

## **SURGICAL EFFICACY AND ASPECTS ADJUSTED TO RESECTION OF FIBROUS TUMOR OF THE PLEURA**

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### **Introduction:**

Solitary fibrous tumor (SFT) is a rare mesenchymal neoplasm with variable anatomical location, unpredictable clinical behavior, and risk of recurrence or dissemination. Although most cases are localized and low-grade, some present aggressive or multifocal features, as in Doege–Potter syndrome. The use of nuclear STAT6 expression has improved diagnostic accuracy in differentiating SFT from other spindle cell tumors.

### **Material and Method:**

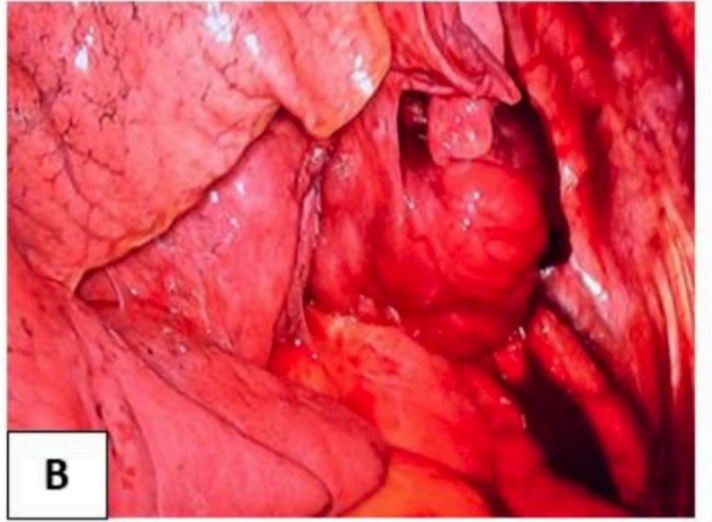
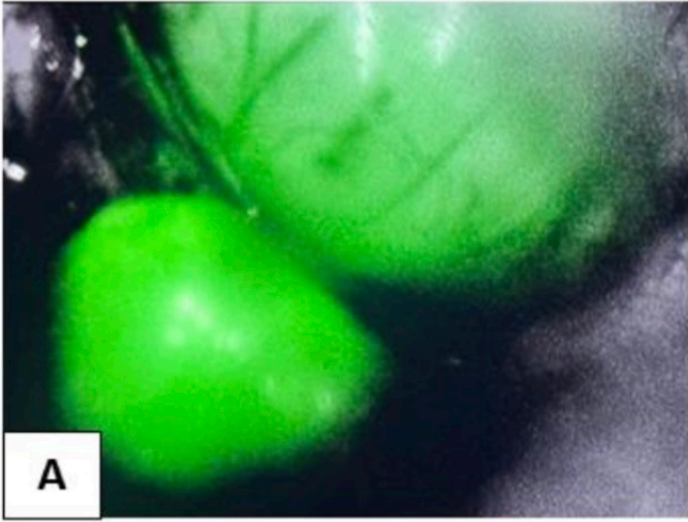
A clinical case series was conducted following CARE recommendations. Three male patients were included with a diagnosis of SFT in different thoracic locations: lingular pleura, left diaphragmatic pleura, and anterior mediastinum (as a recurrence of an IGF2-producing hepatic SFT). The surgical approach, intraoperative findings, histopathological studies, immunohistochemistry, and clinical course were documented in all cases, respecting ethical principles and obtaining verbal consent.

### **Results:**

In case 1, video-assisted thoracoscopic resection of a low-grade pleural SFT was performed, with no complications or recurrence at six months. In case 2, a left thoracotomy was performed with resection of a high-grade infiltrating SFT (Ki-67 10%), with mild postoperative subcutaneous emphysema. The patient remains under multidisciplinary surveillance.

