SUPPLEMENT

ABSTRACTS OF THE SPCCTV 4D VISIONS 2024

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THORACIC SURGERY

3D MODEL FOR CHEST WALL RECONSTRUCTION – UTILITY SURVEY

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Keywords: *3D model; chest wall; reconstruction;*

INTRODUCTION

Three-dimensional (3D) models contributed to many improvements in surgical planning, presenting irrefutable advantages in many fields and may play a relevant role in chest wall reconstruction surgeries.

This study aims to evaluate the usefulness of 3D models in cases of chest wall reconstruction and included all thoracic surgeons and residents, practicing in the Iberian Peninsula and Latin America. Participants were asked to complete an online survey questionnaire, written in Portuguese and Spanish to facilitate participant engagement. Multiple choice questions and Likert scales were used. The dissemination of the questionnaire was made through the respective national scientific societies. Mann–Whitney U test was used to access the differences between the opinion of the group of surgeons with experience with these models and the expectation of the unexperienced group.

A total of 145 answers were gathered from 15 different countries. Most respondents were male (76.6%). The most participating countries were Brazil (34.5%), Argentina (16.6%) and Spain (15.9%). Regarding differentiation, residents were the least participating group. Most respondents had never performed thoracic wall reconstruction surgeries using a rigid prosthesis with 3D patient-specific planning (64.8% vs. 35.2%). Most consensus was obtained regarding the positive contribution of a 3D model for preoperative communication with the patient (69% strongly agreed), improvement in preoperative planning (64.1% strongly agreed), and its positive role in training of less experienced surgeons (59% strongly agreed). A tendency for neutral opinion was observed regarding its impact in avoidance of perioperative complications. Regarding 3D printing of a physical model, 74.8% agreed or strongly agreed that it is advantageous in comparison with a digital model, and 72.8% agreed or strongly agreed that it is advantageous for all candidates considered for chest wall reconstruction with rigid prothesis.

Regarding significant differences between groups, surgeons without experience with 3D models value significantly more than those with experience their contribution for a more precise preoperative planning ($p=0.036$), planning of surgery duration ($p=0.008$), and consider 3D printed models to be advantageous for all candidates to chest wall reconstruction surgery ($p=0.028$). On the other hand, experienced surgeons find higher similarities between intraoperative findings and those reproduced by the 3D model than expected by the other group ($p=0.038$).

The gathered data evidence that 3D patient-specific models are not accessible to most surgeons but the overall opinion on their usefulness is very positive. Printed models seem to be advantageous over digital ones, and beneficial for all patients undergoing chest wall reconstruction surgery.

A RETROSPECTIVE ANALYSIS ON LEVEL OF SUCTION IN DIGITAL DRAINAGE DEVICES AFTER VIDEO-ASSISTED LOBECTOMY IN A THORACIC SURGERY CENTRE

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Keywords: *VATS lobectomy; Chest tube; Prolonged air leak;*

INTRODUCTION

There is no consensus on the management of chest tubes after video-assisted thoracoscopic (VATS) lobectomy and the level of suction applied varies between centres. A Danish randomized controlled trial published in 2018 by Bo Laksáfoss Holbek et al concluded that low suction of

AIMS

A retrospective analysis of the patients that underwent thoracic drainage with a digital device after VATS lobectomy for lung cancer between January 2023 to September 2024 in Unidade Local de Saúde de São João was performed. Data was collected from medical records. A comparison between standard suction of -15cmH2O with low suction of

RESULTS AND CONCLUSION

120 patients were included in this cohort (59 with low suction of -2cmH20 and 61 with standard suction of -15cmH2O). The median age was 68 years. For the -2cmH20 and the -15cmH2O groups, median of drainage duration was 2.0 days [Interquartile range (IQR) 2.0-5.0] and 4.0 days [IQR 2.0-6.0] (p=0.125) and hospital stay was 3.0 days [IQR 2.0-5.0] and 4.0 days [IQR 2.0-7.0] (p=0.104), respectively. Incidence of prolonged air leak (beyond the fifth postoperative day) was 20.3% and 24.6%. No significant difference was found between suction level and readmissions (p=0.111) or complications (p=0.943). Adjusting for lung function, patients with a standard suction of -15cmH2O had a reduced 70.4% [OR=0.296, CI95% 0.093-0.944, p=0.04) chance of developing subcutaneous emphysema and a reduced 75.9% [OR=0.241, CI95% 0.07-0.83, p=0.025] chance of developing subcutaneous emphysema with the need for intervention. Patients with Chronic Obstructive Pulmonary Disease (COPD) had longer drainage duration (p=0.042) and hospital stay (p=0.032) and a 6.431 times higher likelihood of complications (p=0.013) compared to those without COPD.

In this cohort of patients, the level of suction on digital drainage devices was not associated with shortened drainage duration or hospital stay. Low suction of

PROMS: HOW DOES A THORACIC SURGERY AFFECT THE PATIENT'S QUALITY OF LIFE?

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Keywords: *Quality of Life; Thoracic Surgery; Patient Reported Outcomes;*

INTRODUCTION

Assessing quality of life (QoL) as long been a goal and today several generic and lung cancer specific questionnaires are available.

For early-stage lung cancer, surgery remains the gold standard but has greatly changed with minimally invasive and lung sparing techniques.

AIMS

To evaluate the impact of surgery on QoL and the time taken to normalize. To identify surgeries and patients most likely to lose QoL.

METHOD

Unicentric, prospective study of adults submitted to lung resection surgery, from May 1st, 2023, to July 31st, 2024.

Patients filled the EQ-5D-3L, QLQ-C30 and QLQ-LC13 questionnaires before the first appointment, the day before surgery, one and three months after surgery.

RESULTS AND CONCLUSION

A total of 120 patients were included, 74 men and 46 women, with an average age of 67.7 years (SD 8.9) and mean ECOG PS of 0.37 (SD 0.53). 5 pneumonectomies, 74 lobectomies, 17 segmentectomies and 24 wedge resections were performed, 105 through VATS approach.

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Average response rate was 43.9%, with 85% of patients answering preoperative questionnaires, 47% the first postoperative and 23.9% all four.

Considering the EQ-5D-3L and analysing the type of surgery, wedge resections lost the most QoL in the postoperative period. QoL was independent of surgical approach.

QoL was independent of age, with women showing greater increase in QoL between the first and second preoperative appointment.

ECOG PS 2 patients had worse QoL at the beginning, but unlike other patients did not worsen at the second appointment.

For the QLQ-C30, the type of surgery was not relevant, but approach trended towards open surgeries having 10 times greater loss of QoL through the 3-month period.

Similarly, men had 3 times greater loss of QoL.

An analysis of ECOG showed that ECOG PS 2 patients gained QoL.

The QLQ-LC13 showed a trend towards women losing QoL in the postoperative period.

The EQ-5D-3L and QLQ-C30 are generic questionnaires, whilst QLQ-LC13 analyses respiratory symptoms.

So, which to value most?

The answer was made worse by the small sample and poor compliance with protocol at the first postoperative questionnaire, making data interpretation difficult.

The EQ-5D-3L was not useful, with only 2 of 5 variables relating to surgery. The type of surgery was not significant.

Two trends causing loss of QoL emerged: open surgery and men with lower ECOG PS, but these need confirmation by a larger study.

Currently, QoL questionnaires should be used to tailor individual treatment strategies.

THYMECTOMY IN MYASTHENIA GRAVIS: EXPLORING BEYOND SURGERY

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Keywords: *Myasthenia Gravis; Thymectomy; VATS;*

INTRODUCTION

Myasthenia Gravis (MG) is a chronic autoimmune disorder characterized by fluctuating muscle weakness and fatigue. Thymectomy is an effective treatment for patients with or without thymoma, potentially reducing the need for pharmacotherapy and improving quality of life. This study describes the impact of thymectomy in MG management at our institution, focusing on postoperative outcomes and medication adjustments.

METHOD

We conducted a retrospective, single-center analysis of adult MG patients (?18 years) who underwent thymectomy between January 2018 and December 2023. Preoperative and postoperative outcomes, including medication dosage changes and symptom scores, were analyzed. SPSS was used for statistical analysis, including paired t-tests and ANCOVA to adjust for confounding factors.

