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C O N T E N T S

Abstracts of the 34th Panhellenic Congress of Surgery

- Gastric Juice: Novel considerations for personalized approach
in gastric cancer field?** 7
Gerasimia Kyrochristou, Ioanninis Sainis, Vasileios Chatzis, Christina Bali,
Michail Mitsis, Konstantinos Vlachos, Georgios Lianos
- Laparoscopic vs open bilateral inguinal hernia repair:
A prospective non-randomized study** 8
Chrstina Kolla, Christos Doudakmanis, Bouliaris Konstantinos,
Mathaios Eftimiou, Georgios Koukoulis
- FixNip™: Nipple–Areola complex reconstruction —
A novel technique** 9
Panagiota Koutra, Dimitrios Varvaras, Athanasios Papatzelos, Vinicio De Felice,
Federico Frusone, Stefano Tardioli, Ioannis Koutelidakis, Vasileios Papaziogas
- Women in surgery: Current status of barriers, bias and patients' perceptions
in Greece and Cyprus. Research protocol presentation** 10
Maria Drogouti, Christina Dalla, Silvana Perretta,
Iva Tzvetanova, Dimitrios Ntourakis
- Minimally invasive surgical treatment of pancreatic pseudocysts
and necrotic collections following pancreatitis:
A systematic review of the literature** 11
Evangelia Papadopoulou, Maria Fanaki, Ervin Nazari, Ilias Ginosatis,
Eleni Andriopoulou, Maria Halasti, Athanasios Kourakos, Panagiotis Stefanidis,
Emmanouil Kritikos, Dimitrios Dimitroulis
- Development of a versatile, adaptable
and multifunctional surgical training module** 12
Konstantinos Georgiou, David Hananel, Robert M. Sweet
- Development of a novel Virtual Reality simulation training curriculum
for laparoscopic inguinal hernia repair** 13
Charalampos Charalampous, Panagis Lykoudis, Orestis Lyros, Panagiotis Kokoropoulos,
Spyridon Christodoulou, Theodoros Sidiropoulos, Nikolaos Danias, Nikolaos Arkadopoulos
-



ISSN: 0018-0092 | e-ISSN: 1868-8845

The role of minimally invasive surgery in malignant neoplasms of the adrenal cortex	14
Konstantinos Pateas, Chrysanthi Aggeli, Vasileios Theocharidis, Nektarios Kikas, Christos Pahis, Dimitrios Kapnias, Vasiliki Moustakaki, Athanasia Syrmopoulou, Akrivi Kostopoulou, Dimitrios Bouklas, Sofia Moutafidou, Ifigeneia Grigoriadou, Dimitrios Sambanis, Georgios N Zografos	
Preliminary results of the PICO-STAR study: The use of Single-Use Negative Pressure Wound Therapy (sNPWT) dressings after stoma closure procedures offers perioperative safety, high patient satisfaction, and low surgical site infection rates	15
Orestis Ioannidis, Elissavet Anestiadou, Eirini Gemousakaki, Aliko Brenta, Thomai Gamali, Dimitra Athanasiou, Andreas Thomopoulos, Savvas Symeonidis, Stefanos Bitsianis, Efsthios Kotidis, Manousos-Georgios Pramateftakis, Ioannis Mantzoros, Stamatios Angelopoulos	
An alternative approach using intraoperative ultrasound and preoperative endoscopic tattoo marking in three patients with Non-Metastatic Pancreatic Insulinoma	16
Konstantinos Polyzois, Michail Psarologos, Panagiotis Metaxas, Maria Iliopoulou, Eleni Raka, Despina Iordanidi, Maria Sotiropoulou, Fotios Seretis, Vasileios Drakopoulos, Stylianos Kapiris	
Neuroendocrine tumors as incidental findings in gastrointestinal surgical specimens	17
Afroditi Kotarela, Panagiota Kiriakidou, Christina Nikolaou, Nikolaos Bakalis, Maria Valtou, Maria-Melina Karaivanof, Zoi Tatsiou, Ioannis Triantafillidis	
Small Intestinal Tumors: Histopathological findings of enterectomy specimens. A ten-year experience from a tertiary surgical center in Greece and Review of the Literature	18
Panagiotis Theodoropoulos, Georgios Floros, Georgios Giannos, Konstantinos Toutouzas, Christos Kontovounisios	
ICG-Guided lymph node mapping in colorectal cancer: Application experience and Review of International Literature	19
Eustratios Kouroumpas, Theodora Choratta, Spyros Vrakas, Katerina Neokleous, Konstantina Spyridaki, Dimitra Ntrikou, Mihalios Lazaris, Melina Papalexandraki, Panayiotis Dikeakos, Christos Iordanou, Kassiani Manoloudaki, Konstantina Katopodi, Georgios Agiomamitis	