### **Conclusion:**

These cases demonstrate the clinical and anatomical variability of SFT, as well as the importance of an individualized surgical approach. Long-term follow-up is essential to detect recurrences and manage complications, given the unpredictable nature of these tumors



## PERICARDIAL STERNAL FISTULA: SUBXIPHOID THORACOSCOPIC APPROACH

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### **Introduction:**

Cutaneo pericardial and sternal pericardial fistula It may be associated to osteomyelitis of the sternum either as a primary condition or secondary to median thoracotomy after cardiac surgery. Deep sternal wound infections appear as a complication in 0.2 to 4.4% of cases

### **Material and Method:**

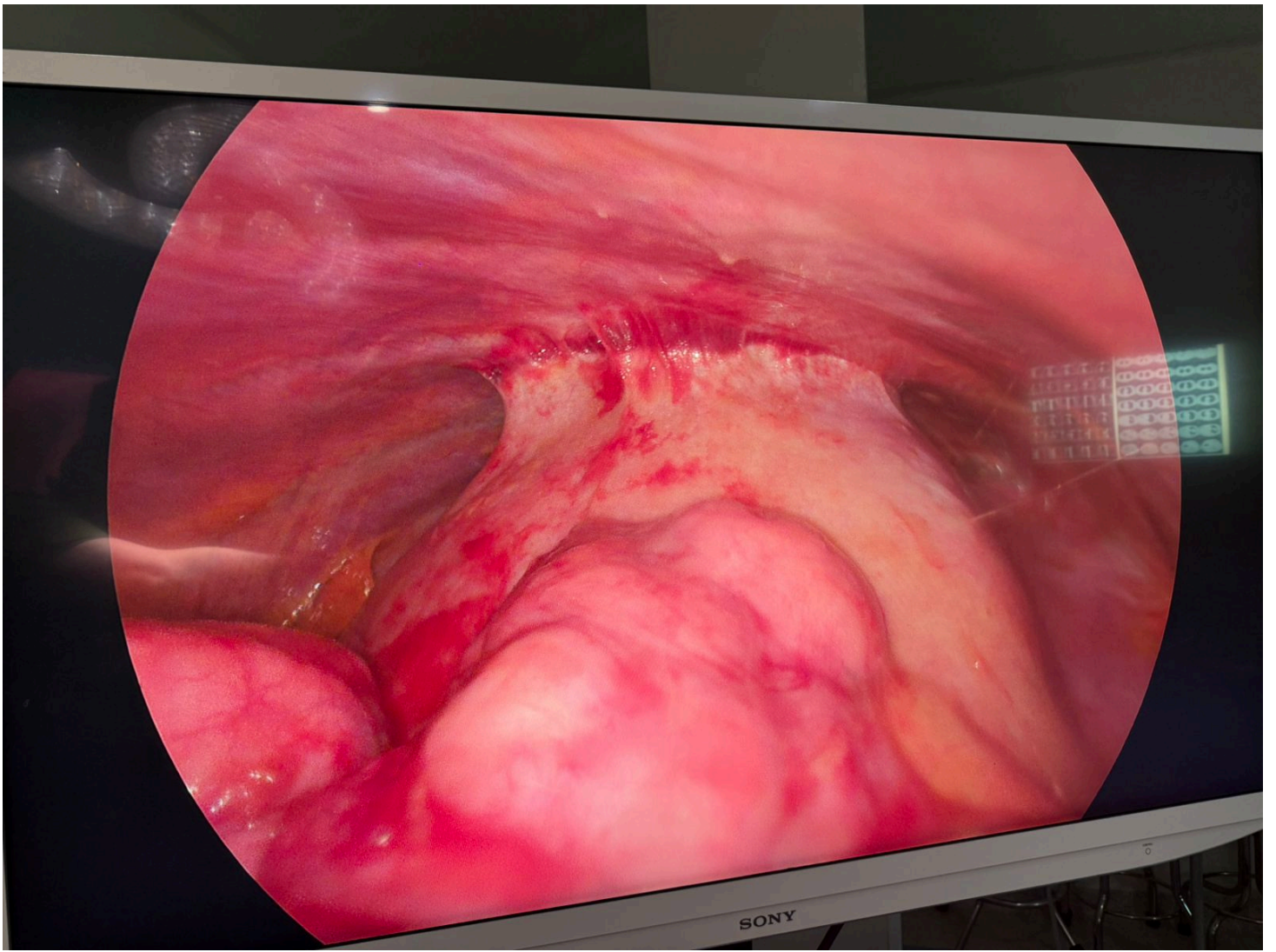
Male from 7th decade of life history of diabetes and hypertension. coronary artery disease that required surgery for revascularization. He went to the outpatient clinic due to the leakage of dark liquid fetid material through a skin defect at the sternum. CT reported fistulous defects with communication of the mediastinum, pericardium towards the sternum with data of osteomyelitis that affects both laminae of the sternum and sternocostal joint. Prior to surgery management with infectology was performed

