

BJS



Abstracts of the 18th Congress of the
Spanish Society for Surgical Investigations
Leon, October 2012

ISSN 0007-1323 (PRINT)
ISSN 1365-2168 (Online)

www.bjs.co.uk



WILEY
Blackwell

Abstracts of the 18th Congress of the Spanish Society for Surgical Investigations, Leon, October 2012

COMPUTED TOMOGRAPHY OF THE POST-SURGICAL ABDOMEN: WHAT TO LOOK FOR

A. Franco-Lopez, A. Alcazar-Peral, A. Celdrán-Urriarte, M. Tomás-Mallebrera

Fundación Jiménez Díaz University Hospital, Madrid, Spain

Purpose: Distinguishing post-surgical discoveries from the usual ones implies great difficulty. The aim of this work is to go through everything the radiologist must know about the operated abdomen.

Methods: Cases occurred in the last two years were reviewed
1. Secondary anatomic changes to the surgical technique used
2. Predictable changes in the immediate postoperative period
3. Most common complications

Results: Changes in anatomy depend on the carried out intervention. In the days following the operation pneumoperitoneum or small collections are usual discoveries, and are due to disappear on their own. The most frequent complications are bleeding, infection (associated or not to fistulas), obstruction and hernias or eventrations. Other complications were: thoracic, foreign bodies or pancreatitis.

Conclusion: CT allows to examine postsurgical abdomen detecting changes such as active bleeding or small abscesses. It requires a keen knowledge of the surgical technique and of the most frequent findings in these particular patients.

SINGLE-STEP TREATMENT WITH COMBINED RADIOFREQUENCY AND EMBOLIZATION IN HEPATOCELLULAR CARCINOMA. 10 YEARS PROSPECTIVE STUDY

J. Urbano¹, A. Franco², A. Alcazar², J. M. Cabrera¹, A. Alonso¹, J. A. Rodríguez-Montes³

¹ Vascular and Interventional Radiology, *Fundación Jiménez Díaz University Hospital & La Paz University Hospital, Universidad Autónoma de Madrid*, ² Abdominal Imaging, *Fundación Jiménez Díaz University Hospital & La Paz University Hospital, Universidad Autónoma de Madrid*, ³ Surgery Department, *Fundación Jiménez Díaz University Hospital & La Paz University Hospital, Universidad Autónoma de Madrid*

Purpose: We show our results of combined treatment with radiofrequency and embolization in non surgical HCC.

Material and Methods: From 2001 to 2012 we treated 121 consecutive patients with early and intermediate HCC. Percutaneous radiofrequency and embolization were performed simultaneously. Response was evaluated according mRECIST criteria.

Results: Complete response for < 3 cm, 3 to 5 cm and > 5 cm tumors was 100%, 79.6%, 42.09%. Distant recurrence was 36.4%. Median survival was 37 months. The 1, 2, 3, 5 and 8-year overall-survival were 92%, 77%, 62%, 42%, 31%. Histopathology differentiation (p=0.0079), Child-Pugh (p=0.0003), initial response (p=0.0161), tumor size (p=0.0073), and number of tumors (p=0.0122) were survival significant prognostic factors. Major complications were 6.9% and 0.88% mortality.

Conclusion: Single-step combined therapy increases the volume and intensity of ablation obtaining a better response and fewer recurrences. The association of embolization & radiofrequency is safe. There is a trend toward survival improvement.

DETECTION OF CORONARY DISEASE IN STUDIES OF AORTIC CT ANGIOGRAPHY

A. Franco-Lopez¹, M. Tomas-Mallebrera¹, P. Muñoz-Calero-Franco², G. Fernandez-Perez³, M. Orejas-Orejas⁴

¹ *Fundación Jiménez Díaz. Clínica Ntra. Sra. De La Concepción, Imagen*, ² *Fundación Jiménez Díaz. Clínica Ntra. Sra. De La Concepción, Imagen*, ³ *Hospital De Avila, Imagen*, ⁴ *Fundación Jiménez Díaz. Clínica Ntra. Sra. De La Concepción, Cardiología*

Background: ECG gating in CT angiography of the thoracoabdominal aorta with high-pitch acquisition mode allows for diagnostic visualization of the coronary arteries and aorta in a unique acquisition.

Objectives:

- To evaluate the feasibility of using a high-pitch dual source ECG-gated acquisition protocol.
- To determine the incidence of coronary heart disease, stenosis and impact on treatment.
- To correlate patient heart rate with study quality.
- To quantify the radiation dose

Methods: 52 patients underwent CT angiography of aorta.

Results: Coronary disease was found in 38 patients, 18 presenting with hemodynamically significant stenosis. Diagnostic image quality good or excellent in all cases. Patients with average heart rate < 68 beats/min and heart rate variability < 1.2 beats/min had excellent diagnostic image quality in all coronary. Average radiation dose: 4.4 mSv.

Conclusion: High-pitch ECG-gated dual-source CT angiography of the thoraco-abdominal aorta delivers a diagnostic visualization of the coronary arteries at a low radiation dose.

PRESURGICAL IMAGING TECHNIQUES IN FREE PERFORATORS FLAPS: REVIEW, STATE-OF-THE-ART AND EVIDENCES

A. Alonso-Burgos¹, J. Urbano García¹, M. Cabrera González¹, W. Rozen², A. Alcázar Peral¹, Á. Franco-López¹

¹ *Fundación Jiménez Díaz. Clínica NTRA. SRA. De La Concepción, Radiología*, ² *Taylor Laboratory, Jack Brockhoff Reconstructive Plastic Surgery Research Unit, Department of Anatomy*

Introduction: Many imaging techniques are applied for free-perforator flaps, including Doppler (duplex), CT-angiography (CTA) and MR-angiography (MRA). Objective is to provide an evidence-based review and to establish their indications and capabilities applied in the most frequent free-perforator flaps.

Methods: Physical basis, advantages and disadvantages for duplex, CTA and MRA are reviewed and applied to deep inferior epigastric artery (DIEP), superior gluteal artery perforator (SGAP), anterolateral thigh (ALT) and distal lower leg propeller perforator flaps. The evidence supporting the use of various imaging modalities was investigated by searches of the PubMed and Medline databases.

Results: CTA is the current gold-standard for any perforator flap. Duplex imaging has too many false-positives results for a real time-consuming exploration. MRA is probably the imaging technique of the future.

Conclusion: Further trials are needed to conclusively validate imaging in reconstructive surgery but current evidence demonstrates that it can improve outcomes. CTA is the current gold-standard.

INVOLVEMENT OF DIFFERENT SIGNALING PATHWAYS OF INFLAMMATORY RESPONSE IN AN ANIMAL MODEL OF FULMINANT HEPATITIS

D. Vallejo¹, B. San-Miguel¹, I. Crespo¹, A. Laliena¹, J. M. Culebras^{1,2}, J. González-Gallego¹, M. J. Tuñón¹

¹ *Institute of Biomedicine (IBIOMED) and Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd). University of León*, ² *Hospital of León, Spain*

Rabbit hemorrhagic disease virus (RHDV) causes a viral hepatitis in rabbits that displays clinical, anatomopathological and transmission mode similarities to fulminant human viral hepatitis. Thus, it is the first successful model that satisfies the criteria applicable to an animal model of fulminant hepatic

failure (FHF). The aim of this research is to study the molecular pathways involved in the inflammatory process in this animal model. One group of rabbits was infected with 2×10^4 haemagglutination units of RHDV isolate, and another group received saline. Animals were sacrificed at 36 hpi. The expression of proinflammatory cytokines (IL-1 β , IL-6, TNF- α and CRP) and hepatic necroapoptotic molecules (HMGB-1, TLR4 and p-JNK) were significantly increased in infected animals while significant decreases were found in hepatic mRNA levels of DAF/CD55, essential factor in complement activation. The outcomes show that the experimental infection with RHDV triggers the activation of the different molecular pathways as it occurs in human FHF.

PRESENCE AND CONSULTATION OF SURGICAL TERMINOLOGY IN THE SPANISH EDITION OF WIKIPEDIA

J. M. Culebras¹, J. Sanz-Valero², C. Wanden-Berghe³

¹University Hospital of Leon and IBIOMED, University of León, Spain, ²Miguel Hernández University, Elche University of Alicante, Spain, ³CEU Cardenal Herrera University, Elche and University General Hospital of Alicante, Spain

Background: Most e-patients search for their disease on the Internet. Wikipedia is the biggest consultation page and one of the 10 most visited sites.

Objective: To evaluate Wikipedia consultation of surgical terms in the Spanish edition.

Methods: Headings of Duran's Textbook of Surgery (Madrid: McGraw Hill; 2003) were checked through the Spanish edition of Wikipedia (<http://es.Wikipedia.org/>, May 29, 2012).

Results: 461 headings retrieved. 419 (90.89%) were in Wikipedia, 311 (67.46%) directly and 108 (23.43%) secondarily with 5.86% disambiguation. Actuality/obsolescence of information ranged 1263-0 days; median 479.39; average 888.29 ± 71.70 days. (IC 95%: 49.05–78.93); (Fig 1). Studied terms consultation ranged 10437-3 days. Median 479.39; average 888.29 ± 71.70 visits/day (IC 95%: 747.25-1029.33).

Conclusions: Wikipedia is a good tool for surgical terms consultation and dissemination, with a high acceptance degree. Terminology update is outstanding. Small number of ambiguous terms (1/20) may confuse uninformed readers. Experts' supervision should be considered.

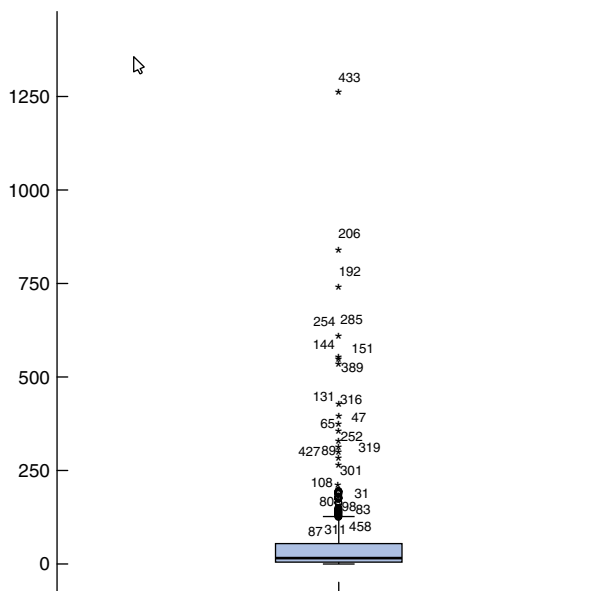


Fig. 1 Actuality/obsolescence. Days elapsed since the last modification of surgical terminology.



Fig. 2 QR Code for the XVIII Congress of the Spanish Society for Surgical Research.

QUICK RESPONSE CODE (QR-CODE): PERSPECTIVES AND APPLICATIONS IN SURGICAL PRACTICE

J. Sanz-Valero¹, L. M. Álvarez², C. Wanden-Berghe³, J. M. Culebras⁴

¹Universidad Miguel Hernández de Elche y Universidad de Alicante, España, ²Universidad de Vigo, España, ³Universidad CEU Cardenal Herrera de Elche y Hospital General Universitario de Alicante, España, ⁴Complejo Asistencial Universitario de León e IBIOMED, Universidad de León, España

Background: Quick Response codes (QR) store information in a bidimensional binary matrix, capable of storing up to 7366 numeric characters or 4464 alphanumeric ones, saving up to 7 Kbytes. The possibility to generate QR code containing URL links facilitates navigation into the Internet (Figure 2).

Objective: Applications of QR code in surgery.

Methodology: From the study of the use of QR codes in the industrial frame, it can be derived new proposals to use them in the context of the surgical practice.

Results: QR codes allow:

- Automatic patients identification; access to clinical file
- Information to the patient
- Use of QR code to boost education about health.
- Research protocols.
- Access to scientific documentation.

Conclusion: Potential uses for QR codes in surgical practice are only limited by the developers' imagination.

QUERCETIN INHIBITS IL-6/JAK/STAT3 SIGNALLING PATHWAY IN LIVER OF RATS WITH CIRRHOSIS INDUCED BY COMMON BILE DUCT LIGATION

M. J. Cuevas¹, J. Tieppo², N. P. Marroni², J. M. Culebras³, M. J. Tuñón¹, J. González-Gallego¹

¹Institute of Biomedicine (IBIOMED), University of León and Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Spain, ²Universidade Luterana do Brasil, Hospital de Clínicas and Fundação Faculdade de Ciências Médicas de Porto Alegre, Brazil, ³Hospital of León, Spain

The aim of this study was to evaluate the potential chemopreventive effect of flavonoid quercetin on IL-6/JAK/STAT3 signalling pathway in rats with common bile duct ligation (CBDL). Rats were divided into four groups: rats subjected to CBDL, Sham (rats subjected to simulated CBDL), quercetin-treated sham, and quercetin-treated CBDL. Quercetin (50 mg/kg) was administered for 2 weeks starting on day 14 after surgery. Overexpression of mRNA levels of IL-6 was observed in liver of CBDL rats. Bile duct ligation also increased the phosphorylation of JAK and STAT3 proteins in cirrhotic rats. Quercetin consistently caused in treated cirrhotic animals a reduction in IL-6 mRNA levels compared with untreated CBDL rats. This result was associated with lower phosphorylated levels of JAK and STAT3 in quercetin-treated CBDL rats. Findings suggest that quercetin treatment inhibits the IL-6/JAK/STAT3 signalling pathway. This effect could contribute to the chemopreventive properties of quercetin.

GLUTAMINE TREATMENT ATTENUATES ENDOPLASMIC RETICULUM STRESS AND INFLAMMATION IN TNBS-INDUCED COLITIS

J. Crespo¹, B. San Miguel¹, C. Prause², N. Marroni², M. J. Cuevas¹, J. Culebras³, J. González-Gallego¹, M. J. Tuñón¹

¹Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd) e Instituto de Biomedicina, ²Porto Alegre Clinical Hospital, Federal University of Rio Grande do Sul, Porto Alegre, RS, ³Hospital Universitario de León

Endoplasmic reticulum (ER) stress and proinflammatory mediators play an important role in the pathogenesis of inflammatory bowel disease. Glutamine improves outcome of *in vitro* and *in vivo* colitis models. Our purpose was to investigate the beneficial effects of glutamine. Colitis was induced in rats by administration of TNBS. Glutamine was given for 2 and 7 days. On 3rd or 8th day rats were killed and the distal colon was collected. Caco2 cells were cultured with brefeldin A as ER-stressor and treated with glutamine for 12 h. TNBS administration induced an increase of Bip expression, a major marker of the ER stress response, and cytokines and these effects were decreased by administration of glutamine. Brefeldin A treatment induced a significant up-regulation of BiP in Caco2 and treatment with glutamine decreased this effect. Data obtained indicated that early inhibition of the ER stress response contribute to protection by glutamine against damage in colitis.

THE ADMINISTRATION OF QUERCETIN ATTENUATES INFLAMMATION IN A MURINE MODEL OF STEATOHEPATITIS

B. San Miguel¹, E. Marcolin², N. Marroni², J. Culebras³, D. Vallejo⁴, J. González-Gallego⁵, M. J. Tuñón¹

¹Institute of Biomedicine (IBIOMED), University of Leon and Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Spain, ²Porto Alegre Clinical Hospital, Federal University of Rio Grande do Sul, Porto Alegre, Brazil, ³Hospital Universitario de León

NASH is a metabolic disorder characterized by the accumulation of fat in hepatocytes, inflammatory infiltrate and fibrosis. Flavonoids have shown a high therapeutic potential in various liver diseases and a protective role in inflammatory processes. The objective was to determine whether quercetin is capable of reducing inflammation in a steatohepatitis nutritional model. C57BL/6J mice were fed with a methionine and choline deficient diet for 4 weeks to induce NASH. Quercetin (50 mg/kg) was administered orally in a volume of 250 mL. Mice were sacrificed at 4 weeks collecting liver tissue. We found an increased expression of HMGB-1 and TLR-4; moreover, an enhanced expression of pro-inflammatory genes and activation of p65 NF-KB was observed in mice NASH hepatocytes. Quercetin significantly inhibited all these effects in treated NASH mice group. Our outcomes suggest that the inhibition of various signaling pathways is involved in the protective effect of quercetin in the inflammatory response.

MELATONIN EXERTS ANTI-ANGIOGENIC ACTIVITY VIA INHIBITION OF STAT3/ HIF1 α / VEGF IN HEPG2 CELLS

S. Carbajo-Pescador¹, R. Ordoñez¹, J. M. Culebras², J. González-Gallego¹, J. L. Mauriz¹

¹Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd) and Institute of Biomedicine (IBIOMED), University of León (Spain), ²Service of Surgery II, Hospital of León (Spain)

Introduction: Hepatocellular carcinoma (HCC) responses to hypoxia with aberrant visualization. Hif1 controls oxygen homeostasis inducing VEGF expression. STAT3 promotes Hif1 α stability and transcriptional activity. Here, we examined the role of STAT3/Hif1 α /VEGF in melatonin anti-angiogenic effects in HCC.

Materials and Methods: HepG2 cells were treated with physiologic and pharmacologic concentrations of melatonin under normoxia or hypoxia. Hif1 α and VEGF expression were analyzed by RT-qPCR and Western blot. STAT3 phosphorylation was measured by Western blot. Hif1 α subcellular localization was analyzed by Immunofluorescence.

Results: Melatonin 1 mM decreased Hif1 α mRNA, protein expression and nuclear localization. It was accompanied by reduction of VEGF (both mRNA and protein) under hypoxia. Furthermore, melatonin suppressed hypoxia

mediated STAT3 phosphorylation. Treatment with either melatonin or Stattic (a STAT3 inhibitor) reduced the Hif1 α , phospho-STAT3 and VEGF protein expression.

Conclusions: Our results provide evidence pointing to melatonin as a potent anti-angiogenic agent in HCC, by inhibiting STAT3/Hif1 α /VEGF pathway.

