bowel, heart, liver or lung, splenectomy, major anesthesiologic complications including intubation injuries, arrhythmias, pulmonary embolism and myocardial infarction. We also included minor intraoperative events that led to additional repair or resection of vascular structures or airways.

Amongst 2862 MIE cases we identified 99 patients with 103 intraoperative complications. Of the 34 different complications the most common were vascular lesions during laparoscopy (n = 40). There were 20 splenic artery and -capsular injuries, 11 requiring splenectomy. Four losses of contour due to gastroepiploic artery injury and five colon injuries were reported. Six tracheobronchial lesions needed repair, and 12 patients had significant lung parenchyma injuries. During thoracoscopic nine of the 13 cases with bleeding were converted and an additional 5 patients required postoperatively emergency re-intervention for thoracic bleeding. There were 2 on-table deaths. 10 of the 99 patients died in-hospital.

This study offers a good overview of the wide range of possible intraoperative complications. Knowing the pitfalls can help trainees, and experienced surgeons, avoid common complications. Unfortunately, this study does not offer us incidence, which would require a prospective trial. On-table deaths are exceedingly rare.

There is a possible underreporting of complications, an issue not avoided by implementing specific surveying criteria. Surgical registries need to capture intraoperative complications better in the future.

412. FEASIBILITY AND SAFETY OF MINIMALLY INVASIVE SURGERY FOR OESOPHAGEAL DUALITY CYST IN ADULTS--EXPERIENCE FROM AN OESOPHAGO-GASTRIC SURGERY UNIT

Suraj Surendran, Christian Etzold, Ines Gockel, René Thieme

Department of Visceral, Transplant, Thoracic and Vascular Surgery, University Hospital Leipzig, Leipzig, Germany

Oesophageal duplication cyst (ODC) is a rare congenital anomaly of the foregut. The reports of ODCs presenting in adulthood is relatively rare. Surgical excision is the ideal treatment. Traditionally, the excision is performed via a thoracotomy with its resultant morbidity. Minimally invasive surgical (MIS) approaches are feasible and can potentially reduce the postoperative discomfort and reduce the hospital stay. We aimed to study the feasibility and safety of MIS for ODC in adults.

A retrospective review of all adult patients with ODCs treated in an oesophago-gastric surgery unit, between January 2015 and March 2022, was performed. All patients received MIS. The demographic, clinico-radiological, and operative details and outcomes were analysed.

Nine patients (Female 7; mean age, 36.2 ± 4.4 years) were included. Chest pain was the commonest symptom (44.0%). Oesophago-gastroscopy showed normal mucosa in all patients. Endoscopic-ultrasound was performed in all except one; no cysts had atypical features. The cysts were frequently located in the distal thoracic oesophagus (78%) and the median (range) cyst size was 6.3(3.9–13.5) cm. All patients received MIS (Thoracoscopic, 8; Thoraco-laparoscopic, 1); no conversion to open surgery. The techniques resection techniques were enucleation (5), stapler-assisted resection (3) or partial excision (1). The 30-day morbidity was 22.2% (Staple line leak/horacoplastic repair, 1; pleural collection/imaged drainage, 1). The median (range) hospital stay was 7(3–25) days and there was no mortality.

MIS is feasible and safe for the management of adult ODCs and should be offered to patients, irrespective of the timing of its presentation or the location and size of the cyst.

414. SHORT-TERM CLINICAL EFFECT OF ROBOT-ASSISTED ESOPHAGECTOMY WITH THORACIC DUCT RESECTION

Chunguang Li, Bin Li, Yang Yang, Zhigang Li

Department Of Thoracic Surgery, Section Of Esophageal Surgery, Shanghai Chest Hospital, Shanghai Jiao Tong University, Shanghai, China

Whether extended robot-assisted esophagectomy with thoracic duct resection (RAE-TDR) has a favorable impact on esophageal cancer patients remains not well defined. This study aimed to analyze safety and efficiency of RAE-TDR.

From January 2019 to July 2020, 73 consecutive patients with TD-resected and 127 consecutive patients with TD-preserved were enrolled, who received standard RAE McKeown surgery. Perioperative related indicators, RFS and OS at 1-year were compared between the two groups.

Morbidity of Clavien–Dindo classification grade ≥ II or III were similar (p > 0.05). The number of retrieved total lymph nodes and mediastinal nodes were significantly higher in the TD-resected group (29.0 ± 11.1 vs 25.1 ± 8.5, p = 0.006 and 2.3 ± 3.7 vs 1.7 ± 2.8, p = 0.002, respectively). Moreover, more metastatic TD-related lymph nodes were harvested in cT3-4 patients (2.3 ± 3.7 vs 1.7 ± 2.8, p = 0.21). The rate of LN recurrence and local recurrence were similar (6.8% vs 7.1%, p = 0.99 and 1.4% vs 2.4%, p = 0.99, respectively). OS and RFS at 1-year were equivalent regardless of the TD procedure in each stage (p > 0.05). However, Hematogenous metastasis in TD-resected group was significantly elevated (17.8% vs 7.9%, p = 0.034).