### **Results:**

Thoracoscopic assisted surgery to remove the complete infected sternal bone. the fistula site that began in the epicardium, which was resected with repair with vascular suture, partial sternotomy and resection of affected joints. Mesh and rotation of pectoral muscles were placed as well as drains with passive suction. culture by gram-negative that improved with local drainage, local lavage and systemic antibiotic

### **Conclusion:**

Pericardial Sternal fistula should be assumed and ruled out in anyone with a recent history of cardiac or mediastinal surgery and a cutaneous effusion with or without osteomyelitis, signs of sepsis, pneumomediastinum, pneumopericardium, or chest pain



## **INTRAOPERATIVE NEUROMONITORING: ADVANCING PRECISION AND NEUROPROTECTION IN CARDIOTHORACIC SURGERY**

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### **Introduction:**

Intraoperative neuromonitoring (IONM), a cornerstone of neurosurgery, is emerging as a vital tool in cardiothoracic surgery for mitigating neurological risks in procedures like aortic arch repair and coronary artery bypass grafting (CABG). This narrative review explores IONM's underutilized potential to enhance patient safety by detecting stroke and neurological complications.

### **Material and Method:**

Literature from 2018–2024 was reviewed, including STS National Database studies, *Annals of Thoracic Surgery*, and *Journal of Cardiothoracic and Vascular Anesthesia*. Focus areas included IONM applications (somatosensory evoked potentials [SSEP] and electroencephalography [EEG]) in thoracic aortic surgery and CABG. Outcomes assessed were stroke incidence, neurological deficit rates, and intraoperative interventions. Data were sourced from peer-reviewed journals and AATS/STS proceedings.

### **Results:**

A 2023 study reported significant IONM changes (EEG/SSEP) in aortic arch surgery predicted adverse neurological outcomes (10.9% vs. 2.9%,  $p=0.008$ ), enabling real-time interventions like perfusion adjustments (*Annals of Thoracic Surgery*). In CABG, IONM detected cerebral ischemia in 23.7% of non-stroke cases, with permanent EEG changes linked to higher stroke risk (18.2% vs. 5.3%,  $p=0.006$ ). Only 3.1% of 19,299 coronary/valve surgeries (2010–2021) used IONM, reflecting barriers like cost and lack of standardized protocols (*Open Heart*, 2024). Interdisciplinary collaboration with neurosurgery enhances outcomes but is limited.

### **Conclusion:**

IONM offers transformative potential in cardiothoracic surgery, enabling early detection and mitigation of neurological risks. Limited adoption and protocol variability hinder its impact. Future directions include cardiothoracic-specific IONM guidelines and AI-enhanced monitoring, bridging neurosurgery and cardiothoracic practice for safer surgeries.

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## TRANSCATHETER VALVE THERAPIES: A DECADE OF CARDIOTHORACIC INNOVATION AND FUTURE PROMISE

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### Introduction:

Transcatheter aortic and mitral valve therapies (TAVR/TMVR) have redefined cardiothoracic surgery, offering less invasive alternatives to open procedures. This narrative review synthesizes a decade of evidence to explore their long-term impact and evolving role in personalized cardiac care.

