progress. In 6 months of postoperative follow-up there were no tracheal complications.

**Conclusions:** The defect of posterior tracheobronchial wall could be repaired with autologous pericardial graft. This is a reliable method, simple and effective in the short and medium evaluation term.

#### TOMOGRAPHIC CALCULATION METHOD OF LUNG VOLUME IN RATS

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**Background:** We describe a method to calculate the lung volume (LV) in rats, by computerized tomography (CT) to determine the average of the sample established in future studies of left postpneumectomy.

**Methods and Results:** CT 64-detector CT Brilliance<sup>®</sup> Phillips is done to seventeen female rats, with lung window acquisition. The parenchyma volume of the left lung (VLL) (-750 HU) was selected and automatically calculated with the software of Portal Brilliance Workstation<sup>®</sup> (Figure 1).

Using the Kolmogorov-Smirnov it is found that volume and weight of left lung was normally distributed ( $p = 0.993$  and  $0.953$  respectively). The average of VLL was 1932 mm<sup>3</sup> (Table 1).

**Discussion and Conclusions:** The kind of measurement has not been described in the literature until these days, being considered a reproducible technique with little variability between rats of the same sex and weight. As it is not a big size study, it must be taken with caution the Results when extrapolating them to the population.

**Table 1** Mean values, 95% confidence interval, standard deviation, minimum and maximum value depending on the volume and weight.

VALUE	WEIGHT (g)	VOLUME (mm <sup>3</sup> )
Mean	300.6471	1932.3529
Confidence interval 95%	293.3942 -307.8999	1749.1975 -2115.5084
Standard deviation	14.10648	356.22780
Minimum value	272	1200
Maximum value	324	2653

#### METHODOLOGY FOR OBJECTIVE VALIDATION THROUGH ELECTROENCEPHALOGRAPH SIGNALS OF INTRAOPERATIVE STRESS PRODUCED BY CERTAIN FACTORS IN SURGEONS

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**Introduction:** Some factors cause intraoperative stress in surgeons, which might reduce patient security. A methodology for objective evaluation of the intraoperative stress through electroencephalogram (EEG) signals is proposed.