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C O N T E N T S

Establishing the bilateral resection of polycystic kidneys before transplantation: A transplant unit's experience	20
Maria Christou, Nikos Dimitrokallis, Aikaterini Polimerou, Aikaterini N. Papadogianni, Maria Rizou, Aggeliki-Eleutheria E. Skoufi, Spyridon Dritsas, Nikos Roukounakis, Vasilis Vougas	
The role of biofeedback therapy in the treatment of functional disorders of the large intestine: Our clinical experience	21
Manousos George Pramateftakis, Noula Karastergiou, Christos Tepelidis, Orestis Ioannidis, Savvas Simeonidis, Aliko Mprenta, Stamatis Aggelopoulos	
Communication and interpersonal relationship challenges in the Emergency Department (ED)	22
Christos Simoglou, Fotios Kodonas, Euterpe Varada, Victor Popko, Eliina Karsiliadou, Eleni Kiriazati, Athanasios Kabouris	
Anti-Xa levels as an indicator of thromboprophylaxis effectiveness after metabolic bariatric surgery	23
Athanasios G. Pantelis, Efrosyni Merkouri, Evangelos Poppis, Oreanthi Travlou, Dimitris P. Lapatsanis	



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Gastric Juice: Novel considerations for personalized approach in gastric cancer field?

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Michail Mitsis¹, Konstantinos Vlachos¹, Georgios Lianos¹

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Aim: A biomarker is defined as a quantitatively and objectively measurable indicator of a biological or pathogenic process, or a pharmacological response of a disease to a given treatment. Our aim is to present a prospective study being conducted in our Department, which includes patients diagnosed with gastric malignancy, along with a literature review concerning gastric juice and its role as a reliable “liquid biopsy”.

Methods: Gastric juice is collected at minimal cost and can provide useful information about cancer cells compared to other biological fluids, as it is in direct contact with them. Our study will include 40 patients with gastric cancer, in whom miRNAs will be studied in both the gastric juice and the peritoneal lavage fluid collected intraoperatively following radical gastrectomy. The analysis will be performed using the Polymerase Chain Reaction method, targeting the main miRNAs associated with gastric cancer (miRNA-21, miRNA-133a, miRNA-421, miRNA-106a, miRNA-129), as well as novel miRNAs to be detected using Next Generation Sequencing.

Results: So far, we have collected gastric juice samples from 32 patients with gastric malignancy, as well as from 10 patients who underwent scheduled laparoscopic cholecystectomy (control group). Using spectrophotometry, we observed higher levels of miRNAs in the cancer samples compared to the control group, and also higher levels in patients with inoperable tumors compared to those who underwent gastrectomy.

Conclusions: Gastric juice may serve as a reliable liquid biopsy and an effective tool for prevention, early diagnosis, treatment planning for patients with gastric cancer, and even for predicting recurrence.

Laparoscopic vs open bilateral inguinal hernia repair: A prospective non-randomized study

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Aim: According to international guidelines, a laparoscopic approach may be preferred over an open approach regarding bilateral inguinal hernias. However, there is not enough evidence in the literature to strongly support this claim. Purpose of this study is the comparison of laparoscopic to open repair of bilateral primary inguinal hernias.

Methods: Our study is a prospective non-randomized study, conducted between 2018-2022. We included 113 consecutive patients with bilateral primary inguinal hernias who were operated on at the Department of Surgery of the General Hospital of Larissa, using either a laparoscopic or an open approach. We recorded age, method of repair, days of hospitalization, post operative urinary retention, complications and postoperative pain. At 1-year follow up, we recorded chronic pain, recurrences, and grade of satisfaction.