### Material and Method:

We reviewed literature from 2015–2024, including PARTNER trial data, STS/ACC TVT Registry reports, and TMVR studies. Focus areas encompassed patient selection, procedural success, valve durability, and quality of life (QoL) outcomes. Data were sourced from peer-reviewed journals and cardiothoracic conference proceedings.

### Results:

PARTNER 3 trial data (2020–2024) show TAVR achieves 5-year mortality equivalence to surgical aortic valve replacement in low-risk patients (8.5% vs. 9.2%,  $p=0.41$ ), with shorter recovery (3 vs. 7 days hospitalization). TMVR, per COAPT trial follow-ups, reduces heart failure readmissions by 30% in functional mitral regurgitation ( $p<0.01$ ). QoL improves significantly post-TAVR, with KCCQ scores rising by 22 points at 1 year. However, valve durability remains a concern, with 10% of TAVR valves showing degeneration by 8 years. Patient selection, particularly frailty and comorbidity assessment, critically influences outcomes.

### Conclusion:

Transcatheter valve therapies have revolutionized cardiothoracic surgery, delivering comparable outcomes with reduced invasiveness across diverse populations. Challenges include ensuring valve longevity and refining selection criteria. Innovations like bioresorbable valves and AI-driven risk stratification herald a future of precision-driven care, solidifying transcatheter approaches as cornerstones of modern cardiothoracic practice.

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## NOVEL AORTIC VALVE LEAFLET RECONSTRUCTION GUIDED BY 3D-VR ANALYSIS

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### **Introduction:**

Aortic valve reconstruction using three same-sized leaflets have been performed for strictly selected patients. We evaluated the aortic root using novel 3D workstation to establish this procedure as reproducible technique. We followed up hemodynamic data to clarify the durability of this technique.

### **Material and Method:**

Basic technique: 1) Autologous or bovine pericardium were tailored using unique templates based on STJ diameters. 2) Each leaflet was sutured to the aortic annuls following to additional root adjustments when 3DVR analysis revealed abnormality of the aortic root. 3) Coaptation stitch was place on each commissure. All candidates had preoperative cardiac CT and VR analysis was applied for cases with unbalanced aortic root. All patients were followed up by ultrasound cardiography every one year after the surgery.

### **Results:**

Since 2016, we had 54 cases, which were 5 bicuspid aortic valve and 7 acute active endocarditis. We performed additional Valsalva Procedures in 12 patients. Five of them were Bicuspid cases. One redo AVR due to leaflet perforation. The longest follow up period was 8.7 years, resulting No IE, No AR or structural problems with mean PG of 11.7mmHg.

### **Conclusion:**

This technique has possibility to provide a simple and reproducible procedure that allows anatomical physiologic correction of the aortic root. VR image analysis was useful to decide surgical plan for difficult cases.

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## **INDOCYISTINE GREEN LYMPHANGIOGRAPHY FOR IDENTIFICATION OF THORACIC DUCT LEAK**

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### **Introduction:**

The management of postoperative chylothorax in patients with adenocarcinoma can be challenging due to the anatomical variability of the thoracic duct. Indocyanine green (ICG) is a tool for intraoperative CT mapping and complication prevention. ICG allows identification of the thoracic duct in up to 93% of cases, with a significant reduction in the incidence of postoperative injuries or leaks compared to procedures without this guide. A dose of 0.05 to 0.5 mg/kg is administered to the inguinal lymph nodes or subcutaneous tissue of the inguinal region 30 minutes to 1 hour before the procedure for proper visualization.