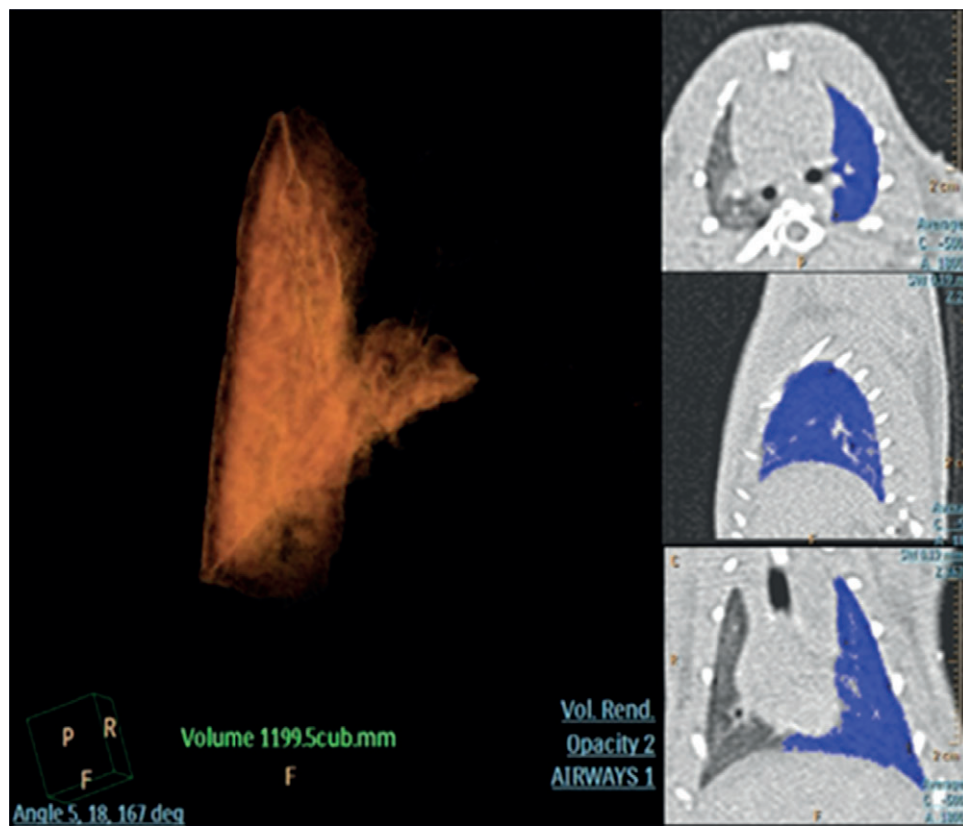


Fig. 1 Image 3D and multiplanar reconstruction images of the cardiopulmonary block during the image processing.

**Methods and Results:** The methodology proposes to show images related to surgical interventions and associated with stress-inducing factors to the surgeons. The EEG signal is recorded by the Emotiv EPOC device, from which values of "valence" and "arousal" can be extracted. These stress indicators are obtained from the power of the alpha and beta frequency bands of EEG. Afterwards, surgeons complete a questionnaire about the subjective stress sensation, in order to compare it with the objective sensation captured by the EEG signal.

**Discussion and Conclusions:** A methodology to objectively determine the stress experienced by surgeons before visual stimuli is proposed, by analyzing signals of the EEG channels of the prefrontal lobe responsible for emotional processes. Furthermore, factors causing stress can be validated.

#### MODULAR COMPUTATIONAL MODEL OF THE CARDIOVASCULAR SYSTEM

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**Background:** The aim of this work is to research and develop a computational system that allows the simulation of the different behaviors associated to some hemodynamic variables of the cardiovascular system from different physio-pathological cardiac conditions.

**Methods and Results:** The model has been implemented in a functional modular way and it has been designed as a lumped-parameter fluid circuit that is divided into four compartments: left heart, right heart, pulmonary circulation and systemic circulation. The user can configure several pathologies from different modules that facilitate the use of the model by non-experts in modeling. The model has been evaluated by comparing typical conditions of a severe

aortic stenosis with a healthy heart. The Results have been validated with other authors' published data available in the literature.

**Discussion and Conclusions:** The model allows the simulation of the behavior of some hemodynamic variables not easy to be measured in the clinical practice that define the real condition of the patient.

#### STENOSIS GROWTH PREDICTION BASED ON GEOMETRY FACTORS

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**Introduction:** Cardiovascular disease outcomes could be improved by proper estimation of the risk based on computer imaging and hemodynamics.

**Methods and Results:** Combining Computational Fluid Dynamics (CFD) techniques with realistic topologies (like those obtained from image tomography) we study different hemodynamical observables as Wall Shear Stress (WSS) or Oscillatory Shear Index (OSI). We find that by creating a map of WSS vs OSI, as well as by introducing a new Growth Risk Index (GRI) we determine that certain geometries present more neutral (safer) propensity to growth, while other point to higher risk related to worse prognosis for the patient. These numbers also allow to determine the location of regions with higher risk of growth

**Discussion and Conclusions:** While more detailed work is required to provide a standardized metric for the risk number, we have characterized quantitatively and qualitatively the risk of a fatal outcome or, at least, subsequent progression of the disease.

## EVALUATION OF A POST-TONSILLECTOMY ANALGESIC PROTOCOL IN ADULT OUTPATIENTS

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**Background:** Tonsillectomy produces an open wound, which favors the appearance of pain and secondary hemorrhage.

**Methods:** Prospective, observational study. 39 tonsillectomized adult outpatients with general anaesthesia and cold dissection from february to october 2013. Patients received information about the procedure, post-operative cares and numerical scale (NS) for the pain evaluation. Analgesic instructions were administered: ibuprofen, prednisone, paracetamol and omeprazole (3 days), proceeding to a progressive reduction of prednisone (5 more days), a telephonic register of the evaluated variables was carried out after the fourth, seventh and fifteenth days of surgery: pain, secondary hemorrhage, complementary treatment.