STUDY OF FABP1 GENE EXPRESSION AND TRANSCRIPTION FACTORS INVOLVED IN ITS REGULATION IN AN IN VIVO NAFLD MODEL IN MICE

M. V. García-Mediavilla^{1,2}, S. Pisonero-Vaquero¹, P. Casado-Castro¹, C. C. Almonacid Urrego¹, J. Tieppo¹, J. M. Culebras³, R. Jover⁴, J. González-Gallego^{1,2}, M. J. Tuñón^{1,2}, S. Sánchez-Campos^{1,2}

¹Instituto de Biomedicina (IBIOMED), Universidad de León, León, España, ²Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Instituto de Salud Carlos III, España, ³Departamento de Gastroenterología. Complejo Universitario Asistencial de León, León, España, ⁴Unidad Mixta en Hepatología Experimental. UVEG - Hospital Universitario La Fe de Valencia

Introduction/aims: Liver fatty acid binding protein (FABP1) regulates fatty acid trafficking and partition. Our objective is to investigate the transcription factors involved in the control of human FABP1 and their regulation in nonalcoholic fatty liver disease (NAFLD).

Methods: C57BL/6J mice fed with a MCD diet for 5 weeks were used. Control mice received the same diet supplemented with methionine and choline. The presence of steatohepatitis was proven histologically. C/EBP α , PPAR α , FOXA1 and FABP1 gene expression was determined by RT-qPCR.

Results: We observed a progressive inhibition of FABP1 gene expression associated to NAFLD. Our studies indicate that FABP1 is transcriptionally induced by PPAR α and FOXA1 and inhibited by C/EBP α . We observed a progressive inhibition of PPAR α and FOXA1 and an early induction of C/EBP α associated to NAFLD.

Conclusions: Our results suggest that FABP1 gene expression modulation by transcription factors contributes to long-chain fatty acid uptake and processing capacity impairment observed in NAFLD. Supported by BFU2010-15784 and GRS 482/A/10. CIBERehd is supported by Instituto de Salud Carlos III.

PROSPECTIVE STUDY COMPARING THE VERESS NEEDLE AND THE ENDOPATH[®] XCEL[™] TROCAR WITH ENDOSCOPIC CAMERA AS LAPAROSCOPIC ACCESS TECHNIQUES IN GENERAL SURGERY

O. Abdel-lah¹, M. Bongera², S. Fernández Arias³, I. Hevia³, M. Vega³, J. Rodicio⁴, F. Pozo³

¹H Alvarez Buylla, Cirugía, ²H. Alvarez Buylla, cirugía, ³H. Alvarez Buylla, Cirugía, ⁴H. Universitario Central de Asturias, Cirugía

The most popular access technique in laparoscopic general surgery is the Veress needle. The use of the Endopath[®] XCEL[™] trocar with an endoscope is a valid alternative.

Objectives: To compare the time to create pneumoperitoneum, number of attempts, and immediate access-related complications.

Method: Prospective analysis of 135 procedures.

Results: Mean BMI was 28 (16–45). The Veress needle was used in 52 cases and the optical trocar in 83, obtaining pneumoperitoneum in all of them. There were not significant differences regarding the number of attempts ($p=0.443$). More of the optical trocar cases required only one attempt (5%). Pneumoperitoneum was obtained faster with the optical trocar ($p < 0.001$).

Conclusions: The optical trocar allows a faster pneumoperitoneum and with a lower number of attempts. Both techniques are equally safe.

NANOMETRIC BIOMATERIALS IN CARDIAC REGENERATION

C. Castells¹, M. Fernandez Muiños², C. Semino¹

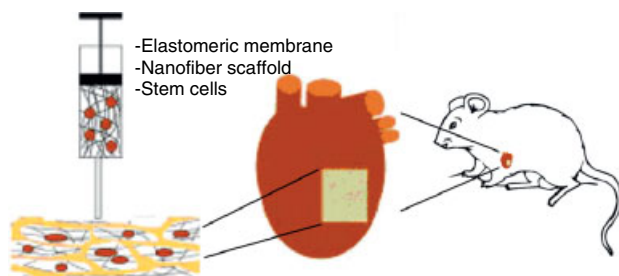
¹Universidad Ramon Llull, Barcelona, Bioingeniería, ²Universidad Ramon Llull, Barcelona, Bioingeniería

Introduction: Acute myocardial infarction (AMI) normally happens when blood supply to the heart is interrupted. Current treatments under development

consist in cellular therapy where stem cells are implanted into nanometric scaffolds and grafted onto infarcted ventricles with the hope that cells will contribute to the generation of new myocardial tissue. We propose that this mechanism could be enhanced by the application of a “bioactive implant” onto the pathologic cardiac area. The development of the first prototype was possible by the coordinated action of all research groups of RECATABI consortium (<http://www.recatabi.com>), demonstrating the first proof of concept of the main hypothesis of the project. We therefore present here results in a small animal model (mouse) that indicate that the approach suggested is feasible.

Objective: The main aim of this project was the development of a functional bioactive implant to assist or improve regeneration of the infarcted myocardium.

Methods: The methodology used in this work is depicted in the figure below:



An elastomeric microporous membrane scaffold (yellow scaffold in the figure, with mechanical properties similar to cardiac tissue) was filled with a self-assembling peptide nanofiber (a synthetic extracellular matrix analog) and stem cells in order to obtain a bioactive implant. The implant was grafted into injured cardiac tissue to induce stem cell migration into the ischemic tissue with the hope to induce regeneration. Elastomeric porous membranes (yellow in the figure) were prepared by the group of Dr. Manolo Monleón Padras (Universidad de Valencia), the stem cells were provided by Dr. Antoni Bayes-Genis (Universidad Autónoma de Barcelona) and the self-assembling peptide scaffolds (nanofiber scaffolds) was provided by Dr. Carlos E. Semino (Universidad Ramon LLull, Barcelona).

Results: The bioactive implant was successfully attached to the infarcted area. Loaded stem cells started an active migration towards the host tissue suggesting that it could contribute to induce regeneration, including possible angiogenesis and cardiac tissue neo-formation. During the next months we are planning to follow up the development of a regenerative process, mainly in the contribution of the delivered stem cells to truly functional cardiac tissue.

Conclusions: We present results suggesting that our platform might promote remodeling of necrotic areas of the injured tissue as well as regeneration into functional cardiac tissue. We believe that one-time application of a bioactive implant will have a great impact in cardiac tissue regeneration.

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 229239.

MELATONIN EFFECTS ON PRIMARY RAT HEPATIC STELLATE CELLS ACTIVATION

A. Lalién¹, M. Hoekstra², F. Haijjer², J. González-Gallego¹, H. Moshage², K. Faber², M.J. Tuñón¹

¹Institute of Biomedicine (IBIOMED), University of León and Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd), Spain,

²Department of Gastroenterology and Hepatology, University Medical Center Groningen, University of Groningen

Liver fibrosis involves cellular and molecular mechanisms that induce an excessive deposition of extracellular matrix (ECM) which major source are hepatic stellate cells (HSCs). Melatonin has a protective role in various situations of liver damage. The aim of this work was to study the effect of melatonin on HSCs activation in primary culture. HSCs were isolated from Wistar rats by the technique of double perfusion. Cells were cultured in presence or absence of melatonin at different doses (10–1000 µM) and time periods (1–7 days). The

expression of the key markers of HSCs activation was measured by RT-PCR. Expression of α-SMA, TGF-β and collagen (I, II and III) was gradually increased in cultured HSCs; however, melatonin was capable of diminish these values in a concentration and time-dependent manner. Thus, melatonin attenuates HSCs activation *in vitro* and it could serve as a novel therapeutic target in the treatment of liver fibrosis.

COLORECTAL CANCER SURVIVAL IN THE HEALTH AREA OF LEÓN (SPAIN)

M. Vallejo Pascual¹, M. Diago Santamaría², M. Mures Quintana³, A. Turienzo Frade², A. García Gallego¹

¹Universidad de León, Economía y Estadística (área de Estadística e I.O.), ²Complejo Asistencial Universitario de León (CAULE), Cirugía General y del Aparato Digestivo,

³Universidad de León, Economía y Estadística (área Estadística e I.O.)

Introduction: Colon adenocarcinoma is becoming a common disease in recent years. In Spain, annual incidence reaches 25.8 for men and 15.8 for women out of 100,000 inhabitants.

Objective: determination of the relationship between pathological diagnostic criteria and survival over five years in colon adenocarcinoma patients.

Method: Statistical Description of 458 patients surgically treated during the period 2000–2002 and monitored up to December 2009. For different levels of gender and age, the Logistic Regression is used to analyse the influence of several anatomic-pathological variables on the *exitus* or not of the patient.

Results and conclusion: There are more male patients than female (60.3% vs. 39.7%); most of the patients are over 60 years (84.5%). The tumor location (right or left colon), the level of differentiation (low, medium, high), or its mucosecretor nature, are not identified as relevant variables. Basically, long-term survival depends on the occurrence or not of metastasis.

LONG-TERM EVALUATION OF LAPAROSCOPIC SPLENECTOMY IN THE TREATMENT OF IDIOPATHIC THROMBOCYTOPENIC PURPURA IN THE HOSPITAL OF LEÓN

L. Alcoba García¹, J. Canga Presa², R. Canseco Fernández², N. Álvarez Díez³, S. Pacho Valbuena², J. de La Cruz Vigo⁴

¹Hospital De León (Edificio Princesa Sofía).(*) (1), ²Hospital De León (Edificio Princesa Sofía).(*) (1), Cirugía General Y Del Aparato Digestivo, ³Hospital De León (Edificio Princesa Sofía).(*) (1), Urgencias, ⁴Clínica San Francisco, Cirugía General Y Del Aparato Digestivo

Objectives: Short and long term results are evaluated regarding clinical responses of patients undergoing laparoscopic splenectomy by ITP.

Material and methods: Prospective observational study on the first 132 consecutive patients operated between 1993 and 2007 (71 per PTI).

Results and discussion: ITP is the most common indication for laparoscopic splenectomy. Our data confirm the efficacy of splenectomy being our average of 71% and 72% good results at 5 and 10 years. About 20% of patients in our study show moderate response to surgery, maintaining acceptable platelet counts (50000–150000) with combination therapy, surgical and medical. 10% of patients do not respond to surgery from the immediate postoperative period, and only these are absolute failures.

Conclusions: Laparoscopic splenectomy by ITP achieved high percentages of complete responses and are maintained at term. It must still be regarded as the “gold standard” in a moment’s new medical treatments with immunosuppressants and immunotherapies.

POSTOPERATIVE OTORRHAGIA AFTER LAPAROSCOPIC SURGERY IN TRENDLENBURG POSITION

L. Alcoba García¹, V. Simó Fernández¹, E. Pastor Teso¹, M. Muinelo Lorenzo², A. Villafañe³, B. Prada⁴

¹Hospital De León (Edificio Princesa Sofía).(*) (1), Cirugía General Y Del Aparato Digestivo, ²Complejo Hospitalario Xeral-Calde, Cirugía General Y Del Aparato Digestivo, ³Hospital De León (Edificio Virgen Blanca).(*) (1), Anestesia Y Reanimación, ⁴Hospital De León (Edificio Princesa Sofía).(*) (1), Anestesia Y Reanimación

Introduction: Laparoscopic surgery provides benefit in postoperative pain, paralytic ileus and lung function. The postoperative otorrhagia after laparoscopic surgery in Trendelenburg position is a strange complication.

Case Report: We report a 58 year old woman with diverticulitis episodes that involved laparoscopic surgery showing sigmoid diverticulitis. The surgery was 270 minutes long, being the patient in Trendelenburg 190 minutes at 45 ° tilt. The blood pressure and heart rate remained stable during the surgery. After the surgery a bilateral otorrhagia is objectified, showing hemorrhagic bullae on the floor of both ear canals.

Conclusions: The haemodynamic changes associated with the Trendelenburg position involves an increase in central venous pressure, arterial pressure and transcappillary bleeding as well. There are some factors that can make bleeding from the external ear in this extreme position, as the installation of the shoulder pads, the pressure increase in the cephalic vein and abdominal pressure related to neumoperitoneo.

ENDOVASCULAR REPAIR OF COMPLEX ACUTE DISLOCATION ENDOGRAFT

G. Alonso Argüeso, N. Sanz Pastor, J. Fletes Lacayo, E. Menéndez Sánchez, G. Novo Martínez, R. Fernandez-Samos Gutierrez, J. Ortega Martín, F. Vaquero Morillo

Complejo Asistencial Universitario de León, Cirugía Vascular

Abstract: A 78-year-old man presented an episode of acute pancreatitis. He was found to have a common iliac and an internal iliac aneurysms on the left side with a maximal diameter of 5 and 6,5 cm respectively. His past medical history includes obesity and hypertension. He was scheduled to endovascular repair using an aortouniiliac device and femoro-femoral by-pass. Two days later he started with severe abdominal pain. Duplex US undergone suggested contrast in the sac. X-ray demonstrated disconnection and distal migration of the branch. Then, extension device is placed with humeral and femoral access to get a join successfully. Patient was discharged three days later with no complications. The endograft disconnection can be detected with simple X-ray. Type III endoleak is potentially dangerous because of the pressure transmitted to the aneurysm sac and require repair.

ABDOMINAL CT ANGIOGRAPHY IN THE PLANNING OF BREAST RECONSTRUCTION WITH DIEP FLAP

R. Alvarez García¹, U. Sobrino Castro², D. Robla Costales¹, B. Rodríguez Martín¹, E. Alvarez Vicente¹, N. Ruiz López¹

¹Hospital De León (Edificio Princesa Sofía).(*) (1), Servicio de Cirugía Plástica y Reparadora, ²Hospital De León (Edificio Princesa Sofía).(*) (1), Servicio de Radiodiagnóstico

The use of abdominal microvascular flaps allows autologous breast reconstruction, with excellent aesthetic results and low morbidity. 20 breast reconstructions were performed using DIEP flap. Before surgery, abdominal vasculature was studied with 64 multidetector-row CT. Patients with allergy to iodinated contrast or renal insufficiency were excluded. Axial, MIP and volumetric CT images were studied. The number of perforating arteries found with a diameter greater than 1 mm were from 2 to 5. In all cases it was possible to locate abdominal perforating arteries with a diameter greater than 1 mm, and select the largest and describe its trajectory. Correlation between surgical anatomy and CT was 100% concordant. Abdominal vascular study by spiral CT is a useful tool in reconstructive surgery, allowing choice the largest perforator vessel to feed the flap, reducing circulatory complications and surgery time.

CLINICAL APPLICATIONS OF AUTOLOGOUS FAT GRAFTING IN BREAST RECONSTRUCTION

R. Álvarez García

Hospital De León (Edificio Princesa Sofía).(*) (1), Servicio de Cirugía Plástica y Reparadora, Spain

Abstract: The purpose of this series is to review our experience with fat grafting for the correction of breast cancer surgical treatment deformities. A retrospective study of 11 patients with a history of breast cancer that underwent 17 breast fat grafting was conducted. Indication in 4 cases was improvement in contour, shape and volume after conservative surgery. In the remaining 7 patients was used as an adjunct to latissimus dorsi or DIEP flap. Fat harvest technique was performed using a liposuction device with 300 mmHg of pressure and posterior centrifugation. Fat was isolated and infiltrated immediately. Between 120 and 490 cc of fat was transferred in each surgery. Follow-up ranged from 5 to 28 months. Complications occurred in 3 patients, and included fat necrosis and pain. Patients showed satisfaction with treatment and partial or complete corrections were achieved in all cases.

STERNUM HEALING IN SHEEP

I. Gallo¹, A. Saenz¹, A. Arevalo¹, S. Roussel¹, I. Perez-Moreiras¹, E. Artiñano¹, A. Martínez-Peñuela¹, J. Esquide², A. Aspiroz³, I. Camacho⁴

¹Policlínica De Gipuzkoa, ²Hospital Santiago Apostol, ³Hospital Los Manzanos. Logroño, ⁴Usp Clínica La Esperanza

Introduction: Sternal complications after cardiac surgery are a problem in the postoperative period.

Objectives: The aim of our study is to analyze the effect of platelet growth factors on sternum consolidation after sternotomy in ovine animal model.

Methods: We conducted a prospective randomized study in 36 sheep, making a median sternotomy. In 18 of them (control group), we closed the sternum with 3 steel wires. In the rest (18 sheep), we placed autologous plasma between the sternal edges. The lambs were sacrificed between 7 and 30 days duration. Sections of bone were decalcified, fixed in formaldehyde and stained with hematoxylin-eosin.

Results: In the control group, we found large areas of cartilage tissue, whereas in the group treated, we found hematopoietic bone formation.

Conclusions: Platelet growth factors used on the sternal edges after sternotomy promote osteogenesis and sternal consolidation. Growth factors are simple to use and safe, with no adverse effects.

AUTOLOGOUS PLATELET-RICH PLASMA: EFFECT ON HEART ATTACK IN SHEEP

I. Gallo¹, A. Saenz¹, A. Arevalo¹, S. Roussel¹, I. Perez-Moreiras¹, E. Artiñano¹, A. Martínez-Peñuela¹, J. Esquide², A. Aspiroz³, I. Camacho⁴

¹Policlínica De Gipuzkoa, ²Hospital Santiago Apostol, ³Hospital Los Manzanos. Logroño, ⁴Usp Clínica La Esperanza

Title: Myocardial infarction is the most common cause of congestive heart failure.

Objective: The aim is to assess the effects achieved with the injection of PRGF (plasma rich in growth-factors) in previously infarcted sheep hearts.

Methods: 24 ewes were used, they were surgically infarcted by left thoracotomy and two coronary arteries were ligated (1st and 2nd diagonal). Three weeks after coronary ligation, sheep were reoperated by median sternotomy. It was injected saline solution in the infarct zone in 6 of them (control group) whereas platelet gel was injected in 15 of them. All sheep were sacrificed 9 weeks later.

Results: In the hearts treated with PRGF, highlights the new vessels in sections of hematoxylin-eosin and factor VIII.

Conclusions: Injection of PRGF in previously infarcted sheep hearts promotes mitogenesis and angiogenesis. The use of PRGF is simple and safe, causing no toxicity or immune-inflammatory reactions.