### **Material and Method:**

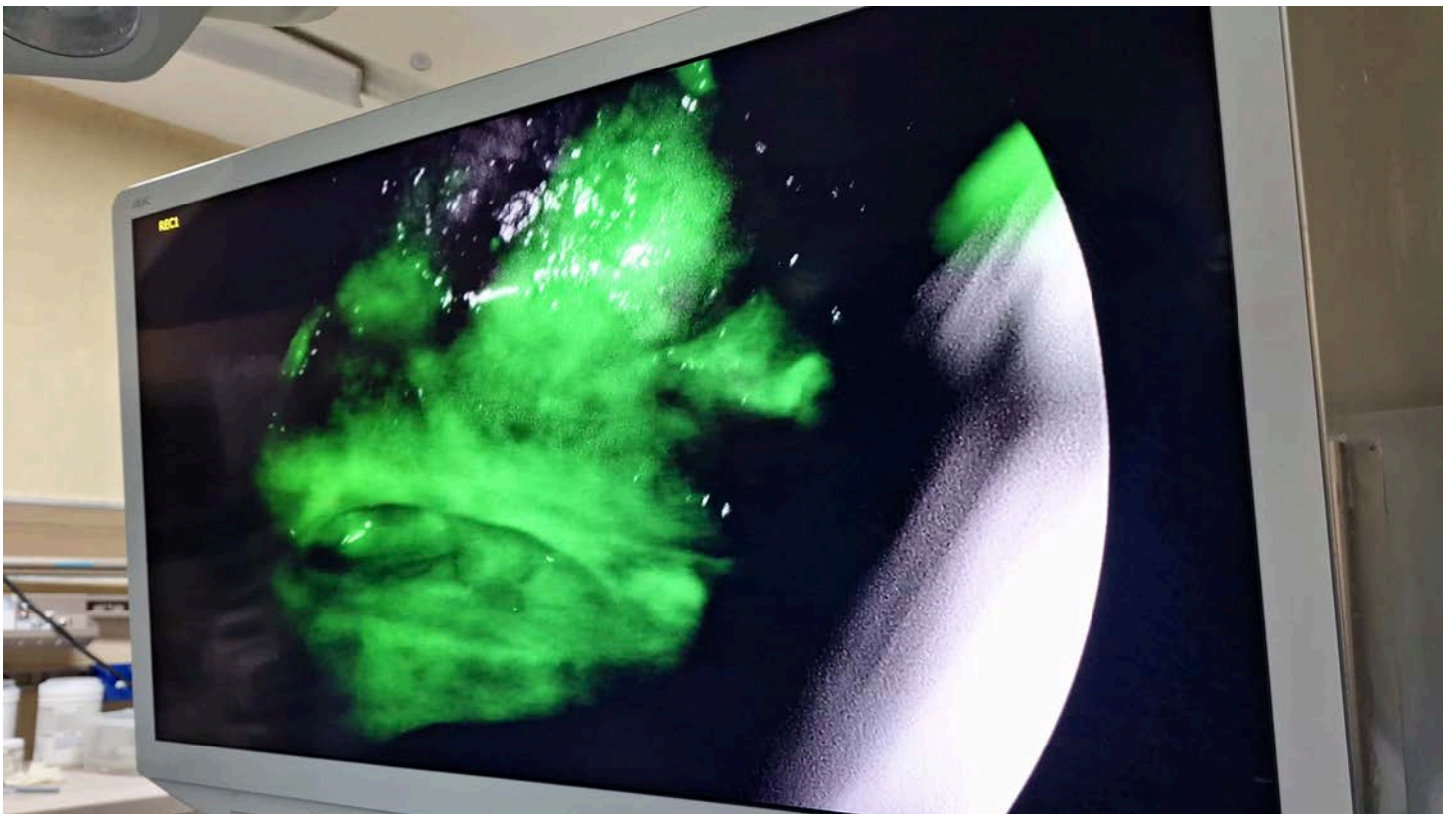
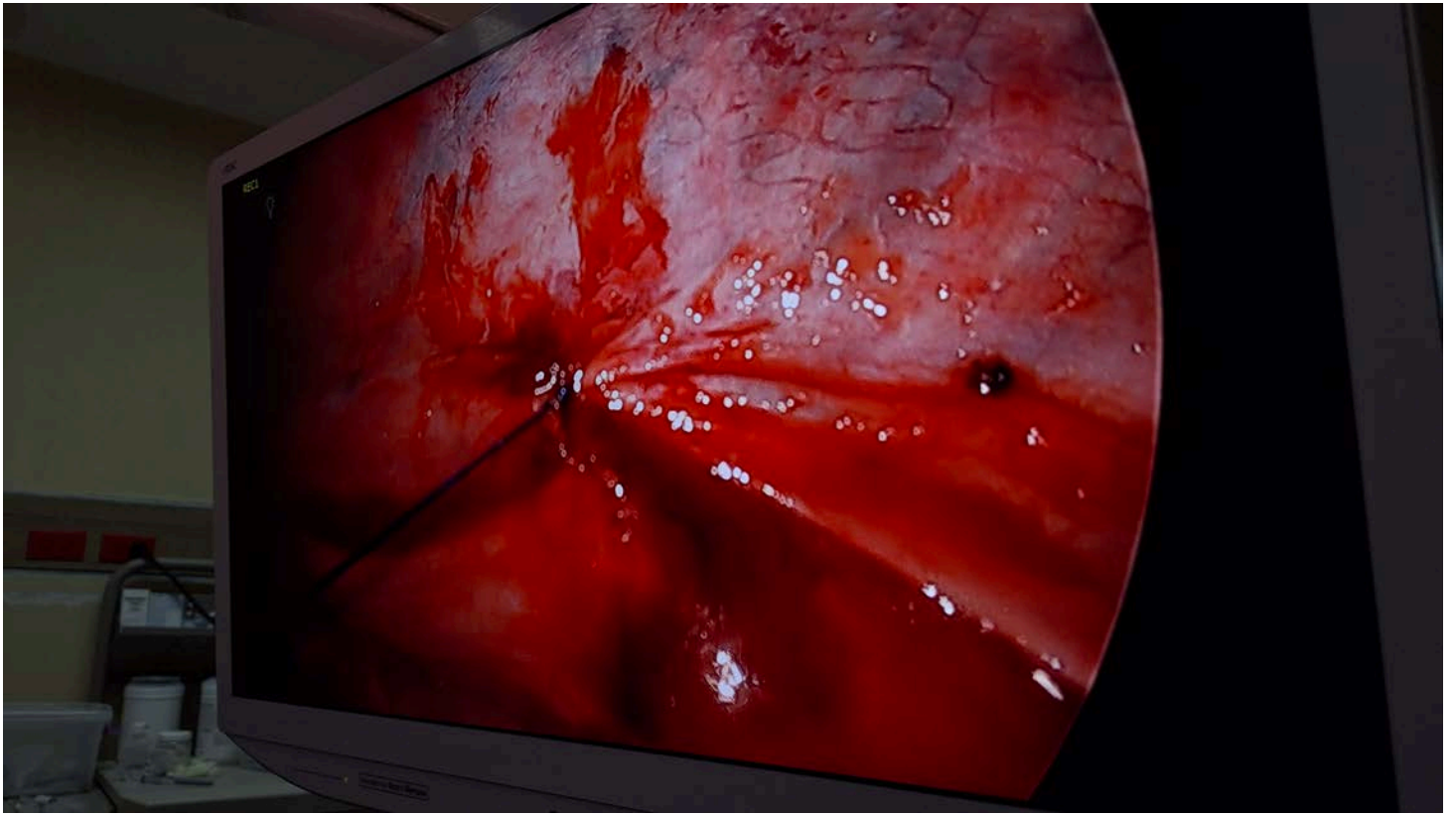
A 68-year-old male was diagnosed with poorly differentiated acinar lung adenocarcinoma with a lepidic pattern, ILV (+), and invasion through air spaces. Postoperatively, a right chylothorax was seen, confirmed by lymphangiography, which showed contrast medium leakage from aberrant branches near station 7 of the mediastinal lymph nodes.