**Results:** The fourth day 29 patients (74,35%), the seventh day 34 patients (87,14%) and the fifteenth day, all patients presented scores  $\leq 3$  in NS 0–10. One patient (2,5%) presented secondary hemorrhage and 19 patients (48,71%) required complementary treatment.

**Conclusions:** The Analgesic Protocol is well-tolerated, in terms of pain is shown insufficient and needs to be checked.

## EVOLUTION OF SURGICAL TECHNIQUES FOR OSSEOINTEGRATED IMPLANTS

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**Introduction:** Osseointegrated implants (Bone Anchored Hearing Aid, BAHA) are used since the 1980s to improve hearing in patients with conductive or mixed hearing loss. They combine an osseointegrated titanium implant in the temporal bone with a sound processor placed outside the ear.

**Materials and Results:** The different techniques to place the implant have changed over time in order to develop less invasive procedures with a lower complication rate.

Osseointegrated implants are mainly indicated in cases of external and middle ear malformation as well as for solving some of the problems created by conventional auditory prostheses. Several patients have been operated in our hospital using linear incision technique with very good auditory Results and improvement in quality of life.

**Discussion and conclusion** The evolution of surgical techniques for BAHA (minimally invasive surgery) allows for quicker recovery.

## UNILATERAL PARALYSIS OF THE VOCAL FOLD AS THE TIP OF THE ICEBERG OF TUMOR PATHOLOGY

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**Introduction:** Vocal paralysis is defined as the loss of movement of the vocal fold (VF) secondary to the disruption in the innervation of the larynx. It can be caused by an injury at any point in the trajectory of the Vagus-Recurrent nerve. The most frequent causes are the neoplasm followed by trauma (thyroidectomy).

**Methods and Results:** Three patients with dysphonia, who presented a complete paralysis of the left VF as sole discovery in the clinical exploration, were presented. A cranial-neck -thoracic CT was solicited with Results of an oesophagus, lung and thyroidal neoformation.

**Discussion and Conclusions:** The paralysis of the VF must be considered as a sign of a graver underlying pathology, such as an extra-laryngeal neoplasm. The indication of a CT that covers the trajectory of the Vagus-Recurrent nerve in patients with a paralysis of VF is justified. The left VF has a tendency of being affected due to the larger tr

## PRESERVATION OF AUDITORY AND VESTIBULAR FUNCTION IN EAR SURGERY

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**Introduction:** Otologic surgery occasionally Results, either immediately or in the long term, in an impairment of the patient's auditory and vestibular function, located in the inner ear. Intratympanic route of drugs administration opens present and future treatment possibilities with good prospects of improving many inner ear conditions secondary to surgical iatrogeny.

**Methods and Results:** Essentially, intratympanic medication allows the active agent a much better access – and in higher concentrations – to the target area than any other route of administration, including intravenous. Besides having less general side effects, it reduces the possibility of damage during surgery and preserves inner ear function, minimizing iatrogeny.

**Discussion and Conclusions:** Intratympanic route proves to be very effective in the treatment of various illnesses as well as in the otprotection of both auditory and vestibular receptors in interventions such as clocheal implants or any other surgery which can injure the inner ear.

## PELVIC SURGERY AS RISK FACTOR IN URODINAMIC ALTERATIONS IN PATIENTS UNDERGOING RADIOTHERAPY

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**Introduction:** Urodynamic alterations result of surgical treatment of various pelvic organs have been well studied. However, the functional consequences in the lower urinary tract of radiotherapy, either single or combined with surgery, have not received the same attention.

**Methods and Results:** The study of urodynamic and EMG selective urinary sphincter (EMGs) parameters in patients undergoing pelvic radiotherapy (RT). 145 patients with pelvic radiotherapy (RT); 50 % underwent RT > 4 years and 64% with pelvic surgery.