OBTENTION OF THE BASIC CARDIAC DIAGNOSTIC PLANES IN A PORCINE MODEL FOR CARDIAC MRI

J. M. Ajenjo Silverio¹ (DVM), M. Regueiro Purriños¹ (DVM, PhD), M. García Gómez³ (DVM) N. Orellana Jaimes (DVM PhD)³, A. Pérez de Prado^{1,2} (MD), C. Cuellas Ramón^{1,2} (MD), A. Diego Nieto^{1,2} (MD) J. R. Altonaga³ (DVM PhD), J. M. Gonzalo Orden³ (DVM PhD), F. Fernández Vázquez^{1,2} (MD, PhD)

¹Fundación de Investigación Sanitaria en León. Unidad Experimental de Diagnóstico por Imagen. Facultad de Veterinaria. Universidad de León. León. España, ²Cardiología Intervencionista, Hospital de León. León, España, ³Facultad de Veterinaria de la Universidad de León. Departamento de Medicina y Cirugía Animal

With the standard MRI protocols for human medicine is not possible to obtain the basic cardiac planes (short axis, 2, 3 and 4 cameras) in big mammals. The anatomic position of the porcine heart when compared to the human heart, with its lesser ventro-dorsal inclination, mild left-handed rotation and its right-handed apex inclination makes it necessary to modify the programming of the cut planes in order to avoid angulations that could distort the image and the measurements obtained. With this protocol it is possible to avoid the heart position variations and obtain all the basic cardiac images in a porcine animal model

ENDOVASCULAR RECONSTRUCTION OF INTRACRANIAL FUSIFORM ANEURYSMS USING A SELF-EXPANDING STENT

O. Balboa Arregui¹, J. M. Pumar Cebreiro², V. Magadán Alvarez¹, C. Cordero Lares¹, F. Vázquez Herrero², M. Blanco Ulla²

¹Hospital Universitario de León. 24078. León. Spain, ²Hospital Universitario Santiago de Compostela. 15706. La Coruña, Spain

Aim: New intravascular devices enable the treatment of complex intracranial aneurysms. Here we report our experience using the self-expanding stent Leo Plus.

Methods: 24 fusiform aneurysms with different location and clinic were treated, 18 of them only with stent implantation, and the other six with additional coiling. Devices performance and aneurysm occlusion-remodeling degree were evaluated using angiography. Complications and clinical outcome were analyzed.

Results: Angiography showed effective remodeling in 83% of all cases, being 80% in the stent-only treated subgroup. Four transient cerebrovascular complications (16%) and one stent thrombosis (4%) were registered. No new episodes of subarachnoid hemorrhage occurred.

Conclusions: The Leo Plus stent is a flexible device that, in our experience, is useful in intracranial fusiform aneurysms treatment. The use of self-expanding stents alone allows proper endovascular reconstruction of dilated arteries.

SYMPTOMATIC INTRACRANIAL ARTERIAL STENOSIS TREATMENT WITH SELF-EXPANDING NITINOL STENT

O. Balboa Arregui¹, J. M. Pumar Cebreiro², F. Vázquez Herrero², M. Tijerín Bueno¹, V. Magadán Alvarez¹, J. A. Castiñeira Mourenza²

¹Hospital Universitario de León. 24078. León. Spain, ²Hospital Universitario Santiago de Compostela. 15706. La Coruña. Spain.

Aim: Patients with recent transitory ischemic attack or stroke and severe intracranial arterial stenosis have a 23% annual risk of recurrent stroke in the stenotic artery territory. Feasibility of using self-expanding stent angioplasty for the treatment of these recurrent cases was evaluated.

Methods: 16 patients with severe and symptomatic intracranial arterial stenosis, not responsive to medication, were treated in a span of 6 years. Angioplasty and placement of self-expanding nitinol stent Leo Plus were used.

Results: 100% technical success with no complications achieved during the procedure. One fatal stroke 20 days after middle cerebral artery stenting was registered. 6 months clinical follow-up did not collect further location related stroke episodes. No significant changes were observed in residual stenosis at six and 12 months after stenting.

Conclusions: Here we show that the self-expanding stent Leo Plus is useful for the treatment of severe and symptomatic intracranial arterial stenosis.

VASCULAR COMPLICATIONS IN MINIMALLY INVASIVE SURGERY OF THE LUMBAR SPINE DURING A 12-YEAR PERIOD

F. Vaquero Morillo¹, M. Ballesteros Pomar¹, M. Fernández Morán¹, A. Mostaza Saavedra

¹Hospital Universitario de León, Servicio de Cirugía Vascular, ²Hospital Universitario de León, Servicio de Neurocirugía

Introduction: Lumbar spinal surgery for the implantation of a total lumbar disc replacement is a relatively new technique with several approaches to the spine described. Vascular complications are not unusual because of the anatomical situation of major vessels.

Aim: To describe vascular complications that occurred using a minimally invasive approach in lumbar spinal surgery

Material and Methods: Retrospective study of a series of 75 patients operated on (2000–2011). An anterior retroperitoneal approach, under laparoscopic assistance, was performed.

Results: Major vascular complications: bleeding from a wrong ligature of the circumflex iliac vein, performing a direct suture; a tear of the left common iliac vein that required a direct suture. Minor vascular complications: a hemorrhage 12 hours later, needing two units of packed red cells.

Conclusions: Minimally invasive surgery of the lumbar spine from an anterior retroperitoneal approach is a safe procedure. The low incidence rate of vascular complications is owing to a multidisciplinary team consisting of a vascular surgeon and a lumbar spine surgeon.

PSEUDOANEURYSM OF THE DEEP PALMAR ARTERIAL ARCH

M. Ballesteros-Pomar, G. Alonso-Argüeso, N. Sanz-Pastor, J. Fletes-Lacayo, E. Menéndez-Sánchez, F. Vaquero-Morillo

Cirugía Vascular, Hospital Universitario de León, Spain

Abstract: Case report: A 19-year-old man was admitted to Emergency Department for bleeding from his left hand following a penetrating trauma over thenar eminence when he was working with wood. As vascular and neurological examinations were normal the wound was sewn up and the patient was discharged from the hospital. Several weeks later he kept complaining of a painful tumor on his thenar eminence and corticosteroids were prescribed. A month later the mass had increased in size and the patient had noticed that it was pulsatile then he was referred to the department of vascular surgery. Duplex and arteriography confirmed the diagnosis of pseudoaneurysm arising from deep palmar arterial arch. A resection of the pseudoaneurysm and ligation of the radial artery (on the anatomic snuffbox) were performed. Pseudoaneurysms in the hand are difficult to diagnose and they must be suspected in case of a mass growing rapidly following a trauma.

ISOLATION AND CULTURE OF FIBROBLASTS ASSOCIATED TO CANCER (CAFS): CO-CULTURE WITH TUMOR CELLS

E. García-Pérez¹, C. A. López-Arvaló¹, C. García-Pravia², L. Suarez-Fernández¹, E. Fernando-Macias¹, P. Ugalde Serrano¹, B. Porrero-Guerrero¹, M. P. Menéndez-Rodríguez², J. A. Galván-Hernández¹, J.R. de los Toyos-González³, L. Barneo¹

¹Área de Cirugía, Universidad de Oviedo, IUOPA, Spain, ²Servicio de Anatomía Patológica, Hospital Universitario Central de Asturias, Oviedo, Spain, ³Área de Inmunología, Universidad de Oviedo, IUOPA, Spain (email:lbarneo@uniovi.es). Grants: FISS-09-PS09/01911 and MICINN-10-IPT-010000-2010-31.

Background: Recent studies demonstrate that the interaction between tumor cells and tumor-surrounding extracellular matrix (ECM) plays a critical role in cancer development, invasion, metastasis and chemotherapy resistance.

Aims:

1. Isolation and culture of CAFs and normal fibroblasts.
2. To study the influence of CAFs on proliferation of tumor cells.

Methods: Peritumoral and normal biopsies were obtained from colon cancer and pancreatic ductal adenocarcinoma. Normal and CAFs were isolated and

cultured. The behaviour of both type cells were compared in vitro. Co-culture of both cells with Capan-1 to know its proliferation rate.

Results and conclusions: 1. Peritumoral fibroblasts had higher proliferation rate than normal fibroblasts. 2. Peritumoral fibroblasts stimulated the proliferation of CAPAN-1 cells more than controls (CAPAN-1 alone, CAPAN-1 + normal fibroblasts).

PRELIMINARY ANALYSIS OF COLLAGEN, TYPE XI, ALPHA 1 (COL11A1), INHIBIN ALPHA (INHBA) AND SECRETED PROTEIN ACIDIC AND RICH IN CYSTEINE (SPARC, OSTONECTIN) AS POTENTIAL MARKERS OF COLON CANCER

R. Cueva-Cayetano¹, J. A. Galván-Hernández¹, L. Suárez-Fernández¹, M. P. Menéndez-Rodríguez², C. García-Pravia², L. Barneo¹

¹Área de Cirugía, Universidad de Oviedo, IUOPA, Spain, ²Servicio de Anatomía Patológica, Hospital Universitario Central de Asturias, Oviedo, Spain (email:lbarneo@uniovi.es). Grants: FISS-09-PS09/01911 and MICINN-10-IPT-010000-2010-31.

Background: The gene overexpression of Col11A1, INHBA and SPARC has been considered as prognostic markers in some digestive cancers. There are a few data about their validation at protein level.

Aims: To study the protein expression of Col11A1, INHBA and SPARC in colon cancer, and if they could be considered as potential prognostic markers.

Material and Methods: Retrospective study of two cohorts of operated patients: Group LD, 17 living/nonmetastasis; Group DP, 15 deceased/metastasis. Immunohistochemistry exam was performed -COL11A1 with the antibody generated by us (Int J Oncology 2012, 40:1447-1454).

Results: Expression: COL11A1 in 83% of LP, and in 93% of DP; INHBA in 69% of LP, and 62% of DP; SPARC, in all patients. There are no statistical differences LD vs DP.

Conclusions: The overexpression of COL11A1, INHBA and SPARC was demonstrated by immunohistochemistry in colon cancer. However, the overexpression of these proteins are not indicators of poor prognosis.

A NEW MODEL OF ORTHOTOPIC HUMAN PANCREATIC CARCINOMA XENOGRAFT

B. Porrero-Guerrero¹, C.A. López-Arévalo¹, E. Fernando-Macias¹, P. Ugalde-Serrano¹, E. García-Pérez¹, L. Suárez-Fernández¹, J. A. Galván-Hernández¹, J.F. Vázquez-Villa¹, P. Castro-Santos¹, J.R. de los Toyos-González², M.C. González del Rey, M.P. Menéndez-Rodríguez³, C. García-Pravia³, L. Barneo¹

¹Área de Cirugía, Universidad de Oviedo, IUOPA, Spain, ²Biología/Inmunología, Universidad de Oviedo, IUOPA, Spain, ³Servicio de Anatomía Patológica, Hospital Universitario Central de Asturias, Oviedo, Spain (email:lbarneo@uniovi.es). Grants: FISS-09-PS09/01911 and MICINN-10-IPT-010000-2010-31.

Background: A means to study new anti-cancer therapies is the use of animals with tumors that simulate the natural history of patients.

Aim: To generate an animal model of human pancreatic cancer using cancer associated fibroblasts (CAFs) from patient surgical samples.

Design: Experimental groups (5-7 mice per group) of the orthotopic pancreatic xenografts: I, One million Capan-1 cells; II, slices of human pancreatic adenocarcinoma; III as I + 100.000 CAFs; IV, 100.000 CAFs. Animals were sacrificed at 35 days after implantation to assess tumor size and the presence of metastasis. Expression of Col11A1, vimentin, cytokeratin-19, SMA was performed.

Results: tumor size mean mm³/metastasis: I, 2.8/no; II, 54.1/no; III, 121.4/yes; IV, -/no

Conclusions: 1. The association of Capan-1 with CAFs results in a very aggressive model of pancreatic cancer, with great local tumor growth and the presence of metastasis. 2. CAFs facilitate tumor invasion. 3. This model may be useful to study anti-matrix peritumoral therapies.

IMMUNOHISTOCHEMICAL EVALUATION OF PROCOLLAGEN COL11A1 IN EXTRACELLULAR STROMA AS PREDICTIVE MARKER OF RESPONSE TO NEOADJUVANT THERAPY IN LOCALLY ADVANCED RECTAL CANCER

L. J. García Flórez¹, A. M. Frunza², C. Martínez Alonso³, M. García Ocaña⁴, J. R. de los Toyos González⁵, G. Gómez Álvarez², M. F. Fresno Forcelledo³, L. Barneo⁶

¹Cirugía General, Hospital San Agustín, Avilés, ²Cirugía General y ³Anatomía Patológica, Hospital Universitario Central de Asturias, Oviedo, Spain ⁴Unidad de Ensayos Biotecnológicos y Biomédicos y ⁵Área de Inmunología, Departamento de Biología Funcional, Universidad de Oviedo, Spain, ⁶Área de Cirugía, Universidad de Oviedo (email:lbarneo@uniovi.es). Grants: FISS-09-PS09/01911 and MICINN-10-IPT-010000-2010-31.

Background: Stromal myofibroblasts have been shown to overexpress a variety of collagens that contributes to cancer progression. Tumor response to neoadjuvant therapy ranges widely and is related with outcome. The aim of the study was to determine the correlation between expression of procollagen COL11A1 in diagnostic biopsies and tumour response.

Material And Methods: 102 patients were included. Diagnostic biopsies were assessed with a semiquantitative score for COL11A1 using an antibody developed by our team (Int J Oncology 2012;40:1447-1454). COL11A1 and several clinical and pathological parameters were correlated with T-downstaging and tumor regression grade (TRG) on surgical specimens.

Results: Overexpression of COL11A1 was associated with a better response in relation to T-downstaging (p = 0.03). We found the same trend with TRG but without statistic significance (p = 0.08). We did not find any correlation with clinical and pathological features, excepting histologic grade (p < 0.001).

Conclusions: Expression of COL11A1 is associated with response to neoadjuvant therapy in locally advanced rectal cancer.

ELECTRICAL AND THERMAL PERFORMANCE OF A RADIOFREQUENCY-ASSISTED RESECTION ELECTRODE: COMPUTATIONAL MODELING

A. González-Suárez¹, M. Trujillo Guillén², E. Berjano¹

¹Biomedical Synergy, Electronic Engineering Department, Universitat Politècnica de València {eberjano@eln.upv.es}, ²Instituto Universitario de Matemática Pura y Aplicada, Universitat Politècnica de València

Background: Radiofrequency-assisted resection minimizes intraoperative bleeding and seals the vessels by creating heat coagulative necrosis. The Coolinside device (Apeiron Medical, Valencia, Spain), a cooled electrode provided with a blade, has been previously tested in a clinical stage. Complementarily, the computer modelling can provide detailed information about its electrical and thermal performance.

Method: A three-dimensional model of the Coolinside placed on hepatic tissue was developed to assess the effect of the applied voltage on the coagulation zone.

Results: Heating predominantly occurred in the proximal and distal zones and on the sharp blade. The lesion expanded towards the central zone as voltage increased.

Conclusion: The theoretical results are consistent with previous experimental findings and hence suggest that the model could be suitable e.g. to study the effect of radiofrequency power on large vessels near the resection plane.

COMPUTER MODELING OF BIPOLAR RADIOFREQUENCY ABLATION OF VENTRICULAR WALL THROUGH EPICARDIAL APPROACH

A. González-Suárez¹, M. Trujillo Guillén², J. Koruth³, A. D'Avila³, E. Berjano¹

¹Biomedical Synergy, Electronic Engineering Department, Universitat Politècnica de València {eberjano@eln.upv.es}, ²Instituto Universitario de Matemática Pura y Aplicada, Universitat Politècnica de València, ³Helmley Cardiac Electrophysiology Center, Mt Sinai Medical Center and School of Medicine, New York, NY, USA

Background: Bipolar radiofrequency ablation using two catheters placed on opposite surfaces of the ventricular free wall (VFW) in both bipolar (BM) and sequential unipolar mode (SUM) has recently been proposed. Although BM has

been shown to create deeper lesions, the effect of factors such as ventricular wall thickness has so far not been examined in detail.

Method: Two- and three-dimensional theoretical models were used to study temperature distributions and lesion geometry.

Results: BM is capable of creating transmural lesions, provided air has not been accidentally introduced into the epicardial space. If air is present, SUM does create transmural lesions at ventricular wall thicknesses of ≤ 7.5 mm.

Conclusion: BM is more effective than SUM in achieving transmural lesions through the ventricular wall, except when the tip of the epicardial catheter is exposed to air.

TESTOSTERONE PREDICTION FOR ERECTILE DYSFUNCTION AND HYPOGONADISM

P. Tárraga Lopez¹, P. Bermejo Lopez², J. Lucas Perez Romero³, J. A. Rodríguez-Montes⁴, M. Lucas Perez Romero⁵, A. Vivo Ocaña⁶, A. Celada Rodriguez⁷

¹Gerencia Atención Primaria, Dirección Médica, ²Universidad Castilla la Mancha, Facultad Informática, ³Gerencia Atención Primaria, Urgencias, ⁴Universidad Autónoma Madrid, Cirugía, ⁵Complejo Hospital General De Albacete, Psiquiatría, ⁶Gerencia Atención Primaria, CS La Roda, ⁷Gerencia Atención Primaria, CS Albacete

Objective: The value of testosterone can be obtained only by referring the patient to a higher level of specialization, so it is interesting to create predictive models capable of estimating the value of testosterone from variables easy to obtain in earlier stages

Methodology: Uniform sampling of men (40–70 years old) meeting criteria for metabolic syndrome according to ATP-III. Several variables were obtained from them, including the SHIM, IIEF and LISAT-8 questionnaires.

Results: 43.5% of patients with metabolic syndrome suffered of erectile dysfunction, whose prevalence increases over age. Linear and Logistic regression models constructed from data obtained in Primary Care consultations successfully predicted the value of testosterone.