Results: TAPP was conducted in 37 patients and a Lichtenstein open approach in 76. Urinary retention after 8 hours was higher in the open approach (16,2% vs 47,4%, $p < 0,05$). Pain was lower in the first 6 hours post-operatively in patients who were treated with an open approach, but did not differ between the two groups after this time point. 2,5% of patients with laparoscopic approach and 5% in open surgery referred symptoms in inguinal area 1-year after surgery. In total 7 patients presented with recurrence, 3 in the laparoscopic group and 4 in the open. Grade of satisfaction was 9/10 in the open group and 9.7/10 in the laparoscopic.

Conclusion: Our findings suggest than laparoscopic approach may not be superior to open surgery, apart from post operative urinary retention rates.

FixNip™: Nipple–Areola complex reconstruction — A novel technique

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Aim: Reconstruction of the nipple–areola complex (NAC) represents the final stage of breast reconstruction after mastectomy, contributing to breast symmetry, aesthetic completeness, and the psychosocial well-being of patients. Although many techniques have been described for NAC reconstruction, the gradual loss of projection over time remains the main challenge. The purpose of this study is to present a new, simple, and fast technique for NAC reconstruction using the biocompatible FixNip NRI™ implant, specifically designed for the long-term maintenance of nipple projection.

Methods: The technique was applied to 15 female patients, with a mean age of 40 years (range 30–56), who underwent skin-sparing or skin-reducing mastectomy and immediate breast reconstruction with a silicone implant between January and December 2024, after completing adjuvant therapy. Preoperatively, the position of the new NAC was determined and marked. Under local anesthesia, a small incision was made at the lower border of the new NAC, and the FixNip™ NRI implant was inserted. Three months later, all patients underwent tattooing of the areola.

Results: A total of 16 NAC reconstructions with the FixNip implant were performed in 15 patients: 14 unilateral and 1 bilateral. No major complications such as hematoma, infection, or necrosis were observed. Nipple projection was maintained in all patients without recurrence, with gradual improvement over time. The mean follow-up period was 7 months (range 1–11 months).

Conclusions: NAC reconstruction using the FixNip™ NRI implant is a safe and fast technique that provides excellent clinical outcomes. Nipple projection and anatomical support were preserved, and patients reported high satisfaction and improvement in their overall body image.

Women in surgery: Current status of barriers, bias and patients' perceptions in Greece and Cyprus. Research protocol presentation

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Introduction: The history of women in Surgery has been marked by numerous challenges and obstacles. While some progress has been made, gender bias still pervades the field of Surgery. The percentage of women students in Medical Schools is systematically rising; however, women are underrepresented in General Surgery, particularly in leadership and academia. Lack of mentors, incompatibility with motherhood, gender pay gap, workplace discrimination and patients' perceptions are some of the documented barriers experienced by female surgeons across all ranks, globally. In Greece and Cyprus, official data and research work are scarce. This study aims to elucidate the underreported challenges met by female surgeons in the two Grecophone countries.

Methodology: The dissertation is designed as a mixed – methodology (qualitative and quantitative) study and includes four sub – studies: 1. A PRISMA guided systematic review of the literature. 2. A demographic analysis of the gender distribution in leadership in General Surgery. 3. An interview – based and survey – based (qualitative - quantitative) study, to examine the perceptions of gender bias among certain groups of healthcare professionals, students and trainees. 4. A survey – based study, assessing patients' preferences and perceptions. The research is supported by a scholarship awarded by the EUC through the project supervisor.

Impact & Future Directions: This will be the first study to comprehensively document the underreported gender discrepancies in Surgery in the Grecophone world. As a future direction, targeted interventions will be suggested, and a follow-up longitudinal study will assess the applied modifications toward gender equality in Surgery.

Minimally invasive surgical treatment of pancreatic pseudocysts and necrotic collections following pancreatitis: A systematic review of the literature

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Aim: Pancreatic pseudocysts and walled-off necrotic collections may complicate the clinical course of pancreatitis and require specific intervention. Although endoscopic drainage is currently the mainstay of treatment, laparoscopic methods of internal drainage offer a comparable alternative. Our objective is to investigate the efficacy of laparoscopic internal drainage techniques in the management of pancreatic pseudocysts.