RESULTS AND CONCLUSION

A total of 24 patients with generalized MG (15 females, median age 49 years ± 16.2) underwent thymectomy. Positive antibodies were identified in 20 patients. Preoperatively, 19 patients received intravenous immunoglobulin. Surgical approaches included VATS (N=15), RATS (N=8), and Clamshell (N=1). One VATS case was converted to sternotomy due to bleeding. Chest tube drainage was required in 19 patients (median drainage time 3 days ± 1.5), and median hospital stay was 3 days ± 6.3. Postoperative complications included diaphragmatic paralysis (N=1) and worsening MG symptoms and heart failure (N=1).

Thymoma was diagnosed in 7 patients (4 classified as pT1aN0M0), all completely excised with two patients receiving adjuvant radiotherapy. Paired sample t-tests showed significant reductions in prednisolone dosage ($p = 0.007$) and MG Composite score (MGS) ($p < 0.001$) post-surgery, while pyridostigmine dose remained unchanged ($p = 0.092$). After adjusting for other immunosuppressors (ISS) modifications (dosage increase or medication switch), these improvements were diminished ($p = 0.248$ for prednisolone, $p = 0.054$ for MGS, $p = 0.318$ for pyridostigmine). Subgroup analysis showed significant MGS improvement in patients younger than 50 years ($p = 0.01$) and those positive for antibodies ($p = 0.021$) when adjusted for ISS modifications.

One patient died approximately two years post-surgery due to hepatic neoplasm. The median follow-up period was 35.7 months ± 17.74.

Thymectomy in MG patients demonstrated symptom improvement, particularly in patients under 50 and those with positive antibodies. The role of ISS modifications highlights the complexity of managing MG, indicating that surgery's benefits in some patients may depend on concurrent treatments. A multidisciplinary approach, including thoracic surgeons and neurologists, is crucial for optimizing care in this complex condition. Further research with larger cohorts is needed to clarify long-term impacts of thymectomy and ISS management.

THYMOMA SURGERY: A 14-YEAR SINGLE CENTER SURVIVAL ANALYSIS

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Keywords: *thymoma; survival;*

INTRODUCTION

Thymic neoplasms are a rare group of tumors with a broad spectrum of histopathological features. Despite their rarity, they are frequently found in thoracic surgery, as complete surgical resection remains the cornerstone of treatment. Effective management requires close collaboration with oncologists and oncoradiologists, as chemotherapy and radiotherapy often play key roles in a multimodal therapeutic approach.

AIMS

We performed a descriptive analysis of thymic neoplasms resected from January 2011 to December 2023, with focus on thymomas. We aimed to analyze DFS and survival for thymomas according to the TNM system classification.

METHOD

Data from patients who underwent surgery for thymic neoplasms from January 2011 to December 2023 were analyzed. Demographic, in-hospital-stay, postoperative staging, adjuvant treatment, recurrences, and survival data were collected. Patients whose surgery aimed at recurrence or metastases, or those who only underwent biopsy, were excluded.

RESULTS AND CONCLUSION

Of the 100 patients that underwent thymic neoplasm resection, 93 had thymomas, with a median age of 65 years (IQR: 54-73) and 51 (54.8%) were females. Pre-operatively 11 patients had diagnosis, and 3 patients received neo-adjuvant chemotherapy.

Procedure was performed through sternotomy in 47 (51%) patients.

Thymomectomy was performed in 24 (26%) patients, thymectomy in 19 (20%) and extended thymectomy in 50 (54%).

Histopathological analysis revealed: 13 (14%) thymomas type A, 24 (26%) type AB, 18 (19%) type B, 3 (3%) type B1/B2, 20 (22%) type B2, 3 (3%) type B2/B3, 10 (11%) type B3 and 2 (2%) other histological types with R0 in 92 (98%).

Regarding TNM staging: 80 (86%) were stage I, 8 (8.6%) stage III, 3 (3.2%) stage IVa and 2 (2.2%) stage IVb.

Median drainage time and length of stay were 2 (IQR: 1-3) and 4 (IQR: 3-6) days, respectively. We report 1 death, 60 days after surgery.

Following surgery, 38 (40%) patients underwent adjuvant treatment.

Analysis showed DFS of 12.21 years (CI95%: 11.75-13.38) in stage I, 6.61 years (CI95%: 3.07-10.14) in stage IIIa, 4.49 years (CI95%: 1.50-7.68) in stage IVb. Overall survival was 12.56 years (CI95%: 11.75-13.38) in stage I, 8.38 years (CI95%: 5.175-11.58) in stage IIIa, 3.30 years (CI95%: 0.79-5.8) in stage IVa and 9.09 years (CI95%: 9.09-9.09) in stage IVb.

Although surgery is the gold standard treatment for thymic neoplasms, multidisciplinary approach is of paramount importance due to its rarity and disease history. Thymic neoplasms have an indolent but not benign evolution and should be monitored for a long period.

AN UNCERTAIN DIAGNOSIS OF A GIANT PULMONARY CYST – A CASE REPORT

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Keywords: *giant pulmonary cyst; hydatic lung cyst; congenital lung cyst;*

INTRODUCTION

Giant pulmonary cysts (GPC) are rare and can be diagnostically challenging due to the broad range of potential conditions that can present similarly. Congenital, infectious or neoplastic etiologies should be considered. An accurate diagnosis is essential for management, although in some cases the etiology remains elusive.

AIMS

Describe a complex case of a GPC, emphasizing its' diagnosis challenges.

METHOD

Retrospective analysis of a case of a GPC.

RESULTS AND CONCLUSION

A previously healthy 24-year-old man presented with cough, dyspnea and fever. A thoracic CT revealed a left GPC with 13.2x14.6x23.3cm, conditioning right mediastinal deviation. An ultrasound confirmed a multiseptated cystic lesion.

The case was discussed with Radiology for percutaneous drainage, but this was discarded due to suspected hydatic cyst, despite negative Echinococcus granulosus serology.

Empirical Albendazole and Piperacillin-tazobactam were started. However, the patient experienced bronchospasm, desaturation, and tachycardia after Piperacillin-tazobactam administration, followed by brownish sputum, but a chest X-ray revealed no air-fluid level. He was urgently submitted to left pulmonary cyst excision via thoracotomy. In an attempt to preserve the capsule integrity, an abocath-guided aspiration was performed, revealing a red-brownish liquid, and then excision of the capsule was possible.

Histopathology revealed a fibrous capsule and cytology revealed no neoplastic cells or microorganisms. Bacteriological analysis identified methicillin-resistant Staphylococcus epidermidis (MRSE), prompting targeted antibiotic therapy. Mycobacterial results were negative.

Infectious Diseases and Internal Medicine ruled out other infectious or autoimmune diseases.

The post-operative period was complicated by prolonged air-leak and persistent signs of infection. Metronidazole was added to cover a possible Entamoeba histolytica infection despite negative serology.

After improvement he was discharged 39 days post-operative remaining asymptomatic during a 4-month follow-up.

Conclusion: The authors highlight the diagnostic challenges associated with GPC. Multiple etiologies were considered, and despite negative serological tests, a presumptive diagnosis of hydatid cyst was made. The episode of bronchospasm/tachycardia followed by cough with brownish sputum raised suspicion for cyst rupture, particularly since Albendazole weakens cyst walls. However, an allergic reaction to Piperacillin- tazobactam could not be excluded.

Although pleuropulmonary amebiasis does not typically present with a single GPC, the resemblance of the

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red-brownish liquid identified intra-operatively to amoebic abscess liquid suggested a possible Entamoeba histolytica infection.

A congenital cyst with MRSE superinfection could also not be disregarded.

The inability to identify the underlying cause underscores the complexity of managing such cases. A thorough approach, including imaging, serological, and microbiological testing is crucial although uncertainty may still remain.

BRONCHOPLASTIC PROCEDURES REVISITED: SURGICAL OUTCOMES IN A HIGH-VOLUME CENTER

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Keywords: *bronchoplasty; sleeve; outcomes;*

INTRODUCTION

Sleeve lobectomy and bronchoplasty are lung-sparing procedures for central airway tumours. Though technically challenging and linked to higher anastomotic complication rates, advances in surgical techniques have reduced these risks, improving outcomes for bronchial malignancy treatments.