Conclusions: Accurate regression models can be built by using a few answers to questionnaires and a few clinical parameters easily obtained in Primary Care. This way, it is not necessary to refer patients with erectile dysfunction to urology, and thus generating savings to the healthcare system.

STATISTICAL ANALYSIS OF VARIABLES RELATED TO PROSTATIC PATHOLOGIES

P. Bermejo López¹, A. Vivo Ocaña², J. A. Rodríguez-Montes³, P. Tárraga López⁴

¹Universidad de Castilla-La Mancha, ²Centros de Salud de Fuensanta y Montalvos, ³Hospital Universitario La Paz, ⁴Gerencia de Atención Primaria de Albacete

Objective: Search for correlation and/or statistical differences between prostatic diagnosis and a set of independent variables, in order to find out which of such variables can be used as indicators of a prostatic pathology, besides the widely used PSA value.

Methodology: Statistical analysis was performed over a sample composed of 103 patients, from whom we obtained a set of variables related to prostate diagnosis. We performed a Z-test for comparison of proportions, and Chi-Square tests for correlation.

Results: We found correlation of Diagnosis with PSA and Prostate Volume. 100% of patients with no meat consumption or those with severe symptoms (IPSS > 19) were diagnosed with BPH. The mean value for PSA in patients with Normal Diagnosis is statistically lower than the mean PSA in patients with BPH or Cancer. Having a DRE with nodules or first-degree relatives with PC are strong indicators of PC.

A CLASSIFICATION TREE FOR PREDICTION OF PROSTATIC DIAGNOSIS

P. Bermejo López¹, A. Vivo Ocaña², J. A. Rodríguez-Montes³, P. Tárraga López⁴

¹Universidad de Castilla-la Mancha, ²Centros de Salud de Fuensanta y Montalvos, ³Hospital Universitario La Paz, ⁴Gerencia de Atención Primaria de Albacete

Objective: Building a predictive model easy to interpret and which makes it possible to predict, from PC consultations, a prostate diagnosis. The tree should be built by only using variables easy and non-expensive to obtain.

Methodology: Working on a sample composed of 103 patients, a C4.5 decision tree was built.

Results: Prostate Diagnosis (Normal, BPH or Cancer) is predicted from variables selected by the induction algorithm of the C4.5 tree: Prostate Volume, Prostate Specific Antigen (PSA), Age and Antecedents in Familiar History of prostate cancer. The validation of the tree returns 70% accuracy.

Conclusions: Predicting prostate diagnosis before the final decision of the urologist may make it possible to set up a treatment beforehand. Furthermore, if a higher accuracy rate were obtained, it could be even possible to skip the derivation to the specialist itself, thus saving funds to the public health system.

MYOCARDIAL ISCHEMIA IN HEART SURGERY INDUCES THE EXPRESSION OF ENZYMES OF THE ANTIOXIDANT DEFENSE SYSTEM AGAINST OXIDATIVE STRESS

J. Bustamante¹, A. Anedda², E. López-Bernardo², C. Vaca², M. Landázuri², S. Cadenas²

¹Hospital Universitario de La Princesa, Cirugía Cardiovascular, ²Hospital Universitario de La Princesa, Departamento de Inmunología. Instituto de Investigaciones Sanitarias La Princesa, ¹Department of Cardiovascular Surgery, Hospital Universitario de La Princesa, Madrid, Spain, ²Department of Immunology, Hospital Universitario de La Princesa, Instituto de Investigación Sanitaria Princesa (IP), Madrid, Spain, ³Department of Molecular Biology, Facultad de Ciencias, Universidad Autónoma de Madrid, Madrid, Spain

Introduction and objective: Ischemia and reperfusion during heart surgery are accompanied by a series of molecular alterations that have consequences on cardiac function and post-operative evolution. We studied the expression levels of enzymes of the reactive oxygen species detoxification system in the myocardium during induced ischemia.

Methods: We analyzed eight patients with severe aortic stenosis undergoing programmed valve replacement. Three myocardial biopsies from the left ventricle were taken: 1) at the commencement of surgery, 2) 20 minutes after aortic clamping and before the second dosage of cardioplegia, and 3) following the second cardioplegia dosage. We determined the expression levels of the mitochondrial superoxide dismutase (MnSOD), catalase and glutathione S-transferase A2 (GSTA2).

Results and conclusions: The mRNA expression levels of the antioxidant enzymes MnSOD, catalase and GSTA2 increased significantly in the ischemic myocardium. During induced ischemia, despite the use of cardioplegia, the cellular protection system against oxidative stress is induced.

IS THERE A RELATIONSHIP BETWEEN BIOLOGICAL TREATMENT AND BREAST CANCER?

R. Canseco Fernández, L. Alcoba García, M. Diago Santamaría

Hospital De León (Edificio Princesa Sofía).(*) (1), Cirugía General

Introduction: Receptor blocking drugs tumor necrosis factor (TNF- α) are drugs for treatment of rheumatoid arthritis. It is likely that the use of these drugs to lose control on replication and susceptibility to tumor growth.

Case Report: We report a 56 year old woman with long-standing rheumatoid arthritis treated with Golimumab (TNF- α blocker). She presents microcalcifications in the left breast CSE in a mammography. A biopsy was performed reported as invasive ductal carcinoma. Conservative surgery and BGC was performed and adjuvant radiotherapy and chemotherapy.

Conclusions: Patients with rheumatoid arthritis have higher risk of developing malignancies. Risk of malignancy in patients with biological treatment remains

unknown. However, it appears that anti-TNF drugs may cause an increased risk of some tumors. The adverse effects produce during therapy with the different biological medicines should be controlled. This can be set in a possible future relationship between these biological drugs and the development of neoplasia.

OUTCOMES OF MECHANICAL ENDONASAL DACRYOCYSTORRHINOSTOMY

P. Casas-Rodera¹, Á. Toribio-García², M. Cordero-Coma²

¹Department of Otorhinolaryngology, University Hospital, León, Spain, ²Department of Ophthalmology, University Hospital, León, Spain

Background: Nasolacrimal duct obstruction is a common cause of epiphora. Our study assesses the efficacy of Mechanical Endonasal Dacryocystorhinostomy (ME-DCR) in patients with acquired nasolacrimal duct obstruction.

Methods: A retrospective series of 47 patients undergoing 55 primary ME-DCR between May 2008 and May 2012. Patients included had symptomatic epiphora with anatomical obstruction on syringing. Follow up was assessed subjectively and objectively by anatomical patency.

Results: The procedure was successful in 75% of cases: 68% were classified as functional success (it was defined as relief of symptoms and by anatomic patency on syringing) while only 7% were considered anatomic success (anatomically patent but symptomatic). Tissues inflammation and hematoma were minimal or nonexistent, thus ME-DCR was performed in both sides at the same surgery when the patient had bilateral nasolacrimal obstruction.

Conclusion: ME-DCR is a minimally invasive surgical technique acceptable as alternative to external DCR.

THE ROSS OPERATION IN THE FUTURE: A TISSUE ENGINEERING-SURGERY SYMBIOSIS

M. Castaño¹, J. Gómez-Plana¹, J. Ramos², J. Gualis¹, C. E. Martín¹, J. M. M. Comendador¹, F. J. Iglesias², M. Regueiro-Purriños³, R. Alonso¹, F. Fernández-Vázquez³

¹Cardiac Surgery Department, Hospital Universitario de León, ²Human Tissue Bank, Fundación Clínica San Francisco, León, ³Fundación Investigación Sanitaria en León, León

Aortic valve disease is a common diagnosis in cardiac surgical patients. Aortic valve replacement with a pulmonary autograft and right outflow tract reconstruction with a cryopreserved pulmonary homograft (Ross operation) offers good long-term durability in young patients, excellent hemodynamic performance, a unique advantage of valve growth potential of the pulmonary autograft in children and very low rates of long-term valve related complications. However, progressive neo-aortic root dilatation and/or pulmonary homograft stenosis induced by adventitial inflammation occur in a proportion of patients and freedom from valve-related reoperation is lower than expected.

Some innovative surgical techniques designed to prevent neo-aortic root dilatation have been recently described. Moreover, ongoing tissue engineering research can offer effective solutions in the near future for pulmonary homograft degeneration prevention and reoperation rates reduction. Subsequent long-term improvement in valve durability can expand the Ross operation indications and benefits to a majority of patients with severe aortic valve disease.

CORRELATION BETWEEN MORBIDITY IN SURGERY OF RECTAL CANCER AND ITS PREDICTION ACCORDING TO POSSUM, P-POSSUM AND CR-POSSUM SCORES

C. Castellanos Rivero, J. C. Gómez Rosado, L. Cristóbal Capitán Morales, J. Valdés Hernández, J. Guerrero García, J. Galán Álvarez, F. Oliva Mompeán

Colorectal Surgery Section, Clinical Management Unit in General and Digestive Surgery, Hospital Universitario Virgen Macarena y área

Introduction: POSSUM is a common morbidity prediction score, based on several physiological and operative parameters of patients. The objective of the study is to correlate rates of surgical morbidity with predicted, according to the POSSUM score as well as surgical mortality with predicted according to the POSSUM, P-POSSUM and CR-POSSUM scores.

Material And Methods: Data of 59 patients (40 male and 19 female) who underwent rectal cancer surgery between 2009 and 2011 was analysed. Prediction of mortality and morbidity POSSUM, PPOSSUM and CR-POSSUM scores were calculated, and patients were classified according to the percentage of risk calculated in 5 categories: Group I: 0 to 10%, group II: from 10 to 20%, group III: of the >20%. Chi-square test with a 95% significance level, was applied for statistical testing.

Results: Group I: none of the patients presented complications. Group II: 2 of 7 patients (28.6%) developed complications. Group III: 24 of 52 patients developed complications (46.2%). Morbidity calculated does not have statistical significance ($p=0,331$). The calculation of mortality, due to not having any perioperative death in the 2 years of study, has been impossible.

Conclusions: The POSSUM of the Group I and III morbidity score predicts the likelihood of complications in patients more accurately, however the Group III underestimated the probability. Anyway, there is no statistical significance.

EVALUATION OF PREDICTIVE FACTORS OF COMPLICATION AND ITS CORRELATION WITH DIFFERENT TYPES OF COMPLICATION AFTER SURGERY OF RECTAL CANCER

C. Castellanos Rivero, J. C. Gómez Rosado, L. C. Capitán Morales, J. Valdés Hernández, J. Guerrero García, J. Galán Álvarez, F. Oliva Mompeán

Colorectal Surgery Section, Clinical Management Unit in General and digestive Surgery, Hospital Universitario Virgen Macarena y área

Introduction: The aim of the study is to know correlation between different factors and different types of complication in our series, primarily based on the parameters used to calculate mortality and morbidity scores POSSUM, P-POSSUM and CR-POSSUM.

Material and methods: Data from 59 patients who underwent surgery for rectal cancer (40 men and 19 women) between 2009 and 2011 was collected. We analysed correlation between data of diagnosis, preoperative and basal status, operative and postoperative factors, histopathology, oncological treatment and follow-up of every patients with categorized medical, surgical, hemorrhagic and anastomosis complications. Chi-square test with a 95% significance level was applied for statistical testing.

Results: There is statistical significance in presence of complications related to duration of surgery ($p=0,006$), as well as in units transfused postoperatively ($p=0,029$) and age ($p=0,041$). 22 of 40 men developed complications, while 5 of 19 women ($p=0,039$). Of 24 patients older than 70 years, 16 presented complication ($p=0,026$). There is statistical significance between the medical complications and the anaesthetic risk ASA ($p=0,028$), as well as units of blood transfused postoperatively with surgical complications ($p=0,032$).

Conclusion: Men had more complications than women. Complications after surgery of rectal cancer increased in relation to age, so older than 70 developed complications more often than other, as expected. The duration of surgery is related with a higher percentage of complications. The transfusion of blood products in postoperative period is associated with an increase in frequency of complications. Increased anaesthetic risk is associated with the presence of medical complications after surgery, expected by the very definition of the anaesthetic risk.

NEW EXPERIMENTAL MODEL OF ISCHEMIA-REPERFUSION SYNDROME IN LOWER LIMBS

I. Cearra¹, I. García-Alonso², A. Ikutza¹, T. Ferre¹, E. Lobato¹

¹Hospital Universitario de Basurto, Cirugía Ortopédica y Traumatología, ²UPV/EHU Facultad de Medicina, Cirugía

Background: Although there are many experimental models of limb ischemia-reperfusion syndrome in the literature, to our knowledge there is not a non-invasive, reproducible and quantifiable experimental model in the rat.

Material and methods: We have developed a device consisting on a cord encircling the limb with controlled tension, through a dynamometer. The tension is progressively increased until the ischemia, checked both clinically and through Doppler, is achieved. Twenty WAG rats were subjected to increasing tension on their right limb, on a 0.1 kg basis.

Results: In all the animals, a tension of 0.9 kg achieved absolute limb ischemia.

Conclusions: As surgery for clamping the femoral artery or a tourniquet with uncontrolled tension may lead to an increased rbdomyolysis and spoil the results of any experiment, we expect that our model, being reproducible, quantifiable and minimally invasive, could provide better conditions for the experimental study of the ischemia-reperfusion syndrome in the rat.

IMPLEMENTATION OF THE LAPAROSCOPIC BILIOPANCREATIC DIVERSION

Y. Caballero, R. Romero, E. López-Tomassetti, V. Núñez, J. R. Hernández

Servicio de Cirugía General y del Aparato Digestivo, Hospital Universitario Insular de Gran Canaria - Spain

Introduction: Morbid superobesity, defined as a BMI > 50 kg/m², is an indication of bariatric surgery. The biliopancreatic diversion (BPD) of Scopinaro achieves excellent results compared to the restrictive techniques.

Objetives: We present our initial experience with the laparoscopic BPD technique for super-obese patients.

Methods: 50 super-obese patients were submitted to laparoscopy BPD between 2009 to 2011. Our laparoscopic surgical technique is similar to Scopinaros' technique performing a Roux-en-Y with an alimentary track of 300 cm and a common track of 60 cm adding a partial gastrectomy.

Results: All operations were performed by laparoscopy. The median time of surgery was 92 minutes. Diet was tolerated at the 2nd day and patients were discharged at the 3rd/4th day. Three minor complications were detected: wound port infection, gastrointestinal bleeding with acute pancreatitis and urinary infection. Only one case of anastomotic leak. The morbidity rate was 8% and the mortality rate was 0%.

Conclusions: The laparoscopic BPD in our hospital is a safe surgery for super-obese patients offering comparable results to other series and an acceptable morbidity.

ULTRASOUND AND SCINTIGRAPHY FOR THE PREOPERATIVE DIAGNOSIS OF PRIMARY HYPERPARATHYROIDISM

R. Romero, Y. Caballero, E. López-Tomassetti, J. R. Santana, V. Núñez, J. R. Hernández

Servicio de Cirugía General y del Aparato Digestivo, Hospital Universitario Insular de Gran Canaria - Spain

Introduction: The combinations of high definition ultrasound and Tc⁹⁹-sestamibi-scintigraphy have shown excellent results in the localization of primary hyperparathyroidism. Both exams provide anatomical and physiological information for the surgeon.

Objetives: The aim of this study is to determine the sensitivity and specificity of the preoperative exams for the localization of pathological parathyroid gland in patients with primary hyperparathyroidism.

Methods: A retrospective study has been performed in 186 patients with primary hyperparathyroidism that underwent surgery between January 2005 and December 2011. All patients were preoperatively evaluated with both high definition ultrasound and Tc⁹⁹-sestamibi-scintigraphy. The radiological and surgical findings were compared with the histological definitive results.

Results: Of the 186 patients operated, 173 had solitary adenoma, 9 double adenomas and 4 hyperplasia. Of all the adenomas, 135 were diagnosed by ultrasound and 141 by Tc⁹⁹-sestamibi-scintigraphy. The combined study showed a sensitivity of 94.5% and a specificity of 94.2%.

Conclusions: This combined preoperative study provides excellent results in the localization of pathological parathyroid gland in patients with primary hyperparathyroidism, increasing significantly the confidence to plan the ideal surgical approach.

DETERMINATION OF THE VENTRICULAR FUNCTIONAL PARAMETERS OF A CLOSED CHEST MYOCARDIAL INFARCTION PORCINE MODEL

M. Regueiro Purriños¹, A. Pérez de Prado¹, C. Cuellas Ramón¹, A. Diego Nieto¹, J. Rodríguez Altónaga², M. Orden Recio², J. Ajenjo Silverio¹, M. García Gómez², N. Orellana Jaimes², J. Gonzalo Orden², F. Fernández Vázquez¹

¹Fundación Investigación Sanitaria en León, HemoLeón, ²Universidad de León, Facultad Veterinaria

Objective: To determine by cardiac magnetic resonance (CMR), in healthy and animals submitted to a protocol of myocardial infarction (MI), the evolution of left ventricular volumes, mass and ejection fraction (LVEF) during 8 weeks follow-up, using or not markers of replicating cells (BrdU).

Methods: CMR was performed with appropriate sequences to assess these parameters and infarct size at 72 h, 4 and 8 weeks.

Results: In healthy animals there weren't differences in ventricular functional parameters. In MI group, we observed a significant increase in volumes (telediastolic:46vs99 ml/m²), ventricular mass (telediastolic:70vs96 gr) and decrease in LVEF (57vs42%) at 8 weeks. No differences were seen in animals labelled with BrdU.

Conclusions: In normal growth there were no significant changes in ventricular functional parameters. After provocation of myocardial infarction ventricular remodeling occurs with an increase of volumes and ventricular mass and decrease in LVEF. The BrdU labelling has no influence on these parameters.

INTRAHOSPITALARY MORBIMORTALITY PREDICTION FACTORS IN YOUNG AND MEDIAN AGE PATIENTS OPERATED OF AORTIC VALVE REPLACEMENT BECAUSE OF SEVERE STENOSIS

R. Díaz Méndez¹, D. Hernández-Vaquero¹, R. Álvarez Cabo¹, E. Capin Sampedro², J. C. Llosa Cortina¹

¹Cardiac Surgery Service. Hospital Universitario Central Asturias, ²Cardiology Service. Hospital Universitario Central Asturias.