**Discussions and Conclusions:** The prostatic RT produces LUT functional alterations, mainly during the filling phase and not detrusor overactivity. It exist late denervation postRT. Pelvic surgery may increase risk factors of RT.

## PHYSIOLOGICAL MEASUREMENTS OF THE RIGHT VENTRICLE IN A PORCINE ANIMAL MODEL MEASURED BY MAGNETIC RESONANCE IMAGING

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**Introduction:** The objective of the study is defining right ventricle (RV) physiological values in-vivo in a cardiac animal model through the use of cardiac magnetic resonance imaging (MRI).

**Methods and Results:** For the study have been used thirty large white pigs with a 3.0 T magnetic resonance device (GE) and steady state free precession imaging (processed using Report Card 4.4 (GE)).

**Results:** RV long axis  $52,1 \pm 4,7$  mm, RV short axis  $28,4 \pm 3$  mm, RV long axis indexed to body surface  $7,3 \pm 0,8$  cm/m<sup>2</sup>, RV short axis indexed to body surface  $2,6 \pm 0,4$  cm/m<sup>2</sup>, RV end-diastolic volume  $48,2 \pm 11,3$  mm<sup>3</sup>, RV end-diastolic

volume  $28 \pm 7,4 \text{ mm}^3$ , RV stroke volume  $20,2 \pm 6,6 \text{ mm}^3$ , RV ejection fraction  $41,7 \pm 7,7\%$ , RV end-diastolic volume indexed to body surface  $67 \pm 12 \text{ mm}^3/\text{m}^2$ , RV end-systolic volume indexed to body surface  $39 \pm 8,9 \text{ mm}^3/\text{m}^2$ .

**Conclusion:** MRI is a reliable technique for in-vivo measurement of the RV in a porcine animal model

#### PHYSIOLOGICAL MEASUREMENTS OF THE LEFT VENTRICLE IN A PORCINE ANIMAL MODEL MEASURED BY MAGNETIC RESONANCE IMAGING

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**Introduction:** The objective of the study is defining left ventricle (LV) physiological values in-vivo in a cardiac animal model through the use of cardiac magnetic resonance imaging (MRI).

**Methods and Results:** For the study have been measured thirty large white pigs with a 3.0 T magnetic resonance (General Electric HDx) and steady state free precession imaging (processed with Report Card 4.4 (GE)).

**Results:** Anteroseptal parietal thickness  $7,4 \pm 1,3 \text{ mm}$ , LV posterior parietal thickness  $6,2 \pm 1 \text{ mm}$ , LV end-diastolic diameter  $38,9 \pm 4 \text{ mm}$ , LV end-systolic diameter  $31,1 \pm 3,2 \text{ mm}$ , LV shortening fraction  $19 \pm 4,7 \%$ , LV end-diastolic volume  $58,7 \pm 12,6 \text{ mm}^3$ , LV end-systolic volume  $29,4 \pm 8 \text{ mm}^3$ , LV systolic volume  $29,4 \pm 8,6 \text{ mm}^3$ , LV end-diastolic volume indexed to body surface  $81,9 \pm 11,6 \text{ mm}^3/\text{m}^2$ , LV end-systolic volume indexed to body surface  $41,1 \pm 9,8 \text{ mm}^3/\text{m}^2$ , LV systolic volume indexed to body surface  $41,6 \pm 8,2 \text{ mm}^3/\text{m}^2$ , LV ejection fraction  $50 \pm 7,9\%$ , Cardiac output  $3 \pm 0,7 \text{ l/min}$ , cardiac index  $4,1 \pm 0,9 \text{ l/min/m}^2$ , LV end-diastolic mass  $62,5 \pm 15,4 \text{ g}$ , LV end-systolic mass  $66,9 \pm 14 \text{ g}$

**Conclusion** MRI is a reliable technique for in-vivo measurement of the LV in a porcine animal model