### **Results:**

Unresponsive to conservative management, the patient was scheduled for video-assisted thoracoscopy, lung clearance, drainage of the right pleural effusion, and thoracic duct ligation with indocyanine green. 5 ml of a 1 mg/ml solution was administered into the right inguinal lymph node.

### **Conclusion:**

The fluorescence provided by ICG facilitates precise ligation, even in complex anatomical situations. Clinical evidence supports its usefulness, showing a 0% postoperative complication rate in ICG-guided patients, compared to more than 12% in control groups.



## **EVALUATION OF 4 PREOPERATIVE LABORATORY MARKERS FOR IDENTIFICATION OF NUTRITIONAL ASPECTS IN THORACIC SURGERY COMPLICATIONS**

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### **Introduction:**

Surgeries for thoracic infections. have an intense inflammatory response that could negatively influence the postoperative outcomes. Obtain preoperative laboratory marker could help to identify patients at risk and improve the perioperative management.

### **Material and Method:**

retrospective analysis. 61 patients 24-hour preoperative laboratory evaluation was obtained in all the patients. We retrospectively calculated four indexes: Prognostic nutritional index, Neutrophile-to-lymphocyte ratio, Platelet-to-lymphocyte ratio, Platelet-to-neutrophile ratio. We performed a ROC curve, Youden's index, Patients were divided in two groups, those with a high risk of poor postoperative outcomes and those with a low risk, based on the optimal cut-off value from each index. Chi-square and Fisher's exact tests

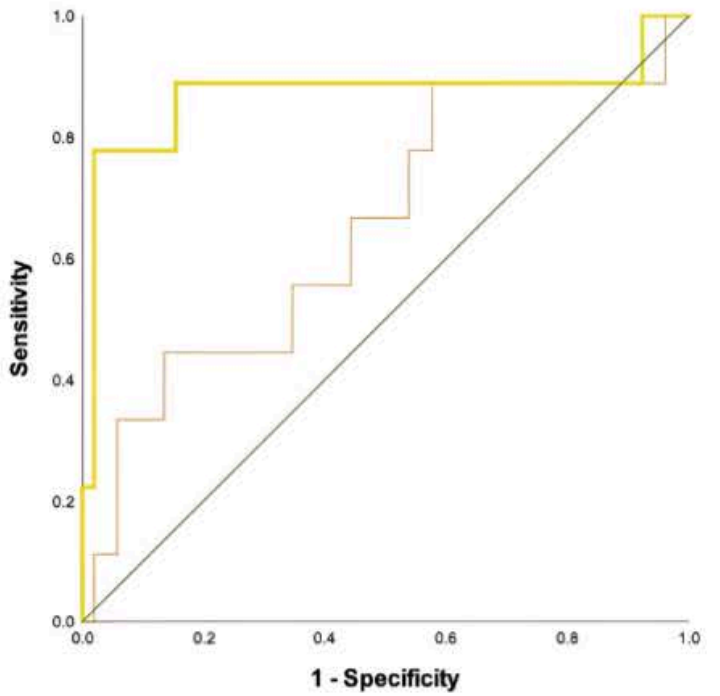
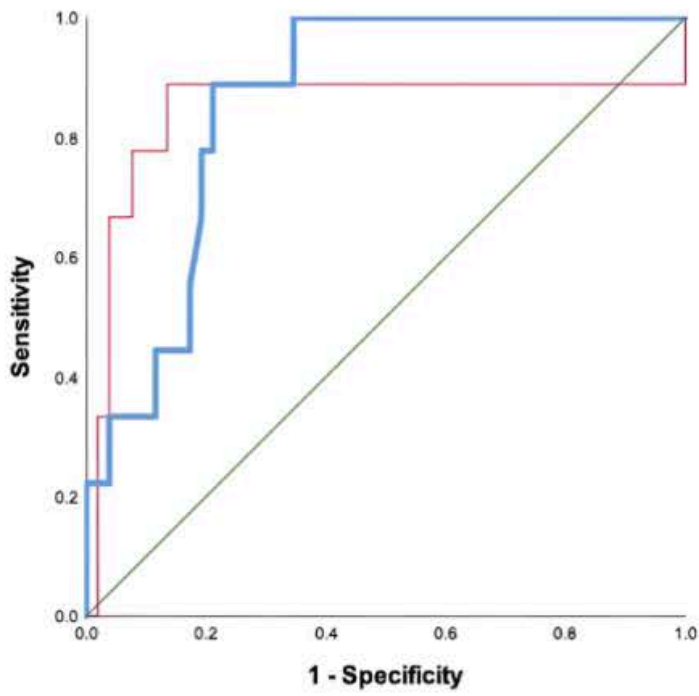
### **Results:**