Introduction: The severe aortic stenosis is the most frequent valvular pathology and the third cardiovascular disease after arterial hypertension and coronary disease. The aortic valve replacement (AVR) has demonstrated that changes its natural history with excellent long-term results. However, it is an aggressive procedure associated to a not inconsiderable morbimortality. On the other hand, as it is an age related disease, the majority of the works analyse serials of elderly patients. Anyway, the predictors of early mortality and post-surgery complications in a population of young and median age patients keep unknown. Our aim was to know them.

Methods: We analyse all 70 years old patients operated of aortic valve replacement because of severe aortic stenosis for the first time in our center, from January 2007 to December 2011. A monitoring was made 30 days after surgery, that was fully completed in the 100% of the patients. To know the independent predictors of morbimortality, a multivariable analysis of binominal logistic regression was done, including the model of certain variables considered specially relevant according to a clinic point of view.

Results: 283 patients achieved the criteria of inclusion during the studied period. The medium age was 62 (57-67) years and 101 (37.5%) were women. The variables introduced in the predictive model were: age, sex, chronic lung disease, ventricular dysfunction, severe lung hypertension, emerging surgery, time of extracorporeal circulation, time of aortic pinch, and *prostheses-patient mismatch* (PPM). Time of CEC (OR = 1,044; p = 0,001), time of aortic pinch (OR = 1,11; p = 0,02) and PPM (OR = 16,43; p = 0,03) behaved as early

mortality independent predictors. Time of CEC (OR = 1,03; p = 0,01), time of aortic pinch (OR = 1,06; p = 0,02), age (OR = 1,12; p = 0,009) and PPM (OR = 6,54; p = 0,043) were risky factors to suffer a bigger complication.

Conclusions: Just like in elderly populations, time of CEC and aortic pinch behave as morbimortality independent predictors in the young patient operated of aortic valve replacement by aortic stenosis. On the other hand, PPM seems to acquire a special relevance in this population prognosis.

MINIMALLY INVASIVE SURGICAL APPROACH FOR LUMBAR SPONDYLOLISTHESIS. MICROENDOSCOPIC TRANSFORAMINAL 360° POSTERIOR LUMBAR FUSION

A. Mostaza¹, E. Iglesias¹, E. González¹, J. Robla², J. Ibáñez¹, J. Álvarez¹

¹Complejo Asistencial Universitario de León, Servicio de Neurocirugía, ²Complejo Asistencial Universitario de León, Servicio de Neurocirugía

Back pain, sciatica and neurological disorders are the most common manifestations of spondylolisthesis. The aim of this study was to assess the efficacy of an endoscopic transforaminal approach as surgical treatment of lumbar spondylolisthesis. Between 2001–2010 73 patients were operated. The type of spondylolisthesis was isthmic in 24 patients, degenerative in 28 and mixed in 21. 12 cases had spondylolisthesis grade I, 42 cases grade II, and 19 cases grade III. Follow-up was performed at 6, 12, 24 and 48 months. It was achieved a vertebral displacement reduction of one grade or more grades in all patients. Complications included dural tear in 2 patients and two transpedicular screw breakage. The average score of the Oswestry test decreased from 48.3% preoperatively to 16.5% and 14.0% at third and twelfth month respectively. The results were excellent / good in 87.5% of cases.

NEW POSTERO-LATERAL ENDOSCOPIC APPROACH FOR THORACIC DISC HERNIATION

A. Mostaza¹, E. Iglesias², E. Gonzalez², J. Robla², J. Ibañez², J. Alvarez²

¹Complejo Asistencial Universitario de León, Neurocirugía, ²Complejo Asistencial Universitario de León

Thoracic disc herniations represent only the 0.5% of the spinal disc herniations. We describe a modification of the posterolateral transpedicular endoscopic approach. Between 2007–2012, 12 patients underwent surgery, 7 women and 5 men, aged between 36 and 67 years-old. Thoracic disc herniations were located between T5–T6 and T10–T11 levels. A complete resection of the thoracic disc herniation was achieved in all cases. 3 patients presented intraoperatively significant changes in somatosensory-evoked potentials recordings, beginning steroid protocol for spinal cord injury; they presented a mild monoparesia, recovering normal strength completely 24 hours later. Pain improved significantly in 87% of cases (Oswestry and VAS scales). The average length of stay was 2.3 days. No patient required postoperative thoracic transpedicular arthrodesis. The endoscopic postero-lateral approach to thoracic disc herniations is a safe approach, and presents as advantages lower morbidity, shorter hospital stay and faster recovery.

REINFORCING THE HIGH RISK INTESTINAL ANASTOMOSIS: EXPERIMENTAL PILOT STUDY

J. Dziakova, I. Sanchez Egido, D. Sierra Barbosa, J. Mayol Martínez

Servicio de Cirugía I, Hospital Clínico San Carlos, Universidad Complutense de Madrid, Madrid, Spain

Anastomotic leaks are a major issue in colorectal surgery. We studied the potential protective effect of a synthetic hydrogel and a fibrin sealant in a porcine model of incompetent intestinal anastomosis.

Ten animals had their terminal ileum transected. An hand-sewn end-to-end anastomosis was subsequently fashioned, with a 18French orifice intentionally left in the suture line. Synthetic glue or fibrin sealant were randomly applied to seal the defect. Animals were followed postoperatively and sacrificed on postop day 7.

None of the animals developed either diffuse purulent peritonitis or bowel obstruction. One contained leak reported in each group (20% for each group,

NS). Intestinal adhesions were found by 2 animals in each group (40% for each group, NS).

Our findings show that this is a viable model of incompetent anastomosis and that both sealants may be useful by reinforcing high risk anastomosis.

APPLICATION OF SENTINEL LYMPH NODE IN PAPILLARY THYROID CANCER. PRELIMINARY RESULTS

A. Expósito Rodríguez, I. Gómez Corta, M. Paja Fano, A. Ugalde Olano, B. Barrios Treviño, J. Campo Landero, M. Gutiérrez Muñoz, I. Iturburu Belmonte, A. Gómez Palacios

General Surgery Service. Endocrine Surgery Unit. University Hospital Basurto. Chair of surgery (UPV/EHU)

Introduction: Prophylactic lymphadenectomy in papillary thyroid cancer is controversial. Performing the sentinel node technique, might give new indications. We report our methodology and preliminary results.

Material and Method: Patients diagnosed of papillary thyroid carcinoma without lymph node. The day before surgery will proceed to the intratumoral injection of tracer guided by ultrasound (4 mCi of 99mTc-nanocolloid, 0.2 ml) and a lymphoscintigraphy to locate the nodes. During surgery, will locate the sentinel node using a portable gamma probe and for intraoperative study. The series is considered validated if detectability is greater than 95% and there is less than 5% of false negatives.

Discussion: According to published studies technique is feasible, reproducible and in 57% of patients could avoid prophylactic lymphadenectomy, even when it is necessary further studies. Our study started in February 2012, including 7 patients (6 women and 1 man) with 100% detection of the sentinel node, one of them (14%) was false negative.

CERVICAL BENIGN SCHWANNOMA

A. Expósito Rodríguez, B. Barrios Treviño, M. Teresa Gutiérrez Rodríguez, L. Hierro Olabarria, I. Iturburu Belmonte, A. Gómez Palacios.

General Surgery Service. Endocrine Surgery Unit. University Hospital Basurto. Chair of Surgery (UPV/EHU)

Introduction: Schwannomas are tumors of the peripheral nerves. A 25–45% are asymptomatic head and neck tumors. The treatment is surgical excision. We report a new case.

Case Report: 42 year old male with a left supraclavicular tumor 17 years of evolution. The TAC described a tumor of 6.5 cm suspected lipoma and epidermoid tumor, biopsy reported lipoma. After excision and pathologic examination diagnosis was schwannoma. The postoperative passed off without incident.

Discussion: The cervical schwannomas are slow growing masses and asymptomatic. Diagnosis is based on clinical, biopsy, CT and / or MRI. The treatment is surgical. The indication for surgery is to relieve pain, or symptoms resulting from the progressive growth. The treatment is based on enucleation from its nerve of origin, trying to preserve their function. Some authors recommend complete resection because partial excision is a permanent loss of function (29%) and transient (43%), the risk of recurrence and malignant transformation of the tumor (4%).

HAPTIC EXPERT SIMULATORS FOR SURGERY

C. Fernández Llamas¹, J. Gonzalo Orden², G. Esteban Costales¹, V. Matellán Olivera¹

¹Universidad de León, Ingeniería Mecánica, Informática y Aeroespacial, ²Universidad de León, Medicina y Cirugía Animal

The goal of simulating is to obtain an environment as close as possible to the real scenario. As long as surgery is concerned, the sense of touch is crucial and haptic technology is the key because haptics bring touch into a computer simulation.

But simulators can be used not only for recreating reality, but also as a teaching-learning tool. This work is aimed at building haptic simulators including expert knowledge for teaching surgery.

In the first phase, the expert knowledge about a particular surgery is described following a diagram suitable for being directly translated into the simulators building system. In the second phase, that diagram is used to configure and build a new haptic simulator. The key part of the process is that the architecture of the system eases the development of the haptic simulators reducing the time needed to put them to work.

GIANT HEPATIC HYDATID CYST WITH EXTRA-ABDOMINAL EXTENSION

D. Fernández-Martínez, P. Granero-Castro, A. Rodríguez-Infante, J. H. Jara-Quezada, R. Rodríguez-Uría, G. Mínguez-Ruíz, J. A. Álvarez-Pérez.

Hospital Universitario Central de Asturias. Oviedo.

Introduction: Echinococcosis is caused by *Echinococcus granulosus*. The liver is the location most common.

Case report: A 60-years-old male presented with epigastric discomfort, jaundice, and acholic stools. Laboratory values: AST 57 IU/L, ALT 172 IU/L, GGT 564 IU/L, ALP 272 IU/L, total bilirubin 8.1 mg/dl, direct bilirubin 5.7 mg/dl. CT scan showed a 20x10x12cm cystic mass in the left hepatic lobe compressing the inferior vena cava and extending into the mediastinum, displacing aorta, esophagus and right atrium. Through a laparotomy and after sterilization of the cystic with hypertonic saline, a partial pericystectomy with drainage was performed. The postoperative outcome was favourable. After discharge Albendazole was continued.

Discussion: Giant hydatid cysts are rare and show clear symptoms when they exceed 10cm. The diagnostic methods of choice are ultrasound and CT scan. The standard treatment is surgical (i.e., pericystectomy, liver resection, marsupialization). Chemotherapy combined with surgery is effective for prophylaxis of complications and recurrences.

URGENT THORACIC ENDOPROTHESIS ON ACUTE AORTIC SYNDROME ABERRANT SUBCLAVIAN ARTERY

J. Fletes Lacayo, G. Alonso Argüeso, N. Sanz Pastor, E. Menendez Sanchez, G. Novo, R. Fernandez Samos, I. del Blanco, F. Vaquero Morillo

Complejo Asistencial Universitario de Leon

In acute aortic syndrome endovascular treatment offers excellent results in high-risk patients with co-morbidities. The association with aberrant subclavian artery is outstanding and adds a challenge to the treatment of these patients. We report the case of a 65 year old woman, complicated with a large penetrating ulcer in zone III of the aortic arch with intramural hematoma and anomalous departure of aberrant right subclavian or arteria lusoria, found by computed tomography scan that was treated by thoracic aortic stenting.

LIVER HYPERTHERMIA INDUCED BY DIFFERENT IRON MAGNETIC NANOPARTICLES "EX VIVO" AND CORRELATION TO PATHOLOGICAL DAMAGE IN THE TISSUE

J. J. Echevarria-Uraga¹, I. García-Alonso², B. Herrero², H. Marín³, M. Insausti⁴, F. Plazaola⁴, E. Garaió⁴, L. Hernandez⁵, C. Del Campo⁵, A. Saiz-López⁵

¹Dpt. of Radiology (Galdakao-Usánsolo Hospital), ²Laboratory of Experimental Surgery University of The Basque Country), ³Dpt. of Surgery (Cruces University Hospital), ⁴Faculty of Sciences & Technology (University of The Basque Country), ⁵Dpt. of Pathology (Galdakao-Usánsolo Hospital)

Magnetic nanoparticles exposed to alternating magnetic fields, are capable to induce tissue necrosis by means of hyperthermia.

Methods: Colocarcinoma tumors (CC531) induced in the left lateral liver lobe of Wag/RijCrl rats were seeded with 10.5 mg of lipophilic Fe₃O₄ nanoparticles (LFN) suspended in Lipiodol® or hydrophilic Fe₃O₄ nanoparticles (HFN) (between 1.75 mg and 10 mg, diluted in distilled water or saline). All of the livers were exposed for 20 min to highly oscillating magnetic fields (12KA/m, 699KHz) and thermal variations were registered; finally the livers were fixed in phormalin and sections stained with Hematoxilin-Eosin and Prussian Blue.

Results: HFN increased liver temperature proportionally to the amount of nanoparticles infused (1.75 mg: 4 °C; 10 mg: 14 °C). In the liver sections from LFN-infused rats iron aggregates were found into the vessels, while with HFN, non-aggregated iron nanoparticles were found within the liver sinusoids.

Conclusion: HFN placed inside the liver may induce significant local hyperthermia.

Introducción: Las nanopartículas magnéticas (NPM) con elevada tasa de absorción específica (SAR), sometidas a un inductor de radiofrecuencia (RF), resultan eventualmente capaces de generar incrementos térmicos que provoquen necrosis tisular coagulativa. Explorar su potencial antitumoral resulta de alto interés.

Objetivos: Cuantificar en tejido hepático "ex vivo", la hipertermia generada por diferentes tipos de NPM, con SAR determinado "in vitro" elevado, y correlacionar los resultados con los hallazgos histológicos.

Métodos: Se emplearon seis ratas Wag/RijCrl. En tres animales con tumores de colon (CC-531) inducidos en lóbulo hepático izquierdo, los implantes fueron infundidos con 10,5 mg de NPM lipofílicas de Fe₃O₄ (7–10 nm) suspendidas en 0,3 ml de Lipiodol®, mediante inyección transperitoneal percutánea eco-guiada; tras 18 horas los hígados fueron extraídos. En otros tres animales sanos, mediante laparotomía se implantó un catéter 16 G en vena porta. Tras extracción hepática, a través del catéter se administraron 0,5 ml de soluciones, dos acuosas y una salinizada, de NPM hidrofílicas de Fe₃O₄ (10–20 nm). Los hígados perfundidos con solución acuosa recibieron 1,75 y 10 mg de NPM, y el infundido con solución salina 7,5 mg. Los seis hígados fueron sumergidos en agua destilada, previamente se habían implantado sondas de monitorización térmica en tejido no perfundido, y en tejido hepático o tumoral infundido. Otra sonda se dispuso en el agua. Los especímenes se introdujeron en el inductor de RF y durante 20 minutos se aplicaron los parámetros: potencia de campo magnético 12KA/m, frecuencia 699KHz. Finalmente, los hígados se fijaron en formol para análisis histológico con tinciones de Hematoxilina-Eosina y azul de Prusia.

Resultados: Se lograron incrementos térmicos de 4 y 14 °C, en los hígados infundidos con las soluciones acuosas de 1,75 y 10 mg de NPM respectivamente. En los estudios histológicos se observaron precipitados intravasculares de hierro en los especímenes inyectados con NPM lipofílicas y en el espécimen con NPM hidrofílicas suspendidas en salino. En los especímenes con NPM en suspensión acuosa se apreció mínima presencia de precipitados y abundancia de hierro en los sinusoides hepáticos.

Conclusiones: Las NPM hidrofílicas en suspensión acuosa mantienen los altos niveles de SAR estimados "in vitro", e inducen incrementos térmicos tisulares proporcionales a la cantidad administrada de las mismas.

ATYPICAL CHRONOLOGY OF AN ILEAL CARCINOID TUMOUR

M. García Carrillo, C. González Serrano, E. Etxebarria Beitia, I. Cruz González, S. Leturio Fernández, S. Ruiz Carballo, I. del Hoyo Aretxabala, P. Pérez de Villarreal Amilburu, I. Bengoetxea Peña, L. Hierro-Olabarría Salgado, A. Gómez Palacios

Hospital de Basurto

Introduction: The neuroendocrine tumours (NET) of small intestine (SI) represent 30% of the neoplasias of SI. Its diagnosis is late and the majority present lymphatic involvement or hepatic metastasis in the diagnosis. We present a case that debuted as single hepatic metastasis of unknown primary tumour.

Clinicalcase: Female, 68 years, three-year history of hepatic resection of NET metastasis, without evidencing primary tumour. She went to the Emergency for abdominal pain and vomiting. The CT revealed a 2.5-cm tumour in ileal mesentery invading the SI and causing intestinal obstruction. Resection of 30 cm of the ileum and laparoscopic latero-lateral anastomosis. The pathological anatomy reported the neuroendocrine tumour GIT3N1.

Discussion: The NET of SI originate in the enterochromaffin cells of the Lieberkühn crypts. They appear frequently in the distal ileum. They require surgical treatment, performing resection of the maximum tumour mass, which prolongs survival.

IMMUNOHISTOCHEMICAL EVALUATION OF PROCOLLAGEN COL11A1 IN EXTRACELLULAR STROMA AS PREDICTIVE MARKER OF RESPONSE TO NEOADJUVANT THERAPY IN LOCALLY ADVANCED RECTAL CANCER

L. J. García Flórez¹, A. M. Frunza², C. Martínez Alonso³, M. García Ocaña⁴, J. R. de los Toyos González⁵, G. Gómez Álvarez², L. Barneo Serra², M. F. Fresno Forcelledo³

¹Cirugía General, Hospital San Agustín, Avilés, ²Cirugía General y, ³Anatomía Patológica, Hospital Universitario Central de Asturias, Oviedo, ⁴Unidad de Ensayos Biotecnológicos y Biomédicos y, ⁵Área de Inmunología, Departamento de Biología Funcional, Facultad de Medicina, Universidad de Oviedo.