The primary endpoints of this study are to analyse our R0 resection and bronchial anastomosis complication rates of bronchoplastic procedures. The secondary endpoints are overall survival (OS) and disease-free survival (DFS).

This retrospective observational study analysed bronchoplastic procedures performed at Pulido Valente Hospital between January 2020 and July 2024. Data was analysed using SPSS software (version 29). OS and DFS were assessed, separately for well differentiated neuroendocrine (NE) tumours and non-small cell lung cancers (NSCLC).

A total of 39 patients (56.4% males; 43.6% females) with a medium age of 56.1 years-old [18-79] were included. 77.8% were non-smokers/former smokers, 22.2% were active smokers, 18.9% reported having chronic pulmonary disease and 15.4% patients received neoadjuvant therapy.

CARINAL RESECTION WITH ECMO SUPPORT: A PATIENT CENTERED MULTIDISCIPLINARY COOPERATION

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Keywords: *carinal resection; ECMO; cystic adenoid carcinoma;*

INTRODUCTION

Carinal resection is a technically demanding surgical procedure. We present our first case of carinal ressection under ECMO support in a clinically complex patient, involving interinstitutional and interdepartment cooperation.

CASE REPORT

A 57 year old male smoker patient was diagnosed with a left main stem bronchus (LMSB), with carinal involvement by cystic adenoid carcinoma. The pre-operative echocardiogram revealed hypocinesia of the middle segment of the interventricular septum and apical segments, and a coronary angiogram revealed severe multivessel coronary disease. A successfull angioplasty of the anterior descending artery and right coronary arteries was achieved.

A right posterolateral thoracotomy was performed after establishing jugulo-femoral access for venous- venous ECMO, revealing an intraluminal LMSB mass.

Tracheal and main stem bronchus dissection was achieved. Transection was done sequentially of the RMSB, trachea and LMSB, with carinal specimen evaluated for margins, and a decision made to resect an additional tracheal ring that was sent for frozen section.

Anastomosis was performed with a 3/0 polypropylene running suture, with construction of a neocarina, and termino-terminal anatomosis to the tracheal stump. After the lung was reinflated and the anastomosis checked for airleaks ECMO support was reduced to a minimum. The patient was extubated in the operating room, remaining for 48h under the surveillance of the ECMO team, being decannulated once an anastomotic complication was excluded.

Final pathology revealed free bronchial and tracheal margins but transmural involvement of the peribronchial fat, so the multidisciplinary thoracic tumor board recommended adjuvant radiotherapy delivered at day 60 in a total dose of 62Gy in 31 fractions.

Endoscopic reevaluation 4 weeks after radiotherapy revealed no stricture of anastomotic line.

METHOD

Carinal resection is a complex surgical intervention, involving central airways management classically with cross-field ventilation and short periods of apneic phases or depending lung jet ventilation with low caliber probes. Several series have been reported of V-V ECMO support with obvious gains in patient safety and team comfort.

Our option for reconstruction was customized for this patient with a carinal and 3 cm resection of the LMSB, from a right thoracotomy approach.

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Transmural involvement was unexpected, but adjuvant radiotherapy confers R1 cystic adenoid carcinoma patients the same prognosis as R0 patients, and so far we did not have any complication at the anastomotic line.

RESULTS AND CONCLUSION

carinal resection is a demanding surgery, but the use of ECMO and team work allowed us to be successful in treating a highly complex patient with good results.

CYST OF HATTORI: A CASE REPORT OF A RARE POSTERIOR MEDIASTINUM CYST WITH MÜLLERIAN DIFFERENTIATION

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Keywords: *cyst of Hattori; Müllerian cyst; Müllerian differentiation;*

INTRODUCTION

Cysts of Hattori (CH) were first reported in 2005. They are benign tumors arising in the posterior paravertebral mediastinum. Patients are usually women in their perimenopausal period. They are mainly asymptomatic but can present with shortness of breath, cough or chest pain. Due to its rarity some can be misdiagnosed as other cystic lesions. Both bronchogenic cysts and CH have ciliated epithelium but the second ones show Müllerian differentiation, thus presenting estrogen receptor (ER), progesterone receptor (PR), PAX-8 and WT1 positivity on immunohistochemistry. Calretinin is usually negative, differentiating them from mesothelial cysts.

To this date there are only 40 cases reported in literature.

CASE REPORT

This study aims to describe the clinical presentation, diagnostic and treatment approach, as well as histopathology findings, of a case of a CH, contributing to the limited literature on this condition.

METHOD

We performed a retrospective analysis of a clinical case of a posterior mediastinum cyst with histopathology confirming a CH.

RESULTS

We present a clinical case of a 48-year-old woman with no relevant past medical history, and with complaints of spinal pain over the years. The patient performed a thoracic CT scan that revealed an oval shaped, homogenous, right paravertebral lesion, at the level of T3-T4, with 10x18mm and an MRI showing a T2 high signal and T1 low signal on the lesion. The patient was submitted to robotic-assisted thorascopic resection of the lesion and was discharged 1 day after.

Histopathology revealed a simple columnar epithelium, with some ciliated cells, morphologically similar to tubal epithelium, with expression of WT1 and PAX8, and negativity for Calretinin, compatible with a Müllerian cyst.

During a 2-month follow-up the patient remained asymptomatic showing no evidence of recurrence.

CONCLUSION

This case report underscores the rarity of CH and the importance of considering it in the differential diagnosis of cystic lesions in the posterior mediastinum.

The origin of these cysts is uncertain. Some suggest they result from müllerianosis, a phenomenon where Müllerian tissue is incorporated into other organs during organogenesis. Others defend that this is unlikely as no embryonic Müllerian structure has been identified in the mediastinum and mediastinal structures are not regarded as part of the secondary Müllerian system.

No cases of CH with malignant transformation were reported, but given the fact that ectopic embryonic tissue can give rise to malignant transformation, timely identification and resection for histopathological confirmation is essential to ensure optimal management.

ENHANCING PEDIATRIC THORACIC SURGERY THROUGH COLLABORATIVE EFFORTS: A 5-YEAR REVIEW FOLLOWING AN INTERINSTITUTIONAL PROTOCOL IMPLEMENTATION

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Keywords: *pediatric surgery; thoracic oncology in children; multidisciplinary approach;*

INTRODUCTION

Children rarely undergo thoracic surgery, especially for oncologic conditions, and the indications often differ from those in adults. Due to the low case volume, a multidisciplinary team involving pediatric and thoracic surgeons can develop tailored treatment strategies, potentially improving outcomes.

AIMS

This retrospective study provides an overview of pediatric patients with lung, mediastinal, and thoracic wall diseases treated since 2019, following the establishment of an inter-institutional protocol between Thoracic and Pediatric Surgery Departments to manage pediatric oncological cases.

METHOD

Perioperative data, including patient demographics, pathology, surgical indications, and outcomes, were analyzed for all patients treated under this protocol, which integrates pediatric and adult thoracic surgeons.

RESULTS AND CONCLUSIONS

A total of 47 surgeries were performed on 39 patients (64.1% male), with a mean age of 10 years (range: 1 month to 17 years). Thirty-seven procedures were oncologic, including 13 for primary tumors (neuroblastoma, teratoma, carcinoid tumors, thyroid medullary cancer, and paraganglioma) and 11 for metastases. Five diagnostic surgeries were conducted, along with 4 for aspergilloma infections, 2 for pleural effusions, and 1 for pneumothorax. Ten patients had surgery for benign conditions: 5 for congenital bronchopulmonary malformations, 2 for mediastinal adenopathy biopsies, 1 for myasthenia gravis, and 2 for recurrent pneumothorax.

Surgical approaches included 19 thoracotomies, 5 sternotomies, and 21 minimally invasive procedures (uniportal video-assisted thoracoscopy, conventional thoracoscopy, and modified Chamberlain mediastinoscopy). Procedures performed included 13 atypical resections, 4 lobectomies, 1 bilobectomy, 1 pneumonectomy, 11 tumor and 4 metastasis resections, 5 diagnostic biopsies, 2 cyst excisions, 1 thymectomy, and 1 bronchopleural fistula correction.