The PNI, NLR and PNR had a great performance in the ROC curve analysis for the prediction of 30-day mortality and major complications (AUC 0.860  $p=0.001$ , 0.870  $p<0.001$ , 0.846  $p=0.001$ , while PLR had not (AUC 0.652  $p=0.149$ ). In the comparison by groups, the PNI  $<28.35$ , NLR  $>7.81$  and PNR  $<37.21$  were associated with greater 30-day postoperative mortality ( $p=0.002$ , OR 13.04,  $p<0.001$ , OR 44,  $p<0.001$ , OR 51.4 and major complications ( $p<0.001$ , OR 8.75,  $p<0.001$ , OR 8.8,  $p=0.003$ , OR 7.2. In the univariable analysis, only the PNI, NLR and PNR were statistically significant predictors of 30-day postoperative mortality, Chi-square and Fisher's exact tests were performed to compare results between groups

### **Conclusion:**

The PNI, NLR and PNR are good predictors for 30-day postoperative mortality and major complications. the detection of patients at high risk for poor postoperative outcomes, improve the perioperative care for this population.

### ROC Curve Analysis



#### Source of the Curve

- Prognostic nutritional index
- Platelet-to-neutrophil ratio
- Neutrophile-to-lymphocyte ratio
- Platelet-to-lymphocyte ratio
- Reference Line



## **CURRENT STATE OF BILATERAL UPPER EXTREMITY TRANSPLANTATION IN MEXICO: ALL THE CASES AND PERSPECTIVES.**

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### **Introduction:**

Since 2010, Mexico has had three Bilateral Upper Extremity Transplants (BUETs), all of them performed under the leadership of Dr. Martin Iglesias Morales, pioneer of Vascularized Composite Allotransplants (VCAs) in Latin America.

### **Material and Method:**

In this work, we present the the mexican BUET program's evolution through the years, as well as the current state of the transplanted patients, and the future strategies of the program.

### **Results:**

The first patient undergoing a BUET, a 17 y/o female, was a surgical success but ended in sudden death due to malpractice in thymoglobulin administration. In 2012, a 51 y/o male with bilateral proximal limb amputation became the second BUET patient, and the first patient of the team in accomplishing 13 years living with his new arms. The third BUET was made in 2015 on a 51 y/o male that suffered High-Tension Electrical Burns (HTEB), whom suffered surgical humerus neck amputation on the right arm and transhumeral amputation on the left arm. This patient became the first full arm transplantation patient in the world and currently preserves his new, transplanted arms after 9 years of the procedure. In 2016, we received a new candidate for BUET, a young female patient with bilateral arm amputation (BAA) due to HTEB.

### **Conclusion:**

Disability due to BAA remains a significant public health concern. Therefore, we conclude that despite the many challenges involved, BUETs represent a viable option to improve life quality in amputated patients, with promising long term results that impact both physical and mental health.





11A



11B



11C



11D



11E