Background: Stromal myofibroblasts have been shown to overexpress a variety of collagens that contributes to cancer progression. Tumor response to neoadjuvant therapy ranges widely and is related with outcome. The aim of the study was to determine the correlation between expression of procollagen COL11A1 in diagnostic biopsies and tumor response.

Material And Methods: 102 patients were included. Diagnostic biopsies were assessed with a semiquantitative score for COL11A1 using an antibody developed by our team (Int J Oncology 2012;40:1447–1454). COL11A1 and several clinical and pathological parameters were correlated with T-downstaging and tumor regression grade (TRG) on surgical specimens.

Results: Overexpression of COL11A1 was associated with a better response in relation to T-downstaging ($p=0.03$). We found the same trend with TRG without statistic significance ($p=0.08$). We did not find any correlation with clinical and pathological features, excepting histologic grade ($p < 0.001$).

Conclusions: Expression of COL11A1 is associated with response to neoadjuvant therapy in locally advanced rectal cancer.

RABBIT ANIMAL MODEL FOR OBSERVATION OF EFFECTS OF THE LABRAL TEARS IN THE HIP JOINT

M. García Gómez¹, J. Rodríguez-Altonaga Martínez², M. Orden Recio³, L. Ramos Pascua⁴, M. García Alonso⁵, M. Regueiro Purriños⁶, J. Ajenjo Silverio⁷, A. Cortina Ribero³, F. San Román Llorens³, J. Gonzalo Orden³

¹Universidad de León, Medicina, Cirugía y Anatomía Veterinarias, ²Universidad de León, Medicina, Cirugía y Anatomía Veterinaria, ³Universidad de León, Medicina, Cirugía y Anatomía Veterinaria, ⁴Hospital de León, Servicio de Traumatología, ⁵Hospital Clínico Río Ortega, Servicio de Traumatología, ⁶Fundación Investigación Sanitaria de León, ⁷Fundación Investigación Sanitaria de León

Recently it is considered that part of the hip degenerative lesions in human beings are due to a previous acetabular lesion. It is also possible that labral injury is the earliest expression of the degenerative disease.

We've developed an experimental model of labral lesion in rabbits in order to establish the consequences of this injury.

Under general anesthesia, we've operated rabbits by transgluteal approach on both hips, making a capsular-labral lesion in the postero-lateral quadrant in one hip, and isolated capsulotomy in the contralateral one, which we use as control. Postoperatively rabbits were allowed to full weight-bearing, with analgesia for 48 hours.

This model in lagomorphs is suitable because induce a similar lesion to that of humans, without damage other related structures, thus establishing its consequences objectively.

SURGICAL TREATMENT FOR REFRACTORY SUPERIOR LIMBIC KERATOCONJUNCTIVITIS

I. Garzo García, M. Franco Benito, B. Martín Escuer, R. López Mancilla

Introduction: Superior limbic keratoconjunctivitis (SLK) is an uncommon entity characterised by inflammation of the superior palpebral and bulbar conjunctive, keratinisation of the superior limbus and corneal and conjunctival filaments. It may be associated with other diseases, however its precise etiology is unknown. Among the suggested hypothesis the mechanical theory seems to be the most attractive.

Case Report: A 78 year old woman asymmetrically affected by SLK received medical treatment (artificial tears, topical corticosteroids and autologous serum) without success. We decided to resect the superior bulbar conjunctiva and the underlying Tenon's capsule in her most affected eye. An additional amniotic membrane graft was implanted in the resected area. One year after the surgical procedure the patient was asymptomatic.

Conclusions: Conjunctival resection with amniotic membrane graft could be a safe and effective surgical procedure in SLK refractory to medical treatment.

CHARACTERIZATION OF OXIDIZED TIALV AFTER FRETTING-CORROSION TESTS USING NEAR-FIELD MICROSCOPY

F. Billi¹, C. Iglesias², E. Onofre³, R. M. Lozano⁴, B. Pérez-Maceda⁴, J. C. Rubio², M. L. Escudero³, M. C. Garcia-Alonso³

¹Biomaterials and Particle Analysis of the J. Vernon Luck, Sr., M.D. Orthopaedic Research Center, Los Angeles Orthopaedic Hospital/UCLA, USA, ²Hospital Universitario La Paz, Madrid, ³Centro Nacional de Investigaciones Metalúrgicas, CENIM, CSIC, Madrid, ⁴Centro de Investigaciones Biológicas, CIB, CSIC, Madrid.

The poor tribological property of titanium and its alloys is due to its low resistance to plastic shearing and low protection offered by the passive film may result in bone resorption that leads to the implant loosening. The aim of this work is to perform oxidation treatments to the Ti6Al4V alloy to increase the friction-corrosion resistance at the interface bone/implant. Also the friction-corrosion process of thermally treated Ti6Al4V discs against pins of bone was evaluated in bovine serum. The characterization of oxidized TiAlV samples show the formation of oxide scales with different morphology and crystalline structure depending on the oxidation temperature. Ti6Al4V oxidized at 700 °C for 1 h revealed that the rutile scale formed is stable, with adequate substrate coverage, improving the performance of Ti6Al4V in fretting-corrosion against bone without increasing the surface electrochemical reactivity of the Ti6Al4V.

COMPUTED TOMOGRAPHY TO FOLLOW UP THE FRACTURE HEALING AND THE BIODEGRADATION IN SITU OF MAGNESIUM ALLOY AZ31 IN WISTAR FEMUR FRACTURES

C. Iglesias¹, O. G. Bodelon², E. Onofre², N. Malpica³, M. C. Garcia-Alonso², J. C. Rubio¹, M. L. Escudero²

¹Hospital Universitario La Paz, Madrid, ²Centro Nacional de Investigaciones Metalúrgicas, CENIM, CSIC, Madrid, ³Universidad Rey Juan Carlos I, Madrid

The aim of this study was to investigate whether the magnesium alloy AZ31 (Mg –2,96%Al-0,83%Zn) reacts in vivo with an appropriate host response and to investigate how an additional coating of fluorid acid influences in vivo corrosion rate. We analyze the clinical apply as an osteosynthesis intramedullary device in the treatment of Wistar rat femur fractures for a follow up of 1 to 13 months. The sequential CT studies were used to quantitative analyzes the fracture healing and the alloy degradation rate. They are related to the histological results.

The alloy showed good biomechanical properties time enough to achieve fracture healing. At smaller degradation rates, the implants show good biocompatibility. The coating alloy provides low corrosion rates. Both materials react in vivo with a minimal host response without inflammatory histological signs and all of the implants have seen observed in direct contact and without a fibrous capsule with normal bone regeneration at the pin surface.

VARIABLES INFLUENCING THE MORBILITY OF RECTAL CANCER SURGERY

M. Infantes Ormad, L. C. Capitán Morales, J. C. Gómez Rosado, J. Valdés Hernández, B. Martín Pérez, C. Castellanos, J. Galán Álvarez, J. Guerrero García, F. Oliva Mompeán

Unidad de Cirugía Colorrectal. Unidad de Gestión Clínica de Cirugía General. Hospital Universitario Virgen Macarena. Sevilla, Spain.

Introduction: The basal situation of the patient facing the surgery is closely related to perioperative morbidity. The objective of this report is the

identification of the non-modifier factors, inherent to the patient, which have any influence on the complications in rectal cancer surgery.

Material and methods: We analyze the factors related to the complications in our serie of 66 patients operated on rectal cancer between January 2009 and January 2012, studying wound and anastomotic complications and other surgical and medical complications. We applied non-parametric trials and a Pearson coefficient (signification level 95%)

Results and conclusions: There were 19 patients with wound complications (28.8%), 4 with anastomotic complications (6.1%), other surgical ones in 14 (21.2%) and medical in 3 (4.5%). The correlation studies show statistically significant relations between: wound complications with sex, surgical time and urea; Other surgical complications with surgical intentionality and proteins; Medical complications with ASA risk and potassium.

SPONTANEOUS PERFORATION BILIARY TRACT: CONSERVATIVE MANAGEMENT

M. López López, M. Muínelo Lorenzo, L. Muíños Ruano, R. González López, P. Montoto Santomé, L. Dorado Castro, L. Ramírez Ruiz, J. Couselo Villanueva, F. Arijal Val

Hospital Universitario Lucus Augusti (Lugo), Cirugía General Aparato Digestivo

Introduction: Most bile duct perforations are due to surgical damage. Spontaneous perforation is an uncommon condition presented in adults.

Method: The case of a 92-year-old woman is reported. Enters hospital ER with a three-day issue of abdominal pain and vomit. The axial Tomography reveals blockage of the bile duct 2° to papillary stenosis and choledocholithiasis with spontaneous perforation of bile duct, perihepatic biloma and peritoneal supramesocolic space.

Results: Conservative treatment starts with intestinal rest, serotherapy and antibiotic therapy. In the following days, a percutaneous drainage and a retrograde cholangiopancreatography are performed. Patient is discharged 14 days after positive development, remaining without symptoms to date.

Conclusions: In this disease treatment, surgery is usually performed. Nevertheless, there are certain situations in which a more conservative attitude can mean a more successful alternative in the treatment of this issue.

ANALYSIS OF THE PROLIFERATIVE CAPACITY OF MESENCHYMAL STEM CELLS CULTURED ON BONE ALLOGRAFT FRAGMENTS BY ALAMAR BLUE TECHNIQUE. EXPERIMENTAL STUDY

M. López Laguna¹, P. Pérez Ayala¹, L. Ramos Pascua², J. Ramos Carro¹, A. Saldaña Díaz², A. Fernández González¹, R. Mencía Barrio², E. Santín Fernández¹, F. Iglesias Muñoz¹

¹Establecimiento de Tejidos Fundación Clínica San Francisco, ²Complejo Asistencial Universitario de León, Cirugía Ortopédica y Traumatología

Introduction: There remain many unanswered questions surrounding the use of tissue engineering techniques, so it is essential to develop in vitro studies to analyze specific cell behavior before applying them in human therapy.

Objectives: The objective of this study was to compare the proliferative capacity of adipose-derived mesenchymal stem cells on different types of bone allograft using Alamar Blue technique.

Method: Mesenchymal stem cells were isolated from adipose tissue, expanded in vitro, differentiated or not differentiated to osteoblastic lineage cells, and then cultured on fragments of frozen or dehydrated allograft bone. Proliferation was studied during 5 weeks by the Alamar Blue technique, which allows cell quantification maintaining their viability.

Results: It was possible to grow these cells on frozen and dried bone allograft, yielding similar growth patterns. Although no statistical differences were observed, cell proliferation was higher when cells were cultured on frozen bone fragments. Cell differentiation prior to their combination with the allograft did not hinder subsequent cell proliferation.

Conclusions: Alamar Blue technique can be used to analyze the biocompatibility of bone substitutes prior to apply tissue engineering techniques to the field of Human Orthopaedic Surgery.

SPECIFIC PROTOCOL FOR POST-TONSILLECTOMY PAIN CONTROL IN ADULTS OPERATED IN OUTDOOR SURGERY (OS)

M. L. Magdalena Díaz, L. Caragol Urgellés, A. Solé Magdalena

Hospital Universitario Central de Asturias

Introduction: Morbidity associated to tonsillectomy and specially pain is still an important clinical problem.

Objectives: Evaluate the influence of a specific protocol for postoperative pain control and complications in adult tonsillectomized patients.

Method: Observational prospective study. Patients: tonsillectomized adults with general anaesthesia in OS, in the Hospital Universitario Central de Asturias, January 2008 – December 2010. Two groups: I, 65 patients with variable analgesic treatments; II, 50 patients with an analgesic protocol. Surgery: cold (CS) or electrical (ES). A control sheet was designed to register the evaluated variables: pain (Numeric Scale from 0 to 10-NS-), visit to emergency service (ES), etc. on the 4th, 7th and 15th day.

Results: On the 4th I vs II: NS 4.8 vs 3, P = 0.0002; ES 36% vs 16%, P = 0.02. NS CS vs ES: 3.7 vs 4.4

Conclusions: A specific protocol in outdoor tonsillectomized adult patients is useful to achieve less pain and complications.

PERIPARTUM HYSTERECTOMY IN LEÓN HOSPITAL

F. Manrique, C. Gutierrez, L. Padilla, J.C. Naveiro

Hospital Universitario de León, Servicio de Obstetricia y Ginecología

Objective: To estimate the incidence, indications and the medical and surgical complications of peripartum hysterectomy (HP).

Methods: Retrospective and descriptive study of HP from the year between 2000 and 2012. Medical records were reviewed; the indication and the complications were obtained.

Results: 16 HP were performed and the incidence was of 0,6 in 1000. The uterine atony was the leading cause, 56%, abnormal placentation in 25%. The leading medical complication was the hipovolemic shock. The surgical complications in Table 1.

Conclusion: The incidence of HP 0,6 in 1000. The uterine atony is the primary indication. The hipovolemic shock and transfusions are the most common complications.

ADRENAL ADENOMA AS A CAUSE OF POORLY CONTROLLED ARTERIAL HYPERTENSION

I. M. Marco López, O. Sanz Guadarrama, L. M. Alcoba García, M. P. Suárez Vega, L. Ballesta Russo, P. Díez González, V. Olmos Juste, T. González de Francisco

Complejo asistencial universitario de león.

Introduction: Primary hyperaldosteronism (Conn 1954), is a cause of arterial hypertension due to an aldosterone's overproduction by the adrenal gland, with prevalence lower than 1%. It is characterized by moderate or severe hypertension, difficult to control and secondary symptoms to hypokalemia. The diagnosis is carried out using determinations of biochemical aldosterone and renin, CT and MRI being used for the localisation diagnosis.

Table 1 Surgical Complications

Complication	Number	%
Transfusions	16	100
Exploratory Laparotomy	7	43,7
Postoperative Fever	5	31,2
Oophorectomy	4	25
Ileus	3	18,7
Cuff abscess	2	12,5
Wound Dehiscence	1	6,2

Clinical Case: A 57 years old man, hypertension of 10 years' standing, poorly controlled with medical treatment. It shows in RM suggestive injury of adrenal adenoma. Laparoscopic adrenalectomy is carried out achieving good blood pressure control after surgery.

Conclusions: Hyperaldosteronism is the most prevalent form of secondary arterial hypertension. Surgery is indicated in all patients with proven unilateral involvement, i.e. in confirmed adenomas and carcinomas. Subtotal adrenalectomy is generally not recommended due to the risk of persistence or recurrence.

GIANT RETROPERITONEAL LIPOSARCOMA

I. M. Marco López, L. M. Alcoba García, S. Pacho Valbuena, J. M. Canga Presa, M. P. Suárez Vega, L. Ballesta Russo, P. Díez González, V. Olmos Juste, T. González de Francisco

Complejo asistencial universitario de León.

Introduction: Liposarcoma is the most common retroperitoneal tumor. Its clinical is nonspecific giving symptoms in advanced stages due to their slow growth, being the most commonly symptom an increased of abdominal girth with diffuse abdominal pain, which delays the diagnosis. The diagnostic tests used are the CT and immunohistochemistry (S-100 protein, desmin, CD34 and keratins).

Clinical Case: A 63 years old man with abdominal pain and mass of 22 cm in CT from left hypochondrium to left iliac fossa. Tumor excision is carried out, being the informed pathology anatomy of dedifferentiated retroperitoneal liposarcoma.

Conclusions: The choice of treatment is the complete tumor's excision including pseudocapsule and affected organs, as it has a high rate of local recurrence. If removal is not complete, it will take up with CT and MRI. The complete resection and the histological grade are the most important prognostic factors.

OVARIAN THECOMA. PRESENTATION OF CLINICAL CASE

B. Marengo de La Cuadra, L. Capitán Morales, J. Valdés Hernández, A. Ruiz Zafra, J. Gómez Rosado, J. Guerrero García, J. Galán Álvarez, F. Oliva Mompeán

Hospital Virgen Macarena, Cirugía General y del Aparato Digestivo

Abstract: We report the case of a patient diagnosed with a pelvic mass, which is subjected to exploratory laparoscopy, objectifying injury 16 cm, solid consistency and whitish, under the left ovary. Resection is performed, left adnexectomy and specimen removal through Pfannenstiel incision, without incident. The diagnosis of ovarian thecoma is reached in the anatomical-pathological study. Thecomas are benign ovarian tumours very infrequently (1%), which may relapses in 30% of cases, originating from the cells of the theca interna, affecting perimenopausal women. His diagnosis is usually incidental since they don't present clinical feature. They are solid unilateral tumors, variable volume (5–10 cm), encapsulated, smooth surface and potentially hormone-secreting. The definitive diagnosis is histological, as fusiform cells that have a fibrous appearance.

EXPERIENCE IN RECTOVAGINAL FISTULAS TREATMENT

B. Martín Pérez, L. C. Capitán Morales, J. C. Gómez Rosado, M. Infantes Ormad, J. Valdés Hernández, M. L. Reyes Díaz, J. A. Díaz Milanés, M. L. Reyes Díaz, J. Galán Álvarez, J. M. Guerrero García, F. Oliva Mompeán

Unidad de Cirugía Colorrectal. UGC Cirugía General y A. Digestivo. Hospital Universitario Virgen Macarena, Sevilla

Introduction: The rectovaginal fistulas allow the rectal content to pass to the vagina. Its prevalence is about 5 to 9%, with a variety of etiologies, surgical techniques and results.

Material And Methods: We present 6 cases of rectovaginal fistulas operated between 2009 and 2011: patients with rectal cancer advanced sigmoid cancer and Crohn's disease had ostomies done and patients with iatrogenic underwent

transanal procedures (fistulectomy, levatorplasty, sphincterorraphy, fibrin glue)

Results: Two of the transanal operations required a second transanal approach (rectal flap), both with no symptoms 8 and 13 months after surgery. The two ileostomies are to be reverted and the patient with cancer died after 3 weeks because of her neoplasm.

Conclusions: Ostomies were chosen for cancer and inflammatory bowel disease and the transanal approach was chosen for iatrogenic, with a high reintervention rate and better results after reintervention.