Methods: After systematic research of the PubMed and Google Scholar databases, 16 observational studies and 1 randomized controlled trial were retrieved reporting on 488 patients undergoing laparoscopic internal drainage of peripancreatic collections following pancreatitis between 2002 and 2022. Primary outcomes were resolution of collection and recurrence, whereas secondary outcomes were the need for conversion to open surgery, the need for repeat intervention after recurrence or residual collection, the occurrence of postoperative complications and length of hospital stay.

Results: 456 out of 488 patients were treated successfully with an overall success rate of 93.4%. Mean conversion rate was 5.1% and mean recurrence rate was 1.7%. Repeat intervention was necessary in 3.7% of cases. Mean length of hospital stay was 3.6 days. Overall adverse events were estimated at approximately 10% of cases with no reported procedure-related mortality.

Conclusion: The existing literature supports the effectiveness and safety of laparoscopic internal drainage procedures for the management of pancreatic pseudocysts and walled-off necrotic collections. Whether this approach could surpass endoscopic modalities in terms of minimal invasiveness and clinical success remains to be clarified by future research based on more randomized trials.

Development of a versatile, adaptable and multifunctional surgical training module

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Introduction: Skills acquired using simulators minimize likelihood of complications and enhance outcomes for surgical patients. Despite progress, existing training models remain limited, don't offer adaptability, realism or meaningful feedback.

Objective: The design, construction and evaluation of a flexible, adaptable training model that can provide: 1.Multi-purpose functionality, 2.Cover wide range of difficulty, 3.Allows changes, angle adjustments, direction, positions adapting to various skill levels and scenarios, 4.To be used standalone and in combination with existing training platforms: tabletop-open surgery, box trainer(FLS)-laparoscopic, dome trainer-robotics, 5.Assessment of suture/knot quality. Manufactured with commercial materials and at low cost.

Methods: Designed with SolidWorks3D, consists of a metal articulated base with 3-degrees of freedom and 2-different frames. After testing, a suture pad was constructed from multiple-layers of silicone with different densities, colors to mimic appearance and tactile feel of tissues and 2 mesh were incorporated. Care taken to reproduce resistance to the force applied as realistically possible. Series of suturing patterns engraved for suturing practice. Additionally, an original technical evaluation method was applied using hidden mesh that illuminates under black light (BLAST). Care taken to ensure that the system could be integrated into all types of simulators.

Results: The model's ability to be used at different angles, flexibility of use with different simulator platforms, and satisfaction of novice and experienced users were recorded as highly satisfactory.

Conclusions: This is a practical, flexible, adaptable and multifunctional training model, suitable for all levels of learning and types of surgical suturing.

Development of a novel Virtual Reality simulation training curriculum for laparoscopic inguinal hernia repair

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Aim: Advances in modalities such as Virtual Reality (VR) laparoscopic simulators, have led to their widespread implementation in surgical training. Platforms vary, offering basic skills honing and even segmented procedures practice. For one of the most common operations performed, laparoscopic inguinal hernia repair, a structured training curriculum can be developed and shorten the actual learning curve. Practicing in a risk-free environment, prior to theatre performance, is a crucial aspect of safe and effective training.

Methods: The development of the program will include an arm of ten expert surgeons and an arm of thirty novice general surgery residents, performing a group of three tasks at a single Simulation Center. Analysis of their performance will be used to test Face and Construct validity of the program. Data acquired will also be assessed based on "Messick's framework".

Results: Data from the development will be analyzed to formulate the preliminary curriculum. Success baseline will be defined according to expert's performance data and will be adjusted to novices' level (± 2 SD). A Delphi consensus will also be conducted to formulate final curriculum parameters.

Conclusion: Technological evolution is reshaping medical education and VR simulators are transformative in surgical skill acquisition. Therefore, evidence-based curricula are necessary to utilize their full potential. They can contribute to skill acquisition at a predetermined level of proficiency, before progression to more challenging cases, as well as objectively evaluate trainees. Such validated curricula will result in more efficient competence development and retention, while ultimately contributing to better patient outcomes.