Over half (53.2%) received postoperative monitoring in the intensive care unit, with a median total hospital length of stay of 3 days (range 0-18). Three complications were reported: reintervention for bronchopleural fistula, chest tube placement for hemopneumothorax, and Horner's syndrome after neuroblastoma resection. The 30-day mortality rate was zero.

This study highlights the diversity of thoracic surgical interventions in pediatric patients and underscores the value of multidisciplinary collaboration in pediatric thoracic surgery, leading to tailored treatment strategies and improved outcomes. The inter-institutional protocol has enabled a better understanding of the challenges in this patient population, emphasizing the need for continued collaboration and research to further enhance care.

INCIDENTAL DISCOVERY OF PLEURAL EWING SARCOMA IN A YOUNG FEMALE: A CASE STUDY

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Keywords: *Sarcoma; Ewing; Pleura;*

INTRODUCTION

Ewing sarcoma is a rare and aggressive malignant neoplasm predominantly affecting adolescents and young adults. It is primarily associated with the bones but can also present in extraosseous locations, including soft tissues. One of the less common but clinically significant extraosseous manifestations of Ewing sarcoma occurs in the pleura. Pleural Ewing sarcoma poses unique diagnostic and management challenges, as it may present with nonspecific respiratory symptoms or be discovered incidentally during imaging studies conducted for other clinical concerns. This can lead to delayed diagnosis and potentially poorer outcomes due to the aggressive nature of the disease.

METHOD

We report the case of a 19-year-old female patient who was referred to our clinic following an incidental finding of a chest mass on a routine chest X-ray. Further imaging, including CT scans, revealed a 5.2x5.2x6cm lesion on the left upper lobe, with central areas of necrosis and strict contact to the parietal pleura anteriorly and mediastinal pleura posteriorly, raising suspicion for malignancy. A PET-CT revealed moderate metabolic activity with a SUVmax of 2.3. A CT guided transthoracic needle biopsy was also performed but no malignant cells were identified in the sample.

Patient underwent an extrapleural left upper lobectomy and lymphadenectomy via thoracotomy with complete excision of the mass followed by a 3 day post-operative stay at our department.

Histopathological evaluation of the resected lobe confirmed the diagnosis of pleural Ewing sarcoma through typical cellular morphology and positive immunohistochemical staining for Ewing sarcoma-specific markers. Lymphatic stations 5 and 9 were negative for metastasis.

The patient is currently undergoing chemotherapy with CAV/IE and there is no evidence of disease relapse at 4 months follow-up.

This case highlights the importance of timely investigation of incidental findings in young patients. Additionally, it raises the need for heightened awareness of the possibility of extraosseous Ewing sarcoma in atypical presentations, as early diagnosis can significantly impact treatment outcomes and survival rates.

MANAGEMENT OF POST-LOBECTOMY BRONCHOPLEURAL FISTULA: A CASE REPORT AND NOVEL USE OF THE AMPLATZER DEVICE

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Keywords: *Bronchopleural fistula; Management; Amplatzer Device;*

INTRODUCTION

Bronchopleural fistula (BPF) is a communication between the bronchial tree and the pleural space. Although rare, occurring in about 1% of patients undergoing lobectomy, BPF represents a challenging problem and is associated with high morbidity and mortality. The management of BPF is complex and depends on factors such as patient status, presence of empyema, and fistula location and size.

We report the case of a 77-year-old male with a history of smoking and atrial fibrillation, who underwent a right lower lobectomy for lung adenocarcinoma. Despite an uneventful initial recovery, the patient was readmitted two weeks post-surgery with an empyema. Antibiotic therapy was initiated and a chest tube was placed, however the patient required surgery two weeks after admission. Intraoperative findings confirmed BPF and the bronchial stump was repaired. The postoperative course was complicated by prolonged air leak and acute pancreatitis, and the patient was discharged after 28 days of hospital stay.

The patient remained asymptomatic for 3 months, at which point he developed a productive cough with yellowish and watery content that worsened in the left lateral decubitus. Chest CT scan showed a communication between the bronchus and the pleural cavity, confirmed with a flexible bronchoscopy showing a small fistula (3mm) in the right lower lobe bronchus. He subsequently underwent multiple endoscopic treatments, including the application of trichloroacetic acid and argon plasma coagulation, with limited success. Eventually, a multidisciplinary approach led to the implantation of an Amplatzer® device, traditionally used for atrial septal defects, to close the fistula. Subsequent complications included empyema necessitans, which required additional surgical intervention and prolonged antibiotic and antifungal therapy due to osteomyelitis. Despite these challenges, the patient showed gradual improvement, with a well- positioned Amplatzer® device covered with granulation tissue and no recurrence of the fistula at the 7-month follow-up.

This case highlights the complexity of managing post-lobectomy BPF, particularly those associated with empyema. Once it develops, drainage of the empyema and management of the infectious process with broad-spectrum antibiotics is critical. When it comes to the closure of the fistula there are no guidelines on the best approach, and it must be individualized based on patient condition and fistula characteristics. While surgical interventions are often required for larger or more recent BPFs, endoscopic techniques, including the use of the Amplatzer® Device, offer a reliable and less invasive alternative for select cases. This case supports the growing use of such devices in managing difficult BPF cases.

SURVIVAL OUTCOMES FOR PULMONARY METASTASECTOMY: 5-YEAR CENTRE EXPERIENCE

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Keywords: *lung metastases; metastasectomy; overall survival;*

INTRODUCTION AND AIMS

Metastatic spread to the lung is recurrent, affecting 1/3 of patients with malignant disease. Surgical resection is the treatment of choice of lung metastasis, in patients with localized secondary disease and controlled primary source, allowing for superior long-term survival compared to conventional oncological treatment. We aim to determine the outcomes and establish prognostic factors for pulmonary metastasectomy.

MATERIALS AND METHODS

We performed a retrospective cohort study of patients with lung metastases who underwent surgical resection, from 2019 to 2023. We accounted survival outcomes until June of 2024.

At 3-month follow-up, the patient is asymptomatic, undergoing study of the mass identified adjacent to the rupture site.

The vascular manifestations of NF-1 are the least common, but the most important cause of morbidity and mortality in these patients. They can be found in arteries of all sizes, from the aorta to arterioles.

There are less than ten published cases of spontaneous rupture of the subclavian artery in NF-1 patients. The spontaneous rupture of a large blood vessel, depending on its location, can be managed endovascularly, with good results, minimizing invasiveness and blood loss.

RESULTS

This study encompassed 120 patients, with male predominance of 58% and mean age of 63±12 [24-84] years, demonstrating suspected pulmonary metastases from different primary malignancies. Colorectal cancer was the most frequent primary neoplasm identified (n=80, 66%), followed by renal cancer (n=11, 9%). We established that 23% of patients showed metastatic disease at the time of diagnosis (specifically, 10% to the lung). The mean duration until the development of lung metastasis was 3±3 years. Patients had predominantly a single metastasis (n=80, 67%). The median diameter of the larger lesion was 15 [5-95]mm.

We performed 138 surgeries (16 lobectomies, 1 lobectomy plus wedge resection, 6 segmentectomies, 115 wedge resections). Altogether, 18 patients (15%) required repeated intervention for lung metastasectomy. In 21 cases (18%), there was confirmed histology prior to resection. Minimally invasive approach was employed in 112 procedures (81%); 37% (n=50) of surgeries encompassed mediastinal nodal sampling, with only 8% of cases (n=4) demonstrating nodal involvement. Histopathology determined R0 resection in 93% of cases (n=128).

Following surgery, 54 (45%) patients underwent adjuvant treatment for the primary tumor. Analysis showed disease-free survival (DFS) was 68% at 12 months, 44% at 36 months and 41% at 60 months. Overall survival (OS) was 94% after 12 months, 77% after 36 months and 63% after 60 months. Disease-free interval ?36 months is associated with a 5-year OS of 71% (p=0,401). Univariate analysis established DFS ?24 months after surgery is a protective factor (p<0.001) whereas age is a risk factor (p<0.008) for OS. We found no statistically significant correlation in further univariate or multivariate analysis.

CONCLUSION

Pulmonary metastasectomy is associated with low morbidity and prolonged survival. Surgical lung intervention displays a fundamental role for the control of the systemic disease, integrated in a multimodal strategy. Further research is necessary to determine solid prognostic factors, in order to define patients' eligibility to benefit from surgery.