RUPTURED ABDOMINAL AORTIC MYCOTIC ANEURYSM. ENDOVASCULAR TREATMENT

E. Menéndez Sánchez, G. Alonso Argüeso, N. Sanz Pastor, M. J. González Fueyo, R. Fernández Samos, J. C. Fletes Lacayo, F. C. Vaquero Morillo

Vascular Surgery Service Complejo Asistencial Universitario de León

Mycotic aortic aneurysm caused by an arterial wall infection has very low incidence but it is potentially lethal. Currently it appears in arteriosclerosis patients. Diagnosis should be based on clinical suspicion supported by imaging techniques.

A 72-year-old man with hypertension, atrial fibrillation anticoagulated, prostatism, and obesity. The patient was hospitalized with a picture of undulant fever and positive blood culture for *Brucella*. He was sent urgently, after performing a TC angiography, and discover an abdominal periaortic hematoma with active bleeding. After diagnosing an aortic rupture mycotic etiology, an emergency surgery was performed including aortoiliac stenting, contralateral iliac occluder and femorofemoral crossover graft. Another TAC angiography was performed, as post surgery control. It confirmed complete exclusion of aortic rupture.

Aortic rupture mycotic aneurysm is a rare, serious and requires urgent action. Endovascular treatment has proved to be, in our case, an effective solution backed by intensive intravenous antibiotic treatment.

RETROPERITONEAL LYMPHANGIOLIPOMA. A RARE TUMOR

M. Muínelo Lorenzo¹, A. M. González Ganso², L. Muínelo Ruano¹, V. Simó Fernández², L. Dorado Castro¹, F. Arija Val¹

¹Department of General Surgery. University Hospital Lucus Augusti, Lugo, Spain, ²Department of General Surgery. University Hospital León, Leon, Spain.

Introduction: Lymphangioliipoma is an uncommon tumor reported in 1974 for the first time. A 54-year-old woman is referred to our department with dyspepsia for about two months, with nausea and abdominal discomfort. No jaundice or acolia.

Method: Radionuclide scanning and cholangiography show a mass located in the middle of the duodenum, pancreas head, posterior segment of the liver right lobe and right colon, located in the retroperitoneal space. Endoscopic ultrasound and biopsy reveal a polylobate cystic lesion compatible with cystic retroperitoneal lymphangioma.

Results: We perform a wide excision of the polylobate lipomatous lesion, covering the 2nd portion of the duodenum, pancreas head-body and choledoco. Anatomical pathology reveals a benign tumor made up of lymphatic spaces surrounded by mature adipose tissue, compatible with lymphangioliipoma.

Conclusions: Lymphangioliipoma is a rare benign tumor made by two components: lymphangioma and lipoma. Treatment consists of surgical resection of the injury.

SIGMOID VOLVULUS. LAPAROSCOPIC SIGMOIDECTOMY

M. Muínelo Lorenzo¹, V. Simo Fernandez², L. Muínelo Ruano¹, S. Santaclara Perez³, M. Diago Santamaria²

¹Hospital Universitario Lucus Augusti, servicio de cirugía general y del apto digestivo, ²Complejo Asistencial Universitario de León, servicio de cirugía general y del apto digestivo, ³Complejo Asistencial Universitario de León

Objectives: The colon volvulus is an abnormal twisting of colon around the mesenteric vessels, representing 5 to 8% of all causes of intestinal obstruction.

The laparoscopic approach for the treatment of sigmoid volvulus has been a rare surgical indication

Methods and material: A 75 year-old male with known dolichomegacolon and three episodes of volvulus and sigmoid colonoscopic decompression in 15 days.

Results: The redundant sigmoid colon was totally mobilized by a laparoscopic medial-to-lateral dissection sequence, after which it was exteriorized, transected, and reconstructed by end-to-end anastomosis. The pathology revealed “no evidence tumor specific inflammation.”

Conclusions: Considering that patients with sigmoid volvulus often are elderly and chronically ill, laparoscopic elective surgery after a successful colonoscopic decompression may be a good choice for a selected group of patients in terms of minimized surgical complications and quick convalescence.

MALIGNANT FIBROUS HISTIOCYTOMA OF THE MESENTERY: A CASE REPORT

R. Muñíos Ruano¹, S. Ali Muhamad¹, L. Manuel Muinelo¹, R. José Ramón Pulpeiro²

¹Servicio de Cirugía General del Hospital Universitario Lucus Augusti, Lugo, ²Servicio de Radiología del Hospital Universitario Lucus Augusti, Lugo

Background: Malignant fibrous histiocytoma (MFH) is a very aggressive sarcoma with high metastatic potential. We report a rare case of a primary abdominal MFH originating from the mesentery.

Case report: A 62-year-old male presented with abdominal pain and touchable tumor in left hemi-abdomen. Abdominal ultrasound shows the mass as “*pseudo-kidney image*” and the computed tomography as a polylobate tumor with areas of central necrosis. We find intraoperatively a big tumor (19 × 16 × 12cm) depending of the mesentery and affecting a jejunum portion. We do block resection. Macroscopic rests remain attached to the superior mesenteric

vein. The tumor was histologically classified as a myxoid malignant fibrous histiocytoma of the mesentery. The patient received adjuvant chemotherapeutic treatment.

Conclusion: HFM is a rare tumor. Due to its silent character, its diagnosis is late and the prognosis is poor. Surgical resection is the treatment chosen. The role of adjuvant chemotherapy and irradiation still remains controversial.

EVALUATION OF ANTIBIOTICS USAGE IN GENERAL SURGERY AFTER MODIFICATIONS IN THE FORMULARY COMPOSITION

I. Yañez, M. Saez, J. Ortiz de Urbina, C. Prieto, I. Alvarez, L. Ortega

Servicio de Farmacia, Complejo Asistencial Universitario de León

Introduction: Ertapenem was included in our hospital's formulary (2007) in order to optimise other carbapenems consumption and minimise antibiotic selection pressure over *Pseudomonas*.

Objective: To analyse in-hospital antibiotic consumption (ABC) and its trend in general surgery (GS)(90beds), after ertapenem inclusion.

Method: Descriptive retrospective analysis(2006–2011) of the ABC in GS (1.100-beds tertiary care teaching hospital). Data on the use of antibiotics were expressed as defined daily doses per 100bed-days(DDD/100bed-days).

Results: Overall ABC was high (Mean = 69,97 ± 3,98DDD/100bed-days). The most frequently used antibiotics were penicillins(M = 37,58% ± 2,27), followed by metronidazole(M = 13,52% ± 2,14) and carbapenems (M = 8,69% ± 4,65).

Most notable variations: increase in piperacilin-tazobactam, significant decrease in tobramycin and metronidazole. Increase trend in imipenem and ertapenem use since ertapenem was included except in 2011.

Conclusions: It seems, that ertapenem had displaced the use of tobramycin-metronidazole for intra-abdominal infection and had not minimised the use

Antibiotics consumption (DDDs/ 100 bed-days)

		2006	2007	2008	2009	2010	2011
PENICILINS	Ampicilin	1.02	1.01	1.01	0.72	0.58	0.14
	Cloxacilin	0.18	0.65	0.02	0.00	0.00	0.00
	Amoxicilin-clavulanate	16.39	14.28	17.05	15.10	15.39	16.56
	Piperacilin-Tazobactam	6.45	6.58	7.27	6.25	8.06	11.17
CEPHALOSPORINS	Cefazolin	0.56	1.58	0.97	1.13	1.24	1.19
	Cefoxitin	0.15	0.45	0.26	1.15	1.87	1.62
	Cefotaxime	1.80	1.80	3.55	1.99	1.89	2.00
	Ceftazidime	0.15	0.06	0.16	0.26	0.11	0.45
	Ceftriaxone	0.23	0.10	0.04	0.13	0.23	0.33
	Cefonicid	0.08	0.08	0.07	0.26	0.14	0.10
	Cefepime	0.97	0.58	0.17	0.26	0.76	0.53
FLUOROQUINOLONONES	Ciprofloxacina	6.12	6.00	5.01	4.89	5.52	4.56
	Levofloxacina	0.35	0.72	0.63	0.96	1.20	1.18
AMINOGLYCOSIDES	Tobramycin	9.36	6.99	6.61	3.44	2.50	2.64
	Gentamicin	0.25	0.23	0.41	0.21	0.07	0.09
	Amikacin	0.09	0.21	0.19	0.24	0.63	0.31
GLYCOPEPTIDES	Vancomycin	0.89	1.11	1.60	1.20	1.55	1.85
	Teicoplanin	1.83	1.52	1.84	1.68	2.19	1.37
IMIDAZOLE DERIVATIVES	Metronidazole	10.22	9.87	9.12	7.26	8.02	8.51
OXAZOLIDINONES	Linezolid	0.03	0.23	0.98	0.79	1.32	1.08
CARBAPENEMS	Ertapenem	0.00	0.42	2.61	4.56	5.20	3.36
	Imipenem	1.86	2.79	3.09	3.57	4.17	3.51
	Meropenem	0.22	0.10	1.13	1.04	0.33	0.77
	Subtotal (DDD/100 bed-days)	59,20	57,36	63,79	57,09	62,97	63,32
	% over the total	95,25	93,74	93,97	93,84	90,51	92,84
	Overall (DDD/100 bed-days)	62,15	61,19	67,88	60,84	69,57	68,20
	Number of admissions	2887	2745	2699	3214	2909	2832

of carbapenems nor piperacilin-tazobactam. Other variables may explain those consumption trends, so more exhaustive studies may be done.

INTERMITTENT SUBLETHAL ISCHEMIA ALTERS EPITHELIAL BARRIER FUNCTION IN A MODEL OF PORCINE SMALL BOWEL TRANSPLANTATION

J. Otero-de Pablos, F. Huete-Toral, E. Molina-Roldan, J. A. Fernández-Represa, J. M. Mayol

Sección de Cirugía Colorrectal, Servicio de Cirugía I. Hospital Clínicos San Carlos, Madrid

The aim of this study was to investigate the early functional effects of intestinal ischemic preconditioning (PC) on porcine ileal mucosa. Two contiguous segments of porcine small intestine proximal to the ileocecal valve were isolated. A 20-cm segment was preconditioned by intermittent cross-clamping of the mesentery whereas the other served as control. Preconditioning did not alter either baseline electrical barrier properties (TER: 78 ± 5.1 vs 72.9 ± 8.2 ; $n = 13$, NS) or baseline currents (Isc: 30.9 ± 2.9 vs 39.5 ± 7.5 ; $n = 13$, NS). Nucleotide-activated currents (peak Isc: 47.7 ± 3.4 vs 41.9 ± 2.5) or Ca^{2+} -stimulated secretion (peak Isc: 5.5 ± 2.6 vs 6.2 ± 2.7) were not affected either. However, paracellular permeability assessed by FITC (Fluorescence at 30 min: 222 ± 61.7 counts vs 65.3 ± 23.0 counts; $n = 6$ $p = 0.038$), was transiently increased. No morphological difference was observed. Intestinal PC does not alter either baseline or stimulated secretion but causes an early increase in permeability in porcine ileal mucosa.

TITANIUM MESH IN RECONSTRUCTIVE SURGERY OF THE NASAL PYRAMID. FOLLOW-UP OF OUR 11 FIRST CASES

M. de las Mercedes Otero Rivas, M. G. Pérez Paredes, L. M. Valladares Narganes, B. González Sixto, A. Pérez Bustillo, T. Alonso Alonso, M. A. Rodríguez Prieto.

Dermatology Department. Complejo Asistencial Universitario de León. León, Spain.

We conducted a retrospective review of our first eleven patients who had had a nasal reconstruction with titanium mesh. All of them had localized skin tumors in the nasal pyramid. There have been no mesh extrusions or infections in any of our patients with a mean follow-up of 4 years. The results of our series of patients corroborate the suitability of this material in the repair of osteochondral defects of nasal structures as well as its low complication rate.

EFFECTIVENESS OF MOHS MICROGRAPHIC SURGERY IN THE DERMATOFIBROSARCOMA PROTUBERANS TREATMENT

M. Pérez Paredes¹, T. Alonso Alonso², B. González Sixto¹, M. Otero Rivas¹, L. Valladares Narganes¹, A. González Morán¹, L. Rodríguez Casado¹, M. Rodríguez Prieto¹

¹Complejo Asistencial Hospitalario de León, Servicio de Dermatología, ²Complejo Asistencial Hospitalario de León., Servicio de Dermatología

Introduction: Mohs Micrographic Surgery (MMS), is the best therapeutics option in the dermatofibrosarcoma protuberans (DFSP) due to the locally infiltrating growth.

Objective: Value the effectiveness of CMM.

Material and methods: Retrospective study of removed DFSP in our shift, in the last ten years, proving the diagnosis through fresh staining with macroslides.

Results: The average age was 43.6 years old; the tumor average size was 3,7 cm; the average of CMM pass was 2,4; 13 were primary tumors and 2 recurrence. After a monitoring average of 4,2 years, neither of the patients showed recurrence.

Discussion: We confirm the advantages and effectiveness of fresh CMM and using macroslides, validated by the studies, which compare the recurrence of DFSP with a wide local excision (7-20%), against CMM (1-3%).

Conclusion: The CMM is the treatment of choice in DFSP, by the smallest rate of recurrence and the best aesthetics results.

TECHNICAL INFILTRATION- INFUSION OF HEMATOPOIETIC STEM CELLS IN PRESSURE ULCER OF SPINAL CORD INJURED

A. Pérez Arias, A. Matarranz Faya, D. Contreras Pedraza, M. Castellanos Morán, A. Ontaneda Bilbao, A. I. Pérez Álvarez

Servicio de Cirugía Plástica del Hospital Universitario Central de Asturias. Celestino Villamil 33006. Oviedo. Spain. (e-mail: aparias.oviedo@gmail.com).

Introduction: The spinal cord injured predisposed to suffer pressure ulcers. An 85% will develop throughout his life with recurrence rates elevated.

Objective: Evaluate the clinical healing in ulcers of spinal cord injured patients.

Methods: An observational, prospective study is made in 30 patients with ulcers located in the pelvic area. The technique consists of refreshing the cutaneous edges, direct closing and infusion/ infiltration with mononuclear hematopoietic stem cells.

Results: After 6 months, in 24 patients healing existed, in two persisted a small dehiscence, in three failed from the beginning and one was discarded of the series. The times of nurse and the post-operating average descended in relation to the conventional techniques.

Conclusions: The cellular therapy with mononuclear autologous stem cells of bony marrow constitutes a reality nowadays. The obtained results, absence of complications, ethical problems, security, not toxicity and immunoreactivity, makes it to be a good alternative to the conventional techniques.

Key words: Infusion intralesional. Stem cells. Pressure sores.

USE OF TRANSDERMAL FENTANYL IN A PORCINE MODEL OF LEFT PNEUMOECTOMY UNDERGOING UNIPULMONAR ANAESTHESIA

J. M. Ajenjo Silverio¹ (DVM), M. Regueiro Purriños¹ (DVM, PhD), M. García Gómez³ (DVM) N. Orellana Jaimes (DVM PhD)³, A. Pérez de Prado^{1,2} (MD), C. Cuellas Ramón^{1,2} (MD), A. Diego Nieto^{1,2} (MD) J.R. Altonaga³ (DVM PhD), M. A. Orden Recio³ (DVM PhD), J. M. Gonzalo Orden³ (DVM PhD), F. Fernández Vázquez^{1,2} (MD, PhD)

¹Fundación Investigación Sanitaria en León. Unidad Experimental de Diagnostico por Imagen. Facultad de Veterinaria. Universidad de León. León. España, ²Cardiología Intervencionista, Hospital de León. León, España, ³Departamento de Medicina, Cirugía y Anatomía Veterinaria. Facultad de Veterinaria de la Universidad de León. España

Introduction: The main complication during unipulmonar ventilation for pneumonectomy is hypoxia. Using an adequate analgesic protocol allows decreasing the dose of anaesthetic gas, achieving a higher PaO₂ and better hemodynamic values of the patient.

Objectives: To assess the hemodynamic stability of the patient and the incidence of hypoxemia in a pig model of left pneumonectomy.

Material And Methods: A fentanyl patch was applied 24 hours before the surgical intervention in 35 pigs. Midazolam and ketamine were used as preanaesthetic medication, inducing agent was propofol and inhalatory anaesthetic was isoflurane.

Results: Monitored parameters remained within physiological values during the procedure, no episodes of hypoxemia were observed. No pig died during or after the procedure.

Conclusion: The use of adequate mechanical ventilation, transdermal fentanyl with a low level of isoflurane, and alveolar recruitment manoeuvres with moderate Positive End Expiratory Pressure (PEEP) values allows controlling the incidence of hypoxemia during unipulmonar ventilation.

TISSUE-ENGINEERED CARTILAGE REPAIR IN AN EXPERIMENTAL MODEL

D. Robla Costales¹, Á. Meana Infesta², R. Álvarez García¹, J. Robla Costales³

¹Hospital De León (Edificio Princesa Sofía).(*) (1), Cirugía Plástica, ²Centro Comunitario de Sangre y Tejidos de Asturias, ³Hospital De León (Edificio Princesa Sofía).(*) (1), Neurocirugía

Objectives: To prove the usefulness of a new scaffold in producing tissue engineered auricular cartilage

Structure: A new scaffold was produced by denaturalizing blood globular proteins by addition of glutaraldehyde and the lyophilization of the result

Cells: Chondrocytes were obtained by enzymatic digestion from auricular cartilage biopsies of rabbits. Cells were cultured in single-layer, then seeded and differentiated in scaffolds. Some cultures were marked with GFP for posterior identification

Transplantation: Chondrocyte-seeded scaffolds were transplanted autologously into experimental defects in rabbit's ears.

Results: Repair of defects was achieved in those with chondrocyte seeded scaffolds. Cells that repaired defects were stained with antiGFP IgG. Those with acellular scaffolds were filled with connective tissue.