The role of minimally invasive surgery in malignant neoplasms of the adrenal cortex

Konstantinos Pateas¹, Chrysanthi Aggeli¹, Vasileios Theocharidis¹, Nektarios Kikas¹, Christos Pahis¹, Dimitrios Kapnias¹, Vasiliki Moustakaki¹, Athanasia Syrmopoulou¹, Akrivi Kostopoulou², Dimitrios Bouklas², Sofia Moutafidou³, Ifigeneia Grigoriadou³, Dimitrios Sambanis¹, Georgios N Zografos¹

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Introduction: Adrenocortical carcinoma is a rare and aggressive tumor, characterized by its large size, the potential for invasion of adjacent vessels or tissues, and the high risk of recurrence even after radical (R0) resection.

Methods: We present the results of the surgical management of 80 cases of adrenocortical carcinoma from a series of 1,320 adrenalectomies. Thirty-one adrenalectomies were performed laparoscopically and two using a retroperitoneoscopic approach. There were seven conversions from laparoscopic to open surgery, while 42 cases were approached with open surgery from the start.

Results: In all cases—both open and minimally invasive—oncologic surgical principles were strictly followed. The goal of every operation was radical tumor resection, including en bloc removal of the tumor with perirenal fat and, when necessary, en bloc resection of adjacent organs in cases of local invasion. Particular care was taken to avoid tumor fragmentation, with aspiration of the pneumoperitoneum and specimen retrieval in an endoscopic bag. Suspicious lymph nodes were excised when present, in both open and laparoscopic approaches. The main prognostic factors were tumor size, p53 expression, and Weiss score > 5.

Conclusions: Radical resection remains the main prognostic factor for adrenocortical carcinoma. Minimally invasive surgery is indicated in selected cases, provided that there is sufficient expertise in these advanced techniques.

Preliminary results of the PICO-STAR study: The use of Single-Use Negative Pressure Wound Therapy (sNPWT) dressings after stoma closure procedures offers perioperative safety, high patient satisfaction, and low surgical site infection rates

Orestis Ioannidis, Elissavet Anestiadou, Eirini Gemousakaki, Alikì Brenta, Thomai Gamali, Dimitra Athanasiou, Andreas Thomopoulos, Savvas Symeonidis, Stefanos Bitsianis, Efstathios Kotidis, Manousos-Georgios Pramateftakis, Ioannis Mantzoros, Stamatios Angelopoulos

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Aim: Stoma closure procedures are often associated with high rates of surgical site infections (SSIs). The use of single-use negative pressure wound therapy (sNPWT) dressings has been proposed as a prophylactic measure to reduce the incidence of SSIs. However, its use following stoma closure remains limited. This study presents the preliminary results of applying a single-use negative pressure wound therapy device (PICO™) on primarily closed wounds after stoma closure, conducted between April 2023 and June 2025.

Methods: The PICO-STAR study is a prospective, single-center cohort study conducted at the 4th Department of Surgery, Aristotle University of Thessaloniki, at "G. Papanikolaou" General Hospital. Patients who underwent ileostomy or colostomy closure with primary skin closure were treated with PICO™ applied immediately post-operatively. Subgroup analyses were performed for ileostomy and colostomy closure. The primary endpoint was the 30-day SSI rate, while secondary endpoints included rates of wound dehiscence, seroma/hematoma formation, length of hospital stay, and patient satisfaction.

Results: During the study period, 26 patients were included: 16 underwent ileostomy closure and 10 underwent colostomy closure. Two patients (7.7%) developed superficial SSIs. No deep or intra-abdominal infections were observed. Wound dehiscence occurred in 2 patients (7.7%), and seroma/hematoma formation was reported in 3 patients (11.5%). The mean length of hospital stay was 5.2 days, with no readmissions related to the surgical wound. Patient satisfaction was high in both subgroups.

Conclusions: These preliminary findings suggest that prophylactic use of sNPWT is well tolerated and may contribute to reducing wound-related complications following stoma closure.