A COLLABORATION IN A COMPLEX CASE OF HIATAL HERNIA

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Keywords: *hiatal; hernia; Belsey Mark IV;*

INTRODUCTION

Giant and complex hiatal hernia repair is challenging, with laparoscopic Nissen fundoplication (LNF) being the most common surgical treatment. However, recurrence rates of 15% to 25% have been reported after LNF for large hernias. In certain cases, a left thoracic approach, the Belsey Mark IV fundoplication (BMIV), is preferred.

We report the case of a 69-year-old female, with a medical history of atrial fibrillation, previous stroke without sequelae, and Alzheimer disease, on amiodarone, anticoagulation therapy.

In 2016, she underwent a LNF for a large hiatal hernia. She remained asymptomatic until March 2021, when she presented to the emergency department with food intolerance, nausea and vomiting. A recurrent hernia with gastric volvulus was diagnosed, and she underwent another surgery with diaphragmatic repair and mesh placement. Nonetheless, the post-operative management was complex due to persistent food intolerance, leading to a third surgical intervention with reduction of hernia content and cruroplasty in May 2021.

Due to recurrent paraesophageal hernia and persistent symptoms, a multidisciplinary discussion with thoracic surgery led to a decision for a BMIV procedure, which was performed in October 2021 via left thoracotomy. The postoperative course was uneventful, she was discharged on 12nd day after surgery, tolerating oral diet and with maintained intestinal transit.

At the one-month follow-up appointment, she was asymptomatic, but a large incisional abdominal hernia was detected, likely due to previous abdominal surgeries, which was later repaired. Currently, three years post- surgery, she remains asymptomatic and under clinical surveillance, though a CT scan shows a moderate recurrence of the hiatal hernia.

With the evolution of laparoscopic surgery, the surgical management of hiatal hernia remains in the field of general surgery. However, for large paraesophageal hernias, LNF was associated with an increased incidence of leak and reoperation when compared with BMIV fundoplication.

Thus, in highly selected cases, the BMIV procedure must be considered which is safe and effective, but technically challenging. In the presented case, the thoracic approach is more accessible given the 3 previous abdominal approach. Through a left transthoracic incision, a reduction of hernia content, fundoplication and crural sutures are performed. While minimally invasive surgery is becoming more common, BMIV remains limited by the complexity of traditional thoracoscopic instruments. However, recent evolution in robot- assisted surgery offers improved precision and ergonomics, potentially making minimally invasive transthoracic approaches more feasible, though long-term data are still needed.

A LARGE SOLITARY FIBROUS TUMOUR OF THE PLEURA MIMICKING PLEURAL EFFUSION – A CASE REPORT

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1 -

Keywords: *Solitary fibrous tumour; Pleural effusion;*

INTRODUCTION

The solitary fibrous tumour of the pleura is rare and originates from the mesenchyme of the pleura. It is traditionally a benign lesion, but in some rare cases (10-20%) it can be malignant. They often grow unnoticed until they exert compressive effects on adjacent organs. Most solitary fibrous tumours of the pleura are detected by chance on a chest X-ray. The most common symptoms include cough, thoracic pain and dyspnea. A complete surgical resection of the lesion is the key treatment.

We report a rare case of a large solitary fibrous tumour of the pleura, occupying approximately the entire left lower lobe (LLL) consistent with pleural effusion. The aim of this report is to raise awareness about the possibility of this type of tumour's capacity to impersonate other clinical conditions such as pleural effusion.

CASE REPORT

A 74-year-old man checked in to our institution with slowly progressive fatigue and paroxysmal nocturnal dyspnea. The patient had a history of coronary artery bypass grafting in 2008 and congestive heart failure. The chest X-ray showed a complete opacification of the lower half of the left hemithorax, compatible with pleural effusion. Diuretic therapy was prescribed with mild clinical and radiological improvement.

A chest CT scan was performed, which identified a large mass (19 x 13 x 13 cm) occupying the left lower hemithorax with complete collapse of the LLL. A transthoracic needle biopsy of the lesion was performed that showed features favouring a solitary fibrous tumour diagnosis.

The patient underwent surgical intervention by left posterolateral thoracotomy: a complete excision of the tumour with a left lower lobectomy, a partial excision of the diaphragm on the left side with correction of the diaphragmatic defect with marlex prosthesis. Currently, the patient remains well without clinical or radiological evidence of disease recurrence.

CASE REPORT

In this clinical case, the fibrous tumour of the pleura was in the left hemithorax, causing dyspnea, mimicking pleural effusion (in a patient with a history of heart failure).

This tumour is large which caused dyspnea and could have had malignant potential. Therefore, the treatment should be a total excision of the lesion.

CONCLUSION

Solitary fibrous tumours of the pleura can be identified on an X-ray, however they can impersonate other clinical conditions (depending on their location). Treatment should be a complete resection.

A RIGHT DIAPHRAGMATIC HERNIA REDUCED BY THORACIC SURGERY – CASE REPORT AND LITERATURE REVIEW

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1 -

Keywords: *Bochdalek hernia; Diaphragmatic hernia; Adult;*

INTRODUCTION

A diaphragmatic hernia (DH) is a protrusion of abdominal organs into the thoracic cavity through a diaphragmatic defect. This defect can be caused either by an embryologic failure or by a traumatic injury of the diaphragm. According to anatomy it can be classified into three types: Bochdalek, Morgagni and esophageal hiatal hernias. Bochdalek hernia (BH) is the most common type among neonates, but adult onset is extremely rare. Left-sided diaphragmatic hernias are more frequent (80-90%). DH in adults is relatively asymptomatic, but has the potential for serious complications.

We present a rare case of a large right-sided diaphragmatic hernia containing the right kidney, right colon and distal ileum. The aim of this report is to raise awareness about this rare clinical condition that is often indolent with potential life-threatening complications and to report the treatment carried out at our center.

CASE REPORT

A 57-year-old man was diagnosed with a right-sided BH in 2020 after a spinal CT scan due to back pain that had been evolving over the years. He had had a motorcycle accident at the age of 18. In August 2022, he fell around one and a half meters high causing trauma on the right-hand side of the chest. Since then, the patient reported the onset of dyspnea during moderate-intense exertion.

The chest CT scan performed in October 2023 revealed a hernial sac measuring 15 x 13 cm and 8.3 x 6 cm in the neck, with herniation of the right kidney, right colon and distal ileum, apparently stable, compared to previous exams.

The patient underwent surgical intervention in July 2024. A right posterolateral thoracotomy was performed. Lysis of adhesions and an opening of the hernial neck was performed to reduce the size of the hernia. Subsequently, the diaphragm was closed with Proleno 0. In the most lateral region, a Marlex prosthesis was applied.

DISCUSSION

A DH in adults should be repaired surgically even in the absence of symptoms due to the risk of catastrophic complications (e.g. abdominal viscera incarceration and strangulation, intraabdominal organ dysfunction, or severe pulmonary disease). It can be corrected through abdominal or thoracic surgery. In our center, the hernia was reduced through a right posterolateral thoracotomy.

CONCLUSIONS

Surgery is necessary to replace emerged organs into the abdomen, to repair diaphragmatic lesions and to avoid complications.

LARGE ANTERIOR MEDIASTINUM HEMATOMA FOLLOWING STERNAL FRACTURELITERATURE REVIEW

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Keywords: *Anterior mediastinum hematoma; Sternal fracture;*

INTRODUCTION

Sternal fractures (SF) occur in up to 8% of all thoracic trauma admissions, mainly due to blunt injury following motor vehicle accidents. SF are commonly associated with life-threatening injuries, such as myocardial, pulmonary and mediastinal lesions. Retrosternal hematoma usually derives from soft tissue or fracture bleeding, and must be differentiated from anterior mediastinal hematoma resulting from major vessels or the heart injury. CT scan is currently the gold standard for diagnosis and characterization of sternal fractures. Electrocardiogram (ECG) and cardiac enzyme examinations are necessary to exclude concurrent heart injury. SF are primarily transverse sternal corpus fractures; manubrial and xiphoid fractures occur less frequently. The depth of fracture displacement is considered a sign of an increased risk of injury to adjacent structures, especially the anterior mediastinum.