Conclusion: It is possible to repair cartilage defects by means of tissue engineering using the new scaffold

RECOVERY OF THE FOOT DORSIFLEXION AFTER PERONEAL NERVE INJURY USING NERVE REPAIR TECHNIQUES AND TENDON TRANSFERS. ACTION PROTOCOL AND CLINICAL AND FUNCTIONAL RESULTS

J. Robla Costales¹, D. Robla Costales², M. Socolovsky³, R. Álvarez García², J. García Cosamalón¹

¹Complejo Asistencial Universitario de León, Neurocirugía, ²Complejo Asistencial Universitario de León, Cirugía Plástica, ³Hospital de Clínicas "José de San Martín", Buenos Aires, Neurocirugía

The common peroneal nerve presents two main characteristics: it is the most frequently nerve injured in the lower extremity and the nerve with worse functional outcome after nerve repair. Peroneal nerve lesions produce failure of dorsiflexion and eversion of the foot, leading to a limitation for walking. Even in cases where nerve function recovery is considered acceptable, patients may have a significant functional limitation that affects their quality of life. We present our experience managing peroneal nerve injuries and our current protocol, based on the reparative techniques (neurolysis and nerve grafting) and tendon transposition techniques that are used to achieve the best functional outcome and to improve the quality of life of these patients. The parameters analyzed in our retrospective clinical serie were: degree of muscle strength, tenderness, pain, functional status and patient satisfaction. Functional outcomes were assessed with the scale of Stanmore.

ATYPICAL LOCATION OF BOERHAAVE'S SYNDROME

A. Rodríguez-Infante, P. Granero-Castro, G. Mínguez-Ruiz, R. Rodríguez-Uría, D. Fernández-Martínez, J. H. Jara-Quezada, J. A. Álvarez-Pérez

Department of General Surgery. Hospital Universitario Central de Asturias. Oviedo, Spain

Introduction: Boerhaave's Syndrome is an esophageal rupture due to an increased intraluminal pressure during vomiting in the absence of upper esophageal sphincter relaxation. The most common location is in the left side wall of the distal esophagus.

Case report: A 70-years-old man presented epigastric pain and dyspnea after sudden vomiting, with hypotension associated. CT scan showed a perforation in the right posterior wall of the lower esophagus and hydropneumothorax. A primary suture of the perforation was performed. During postoperative period, the patient developed esophageal suture dehiscence, it was resolved with placement of two coated stents.

Discussion: The presence of retrosternal pain and subcutaneous emphysema after episode of vomiting is a set of symptoms suggestive of this disease. CT with contrast is the diagnostic test of choice. Aggressive treatment of the perforation by direct suture appears to be the most effective, as well as its combination with endoscopic techniques increase success rates.

EVALUATION OF LAPAROSCOPIC APPENDECTOMY VS. OPEN APPENDECTOMY: A RETROSPECTIVE STUDY AT LA PAZ UNIVERSITY HOSPITAL, MADRID, SPAIN

J. Salinas Gómez, C. González Gómez, J. A. Rodríguez-Montes

Hospital Universitario La Paz, Cirugía General y del Aparato Digestivo

The aim of this study was to evaluate laparoscopic versus open appendectomy for the treatment of acute appendicitis in our department.

From January 2002 to December 2011, 754 patients were clinically and/or radiologically diagnosed with acute appendicitis. 336 underwent a laparoscopic appendectomy (LA) and 418 underwent an open surgical procedure (OA). For comparison, 150 patients from each group were randomly selected. There was no significant difference in age, sex, lag time between the onset of symptoms and diagnosis, age-related comorbidities and anatomopathologic findings between the two groups.

In LA group, overall postoperative morbidity was 16.0%, mortality 0.0% and mean hospital stay 4.1 days compared with 26.7%, 3.0% and 7.5 days respectively, in OA group.

Postoperative complications ($p=0.033$) and mortality ($p=0.060$) were significantly less in the laparoscopic surgery group, and mean hospital stay was shorter. Therefore, laparoscopic appendectomy shows benefits for both the patient and the NHS.

VALIDATION OF AN OSTEOPOROTIC SHEEP MODEL USING DXA AND BONE HISTOMORPHOMETRY

F. San Román Llorens¹, J. de Paz Fernández², N. Orellana Jaimes¹, F. Muñoz Guzon³, O. Balboa Arregui⁴, J. Rodríguez-Altonaga Martínez¹, J. Sanchez García¹, J. Gonzalo Orden²

¹Facultad de Veterinaria. Universidad de León. España, Medicina y Cirugía Veterinaria, ²Instituto de Biomedicina. Universidad de León. España, ³Facultad de Veterinaria. Universidad de Santiago. España, Medicina y Cirugía, ⁴Hospital De León (Edificio Princesa Sofía). (*) (1), Radiología

Introduction: Although a large variety of animal models have been used in osteoporosis research, sheep are a promising model.

Objectives: To validate an osteoporotic sheep model using DXA and bone histomorphometry

Material and methods: Ten mature female Spanish Churra sheep were used in this study. Animals were divided in two groups. First group ($n=5$) underwent bilateral ovariectomy, received a weekly intramuscular injection of dexamethasone and was fed with a low Ca and Vit D diet. The second group ($n=5$) served as control group. DXA measurements of the femoral necks and lumbar vertebral bodies were performed at the beginning of the study and six months later. A special positioning system was developed to allow an optimal exposition of the femoral neck area. All animals were euthanized and bone samples were collected to perform histomorphometric studies.

Results: DXA and histomorphometric values demonstrated the osteoporotic condition of the first group.

Conclusions: DXA and histomorphometry were useful to validate this osteoporotic sheep model.

METFORMIN EFFECTS ON HUMAN COLONIC CANCER CELL LINES

M. Sánchez Lorenzo¹, M. García Ocaña², J. Vieitez de Prado¹, E. García Pérez³, J. de Los Toyos González⁴, P. Jiménez Fonseca¹, L. Barneo Serra⁵

¹Hospital Central De Asturias, Oncología Médica, ²Hospital Central De Asturias, Laboratorio de Biotecnología y cultivos celulares, ³Hospital Central De Asturias, Biología, ⁴Hospital Central De Asturias, Inmunología, ⁵Hospital Central De Asturias, Cirugía General

Background: Metformin is an oral antidiabetic drug. Its interest has increased since few clinic and preclinic trials seem to demonstrate lower cancer incidence and higher survival in metformin type II diabetes treated patients. Moreover, diabetic colon cancer patients on this drug have lower mortality rates.

Purpose: Observation of metformin effect on colonic cancer cell line colo205 in vitro.

Methods: Cell line colo205 cultured with different metformin concentrations: 20 mmol/L, 10 mmol/L, 5 mmol/L, 2.5 mmol/L, 1.25 mmol/L, 0.63 mmol/L, 0.31 mmol/L, 0.15 mmol/L, and without metformin. Each concentration was performed in triplicate and its growth was constantly measured.

Results: Metformin exposed tumoral cell growth curves over 1.25 mmol/L concentration or higher were significantly lower than non-metformin exposed. Samples exposed to 0.63 mmol/L or less experimented no significant cell death respect to control, and even these values are over clinically achievable

Conclusion: We will continue investigating metformin effects in physiological levels and combined with chemotherapy in vitro and in vivo

SEALANT EFFECT OF TACHOSIL ON A CALIBRATED GASTROTOMY: AN EXPERIMENTAL RANDOMISED CONTROLLED STUDY

M. Cuadrado Ayuso, M. Sanz Sánchez, R. Franco Herrera, M. Burneo Estévez, P. García Barreno, J. del Cañizo López

Hospital Gregorio Marañón. Servicio de cirugía General y aparato digestivo II. Instituto de investigación sanitaria del Hospital Gregorio Marañón. Departamento de Cirugía. Universidad Complutense de Madrid.

Introduction: The sealant effect of Tachosil (collagen sponge with thrombin and human fibrinogen) has a potential use in GI tract anastomoses. Our aim was to assess whether Tachosil increases the bursting strength of gastrotomy suture.

Material and Methods: Under general anaesthesia the stomach of 6 minipigs was excluded and 2 gastrotomies were performed and sutured with 3 silk stitches. A Tachosil patch was applied to one of the suture lines, in a randomised way. Normal saline with methylene blue was infused through an NG tube until a leak was detected through any of the incisions.

Results: In the control gastrotomies (without Tachosil) a leak was observed in all the animals, whereas only one of gastrotomies with Tachosil leaked.

Conclusion: Tachosil increased the bursting strength a gastrotomy suture after a rise in the intragastric pressure.

REINFORCEMENT THE HIGH RISK INTESTINAL ANASTOMOSIS: EXPERIMENTAL PILOT STUDY

D. Sierra Barbosa, J. Dziaková, I. Sánchez Egido, J. Mayol Martínez

Servicio de Cirugía General I, Hospital Clínico San Carlos, Madrid

Objective: The aim of our study is to evaluate the sealing effect, two component fibrin glue and synthetic hydrogel on intestinal healing.

Methods: A prospective randomized study in which we studied 10 pigs, were operated, we sectioned the terminal ileum. All hand-sewn end-to-end anastomoses were performed, leaving an orifice of 18French in the suture line. Animal were randomized to the application of a synthetic sealant (group I) or fibrin sealant (group II) on the defect and the suture line, We remove the anastomosis for histological examination 7 days after.

Results: Histologically, the inflammatory response was similar in both groups. The continuity of the mucosa layer was similar in both groups (2/5 v 2/5, NS). Epithelial inclusions were found in (1/5 vs.3/5). $p=0.26$. Regarding the gene expression of collagen type I and type III were no statistically significant differences in the presence of hydroxyproline in the samples studied.

Conclusion: It is a viable model and both componets could be useful in incompetent anastomosis. Further studies are needed to understand the role of these products in preventing anastomotic leaks.

COLORECTAL CANCER SURVIVAL IN THE HEALTH AREA OF LEÓN (SPAIN)

M. Vallejo Pascual¹, M. Diago Santamaría², M. Mures Quintana³, A. Turienzo Frade², A. García Gallego¹

¹Universidad de León, Economía y Estadística (área de Estadística e I.O.), ²Complejo Asistencial Universitario de León (CAULE), Cirugía General y del Aparato Digestivo, ³Universidad de León, Economía y Estadística (área Estadística e I.O.)

Introduction: Colon adenocarcinoma is becoming a common disease in recent years. In Spain, annual incidence reaches 25.8 for men and 15.8 for women out of 100,000 inhabitants.

Objective: Determination of the relationship between pathological diagnostic criteria and survival over five years in colon adenocarcinoma patients

Method: Statistical Description of 458 patients surgically treated during the period 2000–2002 and monitored up to December 2009. For different levels of gender and age, the Logistic Regression is used to analyse the influence of several anatomo-pathological variables on the *exitus* or not of the patient

Results and conclusion: There are more male patients than female (60.3% vs. 39.7%); most of the patients are over 60 years (84.5%). The tumor location (right or left colon), the level of differentiation (low, medium, high), or its mucosecretor nature, are not identified as relevant variables. Basically, long-term survival depends on the occurrence or not of metastasis.

BIODEGRADABLE-POLYMER BIOLIMUS ELUTING STENTS SHOW BETTER RESULTS THAN PERMANENT-POLYMER PACLITAXEL ELUTING STENTS IN A PRECLINICAL CORONARY MODEL

Armando Perez de Prado, Claudia Perez-Martinez, Carlos Cuellas-Ramon, Jose M. Gonzalo-Orden, Alejandro Diego-Nieto, Marta Regueiro-Purriños, Maria Lopez-Benito, Jose M. Ajenjo-Silverio, Felipe Fernandez-Vazquez

Fundacion Investigacion Sanitaria en Leon, HemoLeon. Leon, Spain

New drug eluting stents (DES) have shown a high efficacy in restenosis prevention with reduced rates of stent thrombosis when compared with first-generation DES as result of better healing response.

To compare the results of different DES, 9 bare metal stents (BMS), 9 permanent-polymer paclitaxel eluting stents (PES) and 9 biodegradable-polymer biolimus eluting stents (BES) were tested in young domestic swine. After 28 days, we measured the %restenosis by angiography and histology, the endothelium-dependent vasomotor response and the functional endothelialisation rate (eNOS+ endothelial cells).

Both DES show lower angiographic %restenosis than BMS: BES 3%, PES 15%, BMS 34%; $p < 0.006$. BES show lower histologic %restenosis (23%) than PES (36%) or BMS (37%), $p < 0.05$. Vasomotor response and functional endothelialisation are significantly ($p < 0.04$) better in BES or BMS than in PES.

In conclusion, BES show the highest antiproliferative effect. BES show a vascular healing pattern similar to BMS, significantly better than PES.

IMMEDIATE VASCULAR INJURY AFTER STENT IMPLANTATION IN A NORMAL CORONARY SWINE MODEL: CHARACTERIZATION AND PREDICTIVE FACTORS

Armando Perez de Prado, Claudia Perez-Martinez, Carlos Cuellas-Ramon, Jose M. Gonzalo-Orden, Alejandro Diego-Nieto, Marta Regueiro-Purriños, Maria Lopez-Benito, Jose M. Ajenjo-Silverio, Felipe Fernandez-Vazquez

Fundacion Investigacion Sanitaria en Leon, HemoLeon. Leon, Spain

The most established model of restenosis is based on the overstretch of a normal artery. The integrity of internal elastic lamina (IEL) and amount of compression of the media are critical predictors of the induced restenosis.

To analyze the immediate vascular injury, 25 oversized stents were implanted in young domestic swine. Injury score was assessed assigning Score 0, IEL intact with media compression $< 50\%$ (Score 0A) or $\geq 50\%$ (Score 0B); and Score 1, IEL lacerated.

Among 117 struts analyzed, none of them showed Injury Score 1 and only 23 (19.7% showed Injury Score 0B). The predictors of greater injury were: extreme stent sizes (2.5 and 4.5 mm diameter vs. the rest, $p < 0.005$) and cross-section shape of the struts (circular vs. square, $p = 0.023$).

In conclusion, immediate vascular injury is significantly lower than that described in longer follow-up studies. Stents with circular cross-sectional struts may induce higher immediate injury.

DIFFERENCES BETWEEN PREDICTED AND MAXIMAL DIAMETERS OF COBALT-CHROMIUM STENTS: STENT RECOIL OR ARTERIAL RESTRICTION TO FULL EXPANSION?

Armando Perez de Prado, Claudia Perez-Martinez, Carlos Cuellas-Ramon, Jose M. Gonzalo-Orden, Alejandro Diego-Nieto, Marta Regueiro-Purriños, Maria Lopez-Benito, Jose M. Ajenjo-Silverio, Felipe Fernandez-Vazquez

Fundacion Investigacion Sanitaria en Leon, HemoLeon. Leon, Spain

Often, coronary stents do not achieve the maximal, theoretical, predicted size. The use of Cobalt-Chromium stents (CCS) bolsters this point because of alloy-intrinsic recoil.

To analyze the recoil of different CCS we implanted 25 CCS in young domestic swine. Off-line vessel diameters were measured in basal, balloon inflation and final states.

Final diameter was slightly smaller than balloon diameter (stent recoil $4.1 \pm 3.2\%$) but notably smaller than predicted value (arterial restriction $11.8 \pm 7\%$). Neither the vessel or stent size nor the stent brand showed any influence on the final results. However, those stents implanted at distal showed higher differences (arterial restriction 15.5 ± 8 vs. $9.4 \pm 5\%$, $p = 0.03$).

In conclusion, the stents analyzed showed values of stent recoil equivalent to those described in vitro ($\approx 5\%$) but the difference with theoretical diameter was more than twice. Even normal, elastic, arteries oppose a restriction to the full expansion with a mean value of 0.45 mm.

CORONARY VASOMOTOR DYSFUNCTION IS NOT FULLY EXPLAINED BY THE REDUCED ENDOTHELIAL NITRIC OXIDE SYNTHASE (ENOS) ACTIVITY AFTER DRUG ELUTING STENT IMPLANTATION

Armando Perez de Prado, Claudia Perez-Martinez, Carlos Cuellas-Ramon, Jose M. Gonzalo-Orden, Alejandro Diego-Nieto, Marta Regueiro-Purriños, Maria Lopez-Benito, Jose M. Ajenjo-Silverio, Felipe Fernandez-Vazquez

Fundacion Investigacion Sanitaria en Leon, HemoLeon. Leon, Spain

Drug eluting stents have been associated with abnormal vasomotor response to Acetylcholine and an immature endothelium showing reduced expression of endothelial nitric oxide synthase (eNOS).

We implanted 18 bare metal stents (BMS), 18 paclitaxel eluting stents (PES), 9 simvastatin + paclitaxel eluting stents (SpES) and 9 biolimus eluting stents (BES) in domestic, young swine. The relationship between eNOS expression and the vasomotor response was assessed at 28 days.

The vasomotor responses were significantly different ($p < 0.04$) among stents: change in diameter vs. basal, BMS +3%, PES -7%, SpES +1%, BES +6%. The eNOS expression were also significantly different ($p < 0.0001$) among groups: BMS 88%, PES 78%, SpES 76%, BES 94%. A weak correlation was found between the vasomotor response and the eNOS+ expression (r^2 0.23, $p = 0.003$).

In conclusion, the association between histological and vasomotor findings is very weak, raising the chance of different causal mechanisms other than eNOS reduced activity.

PRIMARY TUMORS OF THE LACRIMAL SAC. A CASE OF PSEUDODACRYOCYSTITIS

Á. Toribio-García¹, B. Martín-Escuer¹, P. Casas-Rodera²

¹*Department of Ophthalmology, University Hospital, Leon, Spain*

²*Department of Otorhinolaryngology, University Hospital, Leon, Spain*

Introduction: infections of lacrimal sac can be sometimes confused with tumours.

Methods: 84-year-old male was referred for left eye dacryocystitis with failure of antibiotic treatment over the last four months. A subcutaneous mass of 4 cm in diameter, protruding, erythematous and hard consistency was noted. Orbital computed tomography (CT) revealed a lacrimal sac mass that destroyed the medial wall and floor of the orbit and infiltrated the medial rectus muscle. A fine needle aspiration showed a small cell malignant tumor. Immunohistochemistry classified the lesion as "undifferentiated carcinoma with some neuroendocrine features". The bone scintigraphy reported two lesions in bony pelvis suspect for metastases. The patient was diagnosed with small cell carcinoma in extended disease. He died eight months after starting treatment.

Conclusion: Although lacrimal sac tumours are uncommon, they must be considered in dacryocystitis with long-term progression.