An alternative approach using intraoperative ultrasound and preoperative endoscopic tattoo marking in three patients with Non-Metastatic Pancreatic Insulinoma

Konstantinos Polyzois, Michail Psarologos, Panagiotis Metaxas, Maria Iliopoulou, Eleni Raka, Despina Iordanidi, Maria Sotiropoulou, Fotios Seretis, Vasileios Drakopoulos, Stylianos Kapiris

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Aim: Insulinomas are rare functional pancreatic neuroendocrine tumors characterized by autonomous insulin secretion and recurrent hypoglycemia. Accurate preoperative localization is essential for successful surgical resection. This study aims to present an alternative localization technique combining preoperative endoscopic tattoo marking and intraoperative ultrasound in three patients with solitary, non-metastatic pancreatic insulinomas.

Methods: Three female patients presenting with symptomatic hypoglycemia and solitary pancreatic lesions underwent endoscopic ultrasound (EUS) for tissue sampling and preoperative tattoo marking of the closest tumor margins using sterile ink. Lesions measured 1.2 cm in the pancreatic body close to the main pancreatic duct, 1.4 cm in the tail near the splenic hilum, and 1.5 cm at the body–tail junction adjacent to the splenic artery. All patients subsequently underwent distal pancreatectomy with splenectomy.

Results: Tumor localization was confirmed intraoperatively by palpation and intraoperative ultrasound. The operative times were 243, 186, and 190 minutes, respectively. Postoperative recovery was uneventful, with discharge on postoperative days 5, 6, and 8. Histopathology confirmed R0 resection of insulin-producing pancreatic neuroendocrine tumors (pNET G2), staged as pT1N0, pT2N0, and pT1N0, respectively.

Conclusion: Despite technological advances, precise localization of insulinomas remains challenging. The combination of preoperative endoscopic tattooing and intraoperative ultrasound offers a safe and effective approach for accurate tumor identification and resection. Close multidisciplinary collaboration is essential to optimize surgical outcomes.

Neuroendocrine tumors as incidental findings in gastrointestinal surgical specimens

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Purpose: The aim of this study is to present the frequency, localization and management of NETs incidentally identified in specimens obtained from gastrointestinal surgical procedures.

Material and Methods: We retrospectively reviewed all gastrointestinal surgical specimens obtained from operations performed in our department during the period from January 2022 to July 2025. Specimens from 14 patients who underwent 4 laparoscopic and 1 open appendectomy, 1 subtotal colectomy, 3 extended right hemicolectomies, 2 segmental enterectomies, 1 low anterior resection, 1 total gastrectomy, and 1 distal pancreatectomy with splenectomy, were included in our study.

Results: A total of 14 NETs were identified: 6 of the appendix, 4 of the small intestine, 1 of the colon at the proximal anastomotic ring, 1 mixed carcinoma of the cecum, 2 microfoci of neuroendocrine differentiation in a specimen of total gastrectomy, and 1 pancreatic neuroendocrine microadenoma. Eight tumors were classified as G1, four as G2 and two as G3. In all cases, the surgical margins were free of tumor infiltration. One patient required a supplementary colectomy with an uncomplicated postoperative course. No patient received adjuvant therapy for the NET.

Conclusions: The incidental identification of NETs in specimens of gastrointestinal surgeries is not uncommon, with its most frequent location in the appendix. Systematic and thorough histopathological examination of surgical specimens remains critical for the detection of subclinical lesions, while the prognosis is favorable when complete resection with negative margins is obtained.

Small Intestinal Tumors: Histopathological findings of enterectomy specimens. A ten-year experience from a tertiary surgical center in Greece and Review of the Literature

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Aim: Small intestine tumors represent ~3% of gastrointestinal neoplasms which are usually associated with delayed diagnosis, necessitating heightened clinical awareness and improved diagnostics. This study investigated the prevalence, characteristics, and clinical presentation of small intestine tumors in patients undergoing enterectomy.

Methods: A retrospective study was conducted at the 2nd Surgical Department of "Evaggelismos" General Hospital of Athens including patients who underwent primarily emergency enterectomy during 2014–2024. All relevant pathology reports were evaluated and statistical analysis was performed using IBM SPSS Statistics Version 26. Our findings were also compared to a literature review for the period 2000–2025.