AIM

We present a case of a traumatic sternal fracture with associated large anterior mediastinum hematoma.

METHODS

On primary survey, the patient had patent airway, oxygen saturation of 98% and was hemodynamically stable. Breath sounds were diminished in the right hemithorax, and heart sounds were normal. Crepitation was noted above the sternal corpus. CT scan revealed moderate hemopneumothorax, transverse displaced sternal corpus fracture and large 16x10cm anterior mediastinum hematoma compressing and molding the heart. To exclude major vessel or heart injury needing immediate intervention, angio-CT was ordered, revealing no active arterial extravasation. ECG and echocardiogram revealed adequate biventricular function and minimal pericardial effusion. Chest drainage of 300cc blood from the right hemithorax was performed. He was admitted to intensive care unit for surveillance. Due to considerate displacement of SF, surgical fixation was performed after stabilization, with open reduction through a longitudinal anterior chest incision and fixation with 2 MatrixRIBTM titanium plates and 18mm screws.

RESULTS & CONCLUSIONS

The patient made an uneventful recovery and was discharged from hospital on postoperative day 2. Follow-up at first month revealed positive fracture consolidation process and no limitation in daily activities.

SF are associated with potentially life-threatening lesions. CT scan is the method of choice for diagnosis and characterization of such associated lesions. Presence of retrosternal hematoma should preclude further investigation as to exclude major arterial or cardiac injury needing immediate intervention. For unstable or displaced sternal fractures, clinical surveillance and operative fixation is necessary. Surgical outcomes are usually satisfactory with significant pain relief and no major complications.

OUTPATIENT CHEST TUBE MANAGEMENT IN PROLONGED AIR LEAK AFTER LUNG RESECTION SURGERY

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Keywords: *Prolonged air leak; Lung resection; Outpatient chest tube management;*

INTRODUCTION

Prolonged air leak (PAL) after lung resection surgery is defined as air leak persisting beyond the fifth postoperative day and is the most common complication after pulmonary resection. Its incidence ranges from 5% to 25% according to literature. In 2023, in Unidade Local de Saúde de São João, 351 pulmonary resections were performed. From these patients, 64 patients (18%) had PAL from which half the patients could have gotten discharged home with outpatient chest tube management. PAL increases chest tube duration and hospital stays leading to a higher morbidity. In selected cases of PAL, outpatient chest tube management is a possibility.

We report a case of a 58 year old male who was a former smoker and had chronic obstructive pulmonary disease. His respiratory function tests showed an obstructive ventilatory alteration with a diffusing capacity of the lungs for carbon monoxide (DLCO) of 63%. Because of cough complaints, the patient underwent a thoracic CT scan that revealed two lung nodules with three centimeters each (one in the right upper lobe and the other in the left upper lobe) with imaging features compatible with pulmonary hamartomas. He initially underwent surveillance but subsequent CT scans showed an increase in dimension of both nodules. Therefore he was proposed to surgery. The patient underwent bilateral uniportal Video-Assisted Thoracic Surgery (VATS) with enucleation of both nodules. The left chest tube was removed at the fifth post-operative day but air leak persisted at the right. At the ninth day after surgery he had both lungs expanded on chest X- ray but maintained air leak on the right, with no other complications, so he was discharged home with a right chest tube with a Sinapi device®. The patient was evaluated every 48 hours with a chest X-ray. Sixteen days after his hospital discharge there was no evidence of air leak and both lungs were expanded and the chest tube was removed.

As demonstrated in this case, outpatient chest tube management is a safe option with low morbidity and no mortality for early discharge in selected cases of patients with PAL after lung resection surgery.

RARE HYBRID PULMONARY SEQUESTRATION AND CONGENITAL PULMONARY AIRWAY MALFORMATION IN A CHILD: A CASE REPORT

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Keywords: *Congenital Pulmonary Airway Malformation; Pulmonary Sequestration;*

INTRODUCTION

Pulmonary sequestration (PS) is a common type of congenital lung malformation characterized by the presence of nonfunctioning lung parenchyma, with no communication with the bronchial tree and with its own arterial blood supply. Although these typically present with respiratory symptoms such as recurrent lower respiratory tract infections, hemoptysis and respiratory distress, many can be asymptomatic and only discovered on incidental imaging. Congenital Pulmonary Airway Malformation (CPAM) are more common and present as multiple cyst of different sizes, distribution through the tracheobronchial tree and content (liquid or air). CPAM has 5 different types depending on the location of the cysts, which are related to the symptoms and mortality attributed to this malformation.

We present the case of a 10 year old male child followed in the ambulatory setting for a congenital cystic malformation of the inferior right lung lobe. Patient had a prenatal diagnosis and had been followed since birth. During follow-up no complications arose from this malformation, no other malformations were observed and the patient had a normal psychomotor development. Angio-CT imaging at age 10 showed wide involvement of a cystic congenital malformation on the right inferior lung lobe, identifying a feeding artery emerging from the thoracic descending aorta. These images are shown in Picture 1 and 2.

Patient was submitted to a right inferior lobectomy through lateral toracotomy on september 2024. Procedure and post-operative stay were uneventful. Patient was discharged at post-operative day 4.

Hybrid cases of CPAM and PS have been amply reported. Frequently, as is the case in this patient, they present as a PS associated with a CPAM type 2, mostly due to their similar embryological origin. Although usually associated with other malformations and with respiratory symptoms this patient presented none of these which safely delayed operative intervention to an age that makes surgery not only technically easier for the surgeon but also safer for the patient. The case still stands as to the surgical indication for asymptomatic CPAM and PS. Practice reports are heterogenous and besides the clinical presentation, the association between these malformations and the development of cancer is still unclear and further investigation is needed to clarify these points.

RECURRENCE OR NEW PRIMARY LUNG CANCER? – A CASE REPORT

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1- None

Keywords: *Primary lung cancer; Recurrence; Lung metastasis;*

INTRODUCTION

Surgery has curative potential in early-stage lung cancer. The lobectomy is the main surgical procedure in the treatment of primary lung cancer. In the case of lung metastases, the main objective is the resection of the tumor with maximal preservation of the lung parenchyma, mainly with wedge resection.

We present a case of a patient with a history of lung adenocarcinoma submitted to a middle lobectomy. Around 5 years later a nodule was detected in the right lower lobe (RLL). Could it be a new primary lung cancer or a metastasis?

CASE REPORT

A 63-year-old man, with a history of lung adenocarcinoma, T2aN0M0 (stage IB), was submitted to a middle lobectomy + mediastinal lymphadenectomy on the 22nd June 2019

In the follow-up chest CT scan, a nodule was detected in the superior segment of the RLL in February 2024. Later, in April 2024, a PET scan was performed showing the following findings: a nodule 16 x 14 mm in the upper segment of the RLL with SUV max: 2.7, another nodule 13 x 10 mm with SUV max: 2.4 in the medial basal segment of the RLL and several hypermetabolic mediastinal nodes (5, 4R, and 7). An EBUS was performed which showed no lymph node metastases (7 and 11R without disease).

The patient was not admitted to undergo transthoracic needle biopsy. It was decided to treat it as a primary lung cancer. A right lower lobectomy was performed on the 26th of August 2024. Pathological anatomy revealed lung adenocarcinoma, with apparent distinction from previous lung cancer.

DISCUSSION

Follow-up in patients with a history of lung cancer is essential. According to 2nd ESMO Consensus Conference of early-stage non-small cell lung cancer: a chest CT scan should be performed every 6 months in first 2-3 years, and annually afterwards. In some centers there is no consensus on the follow-up time.

The patient had a history of lung cancer theoretically cured in June 2019 through surgical intervention. Later he presented two nodules in the right lower lobe. Should we treat it as a recurrence or a new primary lung cancer? Should we perform a new lobectomy or a parenchyma-sparing surgery?

We decided to treat it as a new primary lung cancer due to the absence of the disease for almost 5 years.

CONCLUSIONS

For 5 years with no history of recurrence, we approached it if it were a primary tumour.

ROBOTIC-ASSISTED THORACIC SURGERY FOR A LARGE MEDIASTINAL MASS: A CASE REPORT

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1-

Keywords: *RATS; Mediastinal Mass;*

INTRODUCTION

Mediastinal masses require careful evaluation, with thymoma being the most common diagnosis in men over 40. When imaging suggests a resectable mediastinal lesion, biopsy is often avoided and patient proceeds directly for surgery for diagnosis and definitive treatment. Risk of tumor seeding must be kept in mind if a thymoma is present.

CASE REPORT

We present the case of a 45-year-old male with a known medical history of ventricular septal defect (undergoing regular cardiology follow-up), lumbar disc herniation, right knee posterior meniscus tear treated with arthroscopic meniscectomy and a left inguinal hernia. During a routine cardiac magnetic resonance imaging (MRI), an unexpected mediastinal mass was detected, prompting further investigation. The imaging revealed a large, lobulated mass in the anterior mediastinum, raising suspicion for thymoma. This mass was in close contact with the inferior wall of the innominate vein, with no apparent cleavage plane with this structure in a small pericentimetric portion. The patient had no constitutional symptoms referring only pruritus. Alpha fetoprotein, beta-hcg and LDH levels were normal. Additionally, myasthenia gravis was ruled out clinically and through appropriate testing.

Given the size of the mass and its suspicion for thymoma, surgical excision was deemed appropriate. The patient underwent robotic-assisted thoracic surgery (RATS). During the surgery, a large, encapsulated mediastinal mass measuring approximately 13 cm was successfully resected, en bloc with an adjacent 4.5 cm lesion. The postoperative recovery was uneventful, chest tube was removed, and the patient was discharged on the first postoperative day.

Histopathological examination revealed the unexpected diagnosis of classical Hodgkin lymphoma, nodular sclerosis subtype, accompanied by a multilocular thymic cyst. A PET CT scan conducted after surgery showed no metabolic evidence of malignancy. The patient was subsequently treated with four cycles of ABVD chemotherapy, followed by consolidation radiotherapy. At nine months post-surgery, the pruritus completely resolved, and the patient remains with no evidence of relapse.

CONCLUSIONS

Although surgical excision is not the standard treatment for lymphomas, the mass was resected due to its size and suspicion for thymoma, raising the debate if whether all mediastinal masses should be biopsied. Complete excision was achieved and the successful outcome in this case underscores the importance of a multidisciplinary approach and the role of surgery, not only for diagnosis but also in the treatment of complex mediastinal masses. This case highlights the benefits of RATS for improved dissection in the surgical management of a large mediastinal mass.

STAGE IV THYMOMA WITH INVASION OF SUPERIOR VENA CAVA – VASCULAR RECONSTRUCTION AND SURGICAL STRATEGY

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1-

Keywords: *Thymoma; Superior Vena Cava; Vascular Reconstruction;*

INTRODUCTION

Thymoma is the most frequent malignant tumor of the anterior mediastinum. In cases of advanced thymoma, we should employ a multimodal treatment plan encompassing surgery, radiotherapy and chemotherapy. Complete en bloc resection of the thymus and involved mediastinal structures is the optimal surgical strategy. Even in advanced oncologic staging, long-term survival outcomes are superior in patients undergoing surgery. However, invasion of superior vena cava (SVC), requiring resection and vascular reconstruction is a technically challenging procedure, with associated high morbidity and mortality rate.

AIMS

The aim of this work is to present the surgical treatment strategy employed in the case of a thymoma invading the SVC, requiring reconstruction combined with extended tumor resection.

METHODS

A 62-year-old man was referred to our center due to prolonged chest pain and weight loss. He had no signs of myasthenia gravis or superior vena cava syndrome. A CT scan showed an anterior mediastinal mass with vascular infiltration of the upper portion of the SVC and multifocal invasion of the pericardium and right pleura. PET scan revealed intense uptake in the mediastinal tumor and disseminated through the right pleura. Transthoracic biopsy established the diagnosis of B1 thymoma. The patient underwent four cycles of neoadjuvant chemotherapy, allowing for tumor volume reduction of 25%. Pulmonary and cardiac assessment showed no impairment. We proceed with radical thymectomy, pleuropneumectomy and vascular resection and reconstruction of SVC with a prosthetic PTFE graft, via Clamshell incision. The procedure was achieved with combined effort of the Cardiac and Thoracic surgical teams, without extracorporeal circulation support. Two thoracic drains were positioned to evacuate both pleural cavities and the mediastinum. No complications occurred in the postoperative period. Anticoagulation was started and hospital discharge took place after 8 days. Histology disclosed a thymoma, Masaoka stage IV and pT3N0M1a due to pleural disease. It was an R1 resection in a localized site of the parietal pleural near the lung apex. One year after surgery, graft's patency is preserved and there is no evidence of malignant recurrence.

CONCLUSIONS

Invasive thymomas with SVC infiltration display an aggressive malignant progress and, when feasible, surgical resection with vascular reconstruction represents the best standard of care. Rebuilding of SVC through artificial bypass is an effective technique in cases of extensive circumferential tumor invasion, in order to prevent cerebral venous impairment. This case highlights the complexity and high-risk of the surgical approach, in order to promote prolonged disease-free survival.

UN UNEXPECTED LUNG CANCER SURGICAL UPSTAGING

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Keywords: *Upstaging; Micrometastasis; Mediastinoscopy;*

INTRODUCTION

Surgical upstaging denotes the unexpected discovery of lymph node involvement during the final pathological evaluation of surgical specimens and is not infrequent in early-stage NSCLC. This is commonly due to the detection of previously undiagnosed nodal metastases or micrometastatic disease, resulting in poor prognosis and requiring the use of adjuvant therapies after curative-intent surgery. We intend to highlight the current challenges in mediastinal staging of lung cancer and its associated clinical consequences.

CASE REPORT

A 57-year-old woman with a 16 pack-year smoking history and no prior medical conditions had an incidental 11x8 mm solid lung nodule (11x8 mm) detected in the right upper lobe on a low-dose thoracic CT, performed during a smoking cessation consultation. The 1?F- FDG PET/CT scan demonstrated a hypermetabolic nodule with a maximum SUV of 5.8, along with borderline metabolic activity in lymph node stations 4R, 6, and 7 (SUVmax 2.5) and the lesion was biopsied via bronchoscopy (utilizing enhanced fluoroscopy, radial EBUS and cone beam CT). Histopathology revealed a NSCLC, likely adenocarcinoma and the EBUS mediastinal staging revealed homogeneous, regular, and anechoic lymph nodes across all stations, with dimensions below 5 mm, except for stations 4L (6.9 mm), 4R (5.1 mm), and 7 (8.9 mm) which were then targeted for TBNA, and cytology was negative for malignant cells. The patient was diagnosed with clinical stage IA2 (cT1bN0M0) lung cancer according to the 8th edition of the TNM Lung Cancer Classification, leading to a superior lobectomy with lymphadenectomy per current best practices.

However, histopathological analysis of the surgical specimen revealed adenocarcinoma (50% acinar, 25% solid, 25% micropapillary) with spread through air spaces (STAS) and metastatic involvement of station 4R (four fragments, ~2.5 mm) which resulted in an upstaging to IIIA (pT1b pN2 M0), warranting adjuvant chemotherapy.

DISCUSSION

Despite advanced diagnostic tools, 10-20% of clinical stage I lung cancer cases are upstaged after surgery, primarily due to nodal metastases undetected by preoperative mediastinal staging. Therefore, further research is needed to explore the inclusion of lymph node micrometastasis in clinical staging, arguably through the application of advanced lymph node sample processing technologies (RT-PCR, immunomagnetic beads, and one-step nucleic acid amplification) to EBUS samples, possibly allowing for the detection micrometastasis and isolated tumor cells. Nevertheless, mediastinoscopy remains unchallenged, as well as VAMLA and TEMLA, to access difficult-to-reach nodes and obtaining larger tissue samples, particularly when EBUS-TBNA results are negative or inconclusive, and the pre-test probability of malignancy is high.

PARATRACHEAL THYMOMA: SURGICAL APPROACH USING RATS TECHNIQUE

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Keywords: *RATS; mediastinal; thymoma;*

INTRODUCTION

Myasthenia gravis (MG) is an auto-immune disorder. 10%-20% of MG patients are found to have thymomas, which are rare epithelial tumors most commonly found in the expected anterior mediastinal region. Very rarely, they can arise in different locations. The therapeutic management of myasthenia gravis comprises a combination of medical treatment and surgical removal of thymic tissue, especially in the presence of a thymoma.