Results: Most patients (58.1% male, mean age: 63 years) underwent enterectomy for obstruction (37.1%) or incidental tumor detection (29%). The mean resection length and mean tumor size were 30.1 and 5.7 cm, respectively. Malignancy was detected in 79% of cases, with lymph node metastases in 25% and pT4 staging in 42.9%. Histological types included gastrointestinal stromal tumors (21%), metastatic tumors (17.7%), neuroendocrine tumors (14.5%), lymphomas (9.7%), and adenocarcinomas (9.7%). R0 resection was achieved in 88.1% of the cases. Procedures were mostly emergency-based in patients with advanced disease at diagnosis.

Conclusions: Small intestine tumors are rare, often presenting late tumors. Our findings align with the current literature, confirming the predominance of malignancy and emergency presentations in cases of small intestine tumors. Early diagnosis and tailored surgical management could improve outcomes.

ICG-Guided lymph node mapping in colorectal cancer: Application experience and Review of International Literature

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Aim: Colorectal cancer is one of the most common malignancies worldwide and a leading cause of cancer-related mortality. Accurate staging depends on the identification and resection of regional lymph nodes, yet optimal visualization methods remain uncertain. The use of indocyanine green (ICG) combined with near-infrared (NIR) fluorescence imaging has emerged as an innovative technique for intraoperative lymphatic mapping, contributing to precise staging and improved management of patients with colorectal cancer.

This presentation reports intraoperative outcomes of ICG-guided lymph node mapping in colorectal cancer surgery with literature review.

Methods: A systematic literature review was conducted to identify studies on lymph node mapping using preoperative endoscopic submucosal injection of ICG up to October 2025. The technique was subsequently applied to patients with sigmoid or upper rectal tumors. On the day of surgery, endoscopic submucosal ICG injection was performed at three tumor–margin sites. The operations were carried out laparoscopically with intermittent use of the NIR mode.

Results: The technique was applied to three patients with preoperative staging up to T2N0 (September–October 2025). During laparoscopic surgery, the lymphatic network draining the tumor was visualized using NIR. Standard oncologic surgical planes were followed, and fluorescence mapping confirmed lymph node inclusion within the resected specimen. Post-resection NIR inspection showed no residual lymph nodes. Correlation of intraoperative findings with histopathological analysis is pending.

Conclusion: The use of indocyanine green fluorescence in colorectal cancer surgery represents a promising advancement, enhancing lymph node detection and staging accuracy. Further research is essential to assess this method and its impact on oncological outcomes.

Establishing the bilateral resection of polycystic kidneys before transplantation: A transplant unit's experience

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Aim: Polycystic kidney disease (PKD) is a common cause of chronic renal failure. Patients often present with enlarged kidneys, making transplantation more difficult due to limited retroperitoneal space and mechanical pressure on the graft, as well as with complications of the disease. The management of PKD before transplantation is controversial due to the absence of specific guidelines. We present our unit's experience with the establishment of bilateral nephrectomy in patients with PKD as a routine procedure.

Methods: We retrospectively studied the cases of 25 patients who, during the aforementioned period, underwent nephrectomy for the treatment of PKD, analyzing postoperative complications

Results: The mean age of patients was 53 years, 60% were male and on hemodialysis for an average of 6 years. The maximum diameter of the kidneys ranged from 16 to 41 cm. Symptomatic PKD is reported in 32% of cases. 84% of patients underwent planned bilateral nephrectomy. The majority of patients had a smooth course, while according to the Clavien-Dindo classification complications greater than grade 2 were recorded in 11.5%, with zero mortality. All patients remained on the transplant list without affecting their physical condition or degree of hypersensitivity.

Conclusions: In our study, the vast majority of patients underwent planned bilateral nephrectomy to avoid future complications related to the retention of the kidneys, with low rates of postoperative complications, comparable to data in the international literature for unilateral or emergency nephrectomy. Therefore, we consider the strategy of pre-emptive bilateral nephrectomy a useful and safe option for patients with PKD.

The role of biofeedback therapy in the treatment of functional disorders of the large intestine: Our clinical experience

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Aim: To present our clinical experience with patients diagnosed with fecal incontinence who were treated with biofeedback therapy performed by a specialized pelvic floor physiotherapist, and to evaluate its effectiveness in symptom improvement.