Minimally invasive surgery has become the gold standard approach for mediastinal masses, not only through video-assisted thoracic surgery but also robotic-assisted thoracic surgery (RATS).

AIMS

The objective of this video analysis is to describe a thymoma resection from the right paratracheal space through RATS.

METHODS

We present the case of a 41-year-old woman with the diagnosis of myasthenia gravis. She presented left ptosis and dysphagia. Acetylcholine receptor antibodies were positive, and the SFEMG showed decrements of the muscle action potential. Following this diagnosis, she was treated with mometasone and pyridostigmine.

Chest-CT scan revealed the presence of fat in the anterior mediastinum, as well as a well-defined solid ovoid lesion measuring 30mm in its largest axis. Subsequently, the patient was referred to a thoracic surgery consultation, where she was considered for surgery.

Using RATS, an antephrenic thymectomy and excision of right paratracheal lesion were performed. One chest tube was placed at the end of surgery. Procedure was uneventful and the patient was extubated while in the operating room.

Chest drain was removed the day following surgery, and the patient was discharged that same day. There were no 30-day postoperative complications.

The pathology report revealed a type B1 thymoma in right paratracheal loca, pT1aN0 according to the eighth TNM classification. Anterior mediastinum tissue proved to be thymic follicular hyperplasia.

At the time of post-operative evaluation, patient showed no complaints of pain or respiratory symptoms.

RESULTS & CONCLUSIONS

Robotic surgery is an alternative to video-assisted surgical techniques, offering a safe and feasible minimally invasive approach for mediastinal procedures. RATS technique facilitates complex movements and provides excellent maneuverability within the confined mediastinal space. As a result, RATS has gained increasing popularity for the treatment of mediastinal tumors affecting all compartments of the mediastinum.

ROBOTIC RIGHT MEDIAL AND ANTERIOR BASAL SEGMENTECTOMY (S7+S8) AFTER PLEURO-PULMONARY DECORTICATION

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Keywords: *robotic-assisted thoracic surgery; pleuro-pulmonary decortication; lung adenocarcinoma;*

INTRODUCTION

Minimally-invasive thoracic procedures can be complicated by dense pleuro-pulmonary adhesions. In such scenarios, traditional video-assisted thoracic surgery (VATS) might be insufficient due to limited maneuverability, and a thoracotomy could be considered. However, robotic-assisted thoracic surgery (RATS) can allow the surgeon to effectively manage the adhesions while maintaining a minimally invasive approach, given the amplitude of movements allowed by the robotic arms. This highlights the role of robotic surgery in extending the boundaries of minimally invasive thoracic procedures.

METHODS

We present the case of a 71-year-old female patient, performance status 0, non- smoker. No past history of significant lung of pleural disease, nor thoracic surgery or procedures. She reported a fire in her household a few months before, with smoke inhalation, resulting in transient cough with sputum and fatigue, at the moment asymptomatic.

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RESULTS

We present the video of right medial and anterior basal segmentectomy (S7+S8) with lymph node dissection, after pleuro-pulmonary decortication, in a patient with extensive pleural adhesions, unknown pre- operatively. The video highlights the precision and enhanced visualization of the robotic approach. The surgery and post-operative period were uneventful. Discharge on 3rd post-operative day. Histopathology revealed lung adenocarcinoma, 17 mm, negative lymph nodes. Staging T1b N0 (IA2). Proposed for surveillance..

CONCLUSIONS

This case underscores the significant advantages of robotic surgery in managing challenging pleuro-pulmonary adhesions, where the precision and control of the robotic platform made it possible to avoid thoracotomy. The patient benefited from a minimally invasive approach, leading to reduced postoperative pain, faster recovery, and better overall outcomes. Robotic surgery not only allowed a minimally invasive approach, but also a parenchyma-preserving and oncological safe resection.

THORACIC REDO-ROBOTIC SURGERY: LINGULECTOMY AFTER LEFT LOWER LOBE BASILAR SEGMENTECTOMY FOR CARCINOID TUMORS

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Keywords: *thoracic redo-robotic surgery surgery; robotic-assisted thoracic surgery; atypical carcinoid;*

INTRODUCTION

Carcinoid tumors of the lung are relatively rare and typically present with indolent growth patterns, accounting for less than 5% of all pulmonary neoplasms. Traditional surgical approaches, such as thoracotomy or video-assisted thoracic surgery (VATS), have long been used for resecting these lesions. However, the advent of robotic-assisted thoracic surgery (RATS) has introduced a minimally invasive alternative that allows for enhanced precision, particularly beneficial in complex resections, including re-interventions.

AIMS

We present the video of a thoracic redo-robotic surgery, consisting of a robotic lingulectomy, in a patient previously submitted to robotic left lower lobe basilar segmentectomy, both procedures for resection of carcinoid tumors. Robotic surgery allowed a parenchyma-preserving resection.

METHODS

We present the case of a 59-year-old male patient, performance status 0, ex-smoker 50 pack-years. He presented initially with a 20 mm nodule in the left lower lobe; a robotic left lower lobe basilar segmentectomy with lymph node dissection was performed. Histopathology revealed neuroendocrine tumor, grade 2 (atypical carcinoid). The pathological stage was: pT1c N0 (stage I-A3). Proposed for surveillance.

RESULTS & CONCLUSIONS

We present the video of the robotic lingulectomy with lymph node dissection, showing the precision and enhanced visualization of the robotic approach. The surgery and post-operative period were uneventful. Awaiting definitive histopathological examination.

This case demonstrates the advantages of minimally invasive approaches, namely robotic surgery, in the treatment of lung carcinoid tumors, particularly in the case of reintervention. The ability to perform a precise resection made it possible to perform two sequential lung-sparing surgeries. In the first procedure, the lung-sparing segmentectomy that was performed, avoiding a lobectomy, allowed an optimization of the patient's functional status for further redo surgery. Robotic lung-preserving surgery thus allowed to reduce the risk of morbidity associated with more extensive resections.

UNIPORTAL VIDEO-ASSISTED THORACIC SURGERY (VATS) APPROACH TO A BRONCHOGENIC CYST

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Keywords: *Bronchogenic cyst; VATS; Minimally invasive surgery;*

Bronchogenic cysts (BC) are rare, mostly benign, congenital malformations arising from abnormal primitive ventral foregut segmentation. BC are the most common primary cystic lesions of the mediastinum and are characterized by the presence of ciliated columnar epithelium.

Most BC present in the mediastinum or lung parenchyma, but there have been reports of intrapericardial, head and neck, intrabdominal, dural and subcutaneous BC. They're more common in children but can also be detected only in adulthood.

Most patients are symptomatic. Cough, dyspnea and chest pain are the most common symptoms. Even asymptomatic patients may develop complications, such as infection, rupture, hemorrhage, pneumothorax, compression of adjacent structures, fistula and malignant transformation.

Since confident preoperative diagnosis is not always possible and complications are common, most surgeons advocate for early resection in all operable patients, regardless of symptoms. VATS is the primary therapeutic option, considering the low conversion and complication rates. Conversion to thoracotomy is mainly related to major adhesions.

Surgery should be performed under general anesthesia with double-lumen endotracheal intubation, with the patient in lateral decubitus. Using a 30o angled thoracoscope, surgery starts by exploring the thoracic cavity. Resection is performed with sharp and blunt dissection using energy devices. The goal is to obtain complete surgical resection to prevent recurrence. When complete resection isn't possible (usually due to adhesions to vital structures), what remains of the BC should be destroyed with electrocautery or povidone-iodine solution. Manipulation of the BC may be facilitated by aspiration if the BC is large. A chest tube should be left in the thoracic cavity.

We present the case of a 28-year-old woman who, due to a respiratory infection, was submitted to a chest radiograph that exhibited a lesion in the posterior mediastinum. The CT scan showed a 5,3 cm mass posterior to the right atrium and right inferior pulmonary vein and lateral to the esophagus. To further characterize the lesion, an MRI and an endoscopic ultrasound of the upper gastrointestinal tract were performed, showing a 5,8 cm cystic lesion suggestive of a BC. A uniportal VATS complete resection was performed. The post-operative period was uneventful. Pathology showed a BC.