Methods: During the study period, 12 patients with fecal incontinence were selected for biofeedback therapy following appropriate clinical and laboratory evaluation. Each underwent 12 sessions of physiotherapy and biofeedback, conducted at intervals of 15–20 days. Two validated incontinence scoring systems were used before and after the treatment to assess outcomes.

Results: Ten patients demonstrated a clear improvement in symptoms, with a reduction of more than four points in the incontinence scores. Two patients discontinued the protocol after the fifth session due to incompatibility with personal schedules. No complications or adverse effects related to biofeedback therapy were observed.

Conclusion: Biofeedback therapy is an effective and noninvasive treatment for patients with fecal incontinence or other functional bowel disorders. It contributes to significant symptom improvement and enhanced quality of life. Careful clinical and imaging evaluation is essential to identify those patients who will benefit most from this therapeutic approach.

Communication and interpersonal relationship challenges in the Emergency Department (ED)

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Introduction: The Emergency Department (ED) is characterized by high time pressure, significant responsibility, and elevated stress levels. These conditions often hinder smooth communication and interpersonal relationships among healthcare professionals, as well as interactions with patients and their families. Effective communication in this high-pressure environment is crucial for patient safety, quality of care, and the overall functioning of the ED team.

Aim: This study aims to investigate the main communication and interpersonal challenges in the ED and to identify strategies that can enhance collaboration, reduce conflicts, and improve patient care quality.

Materials & Methods: A comprehensive literature review was conducted alongside observational data collected from ED settings. Factors influencing communication were identified, including unclear instructions, lack of interprofessional collaboration, staff fatigue, and conflicts arising from urgent decision-making. Strategies examined included active listening, concise information delivery, the use of standardized communication protocols (e.g., SBAR), team-based training, and simulation exercises.

Results: Key challenges identified were:

- Ambiguity in instructions and communication between different professional specialties.
- Staff fatigue and professional burnout.
- Conflicts caused by pressure for immediate decisions.
- Difficulties communicating with emotionally distressed patients and accompanying relatives.

Implementation of structured communication strategies, active listening, concise information exchange, standardized protocols, and teamwork-focused training reduced misunderstandings, mitigated conflicts, and improved overall care efficiency and quality.

Conclusions: Enhancing communication and interpersonal relationships in the ED is not merely a matter of professional culture but a critical determinant of patient safety, team effectiveness, and staff well-being. Developing communication skills, fostering mutual respect, and promoting a supportive team environment contribute to smoother ED operations and optimal patient care.

Anti-Xa levels as an indicator of thromboprophylaxis effectiveness after metabolic bariatric surgery

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Aim: Metabolic bariatric surgery (MBS) is high-risk for deep vein thrombosis (DVT), however there is no consensus regarding the optimal duration, dosing, or choice of anticoagulant. This study aimed to evaluate the effectiveness of individualized tinzaparin dosing based on body weight (BW) through the measurement of anti-Xa levels.

Methods: In this retrospective analysis of prospectively collected data, tinzaparin dosing was determined according to BW following a predefined institutional protocol (Figure 1). Anti-Xa levels were measured on POD 3, four hours after tinzaparin administration (normal range 0.08-0.30 IU/mL). Patients were categorized into three groups according to BW: Group 1 (<120 kg), Group 2 (121–160 kg), and Group 3 (>160 kg).

Results: A total of 138 patients were included (63.1% female), with a mean age of 42.6 ± 10.7 years, median BW of 133 kg (IQR 46), and median BMI of 45.13 kg/m^2 (IQR 13). No major postoperative bleeding events were recorded. Group 1 included 49 patients (35.5%), Group 2 included 62 (44.9%), and Group 3 included 27 (19.6%). Therapeutic anti-Xa levels were achieved in 28 (57.1%), 56 (90.3%), and 21 (77.8%) patients of Groups 1, 2, and 3, respectively.

Conclusions: The 121-160 kg group achieved the most effective thromboprophylaxis (90.3%). Dose adjustment was required in nine patients due to subtherapeutic levels. Weight-based dosing alone may be inadequate; systematic quantitative monitoring of anti-Xa levels may be necessary to ensure both safety and efficacy in postoperative thromboprophylaxis.



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