RAE-TDR may help to improve total and metastatic LNs harvest, especially for patients with advanced ESCC without increasing adverse events intra- and post-operation. However, RAE-TDR does not bring about a decrease in local recurrence rate within short-term follow-up. We are not sure whether the increase in distant metastatic rate in the RAE-TDR group is associated with relevant immune system damage. Therefore, non-selective RAE-TDR resection is not routinely recommended.

415. A WEBCAST FOR THE EDUCATION AND INFORMATION OF PATIENTS WITH BARRETTS ESOPHAGUS AND BARRETTS CANCER

Christian Etzold, Ines Gockel, René Thieme

Department of Visceral, Transplant, Thoracic and Vascular Surgery, University Hospital Leipzig, Leipzig, Germany

To provide expert knowledge to patients becomes more and more important, especially during the Sars-CoV-2 pandemics, where self-helping groups could not meet and on-site information events could not take place. We discovered a need due to patients’ uninformedness about diagnostic procedures, treatment options and advice for disease prevention or special nutrition and medications after the diagnosis of Barrett’s esophagus and Barrett’s cancer.

A webpage was created, including a video streaming platform (https://webcast.barrett-initiative.de/). The events were performed live with the opportunity to ask questions via the chat function. Vimeo was used for the live streaming. Three to four lecturers were invited and one moderator organized the sequence of talks and questions. Additionally, the webpage contains an encyclopedia, to explain disease related terms in a patient-oriented language. The invitation was done based on our nation-wide patient network based on genes for Barrett’s (g4b) study https://www.barrett-konsortium.de/. Patients used a desktop computer (65%), mobile phones (28%), and tablets (7%) to join the video sessions.

The lecture series was started with a kick-off event in September 2021 to give a bright overview about reflux, Barrett’s esophagus und Barrett’s
cancer. Four special topics were conducted, dealing with tumor biology, cancer prevention, diagnostics needed for the correct staging and how the diagnostic will guide the therapy by explaining the expertise review board, discussing operability and prehabilitation. The series will be continued by the endoscopic and surgical treatment options. There were 1,100 views to the webpage. While during the kick-off 204 patients were online, approx. 71 to 171 patients saw the following events during the live sessions.

Based on the questions by our patients and the continuous participation at our livestream events, we discovered an urgent need to provide a platform to patients, where they can find disease specific information in a patient-oriented language. Therefore, all lectures were deposited to a media archive where they are available to patients. We implemented our webcast project as a growing platform to cover aspects from the disease development, to diagnosis, treatment, and follow-up care.

416. BIOMARKER IDENTIFICATION FOR CHEMOTHERAPY RESPONSE PREDICTION IN BARRETT’S CARCINOMA PATIENTS BY AN INFLAMMATORY-RELATED PLASMA PROTEIN PROFILING

René Thieme1, Matthias Mehdorn2, Jeffrey Netto2, Katrin Schierle, Florian Lardack2, Joachim Thiery1, Ines Gockel1

1. Department of Visceral, Transplant, Thoracic and Vascular Surgery, University Hospital Leipzig, Leipzig, Germany
2. Institute of Laboratory Medicine, Clinical Chemistry and Molecular Diagnostics, University Hospital Leipzig, Leipzig, Germany
3. Institute of Pathology, University Hospital Leipzig, Leipzig, Germany
4. Department of Oncology, Gastroenterology, Hepatology, Pulmonology, and Infectious Diseases, University Cancer Center Leipzig (UCCL), University Hospital Leipzig, Leipzig, Germany

The prognosis of patients with advanced esophageal adenocarcinoma (EAC) is still poor, which is partly due to a limited chemotherapy response. About 50% of these patients, treated with neoadjuvant chemotherapy, are non-responders, which might be influenced by inflammation and immunological conditions. EAC patients (n = 24) were characterized prospectively in a single center study for gender (female n = 4; male n = 20), age (median 64; range 43-77 years), TNM-classification, and pathological response rate (PRLR) to neoadjuvant chemotherapy. PRR was assessed according to the Schneider classification (Grade 3 = total tumor resection + subtotal resections were defined as good responders). A comprehensive high performance inflammation biomarker panel, including 92 inflammatory-related proteins, was conducted in plasma (OLINK, Uppsala, Sweden). Blood was taken before neoadjuvant chemotherapy induction (baseline) and after chemotherapy completion. EAC cell lines (OE33, OE19, SK-GT-4, FLO-1) were treated with the panel, including 92 inflammatory-related proteins, was conducted in

Multiplex profiling of inflammatory-related biomarkers revealed an active interleukin signaling. (IL-10- and IL-18-signalling pathway, after neoadjuvant chemotherapy. A PRR of 3 and 4 correlated significantly with higher baseline CX3CL1 values. CX3CL1 treatment led to decreased proliferation rates in two (OE19 and SK-GT-4) of the four investigated EAC cell lines by 25-50%. Values for GDNF were higher, while values for TRAIL and TNFRSR9 were lower in patients’ plasma with a good PRR after chemotherapy completion as compared to patients with a poor PRR.

Multiplex profiling of inflammatory-related biomarkers revealed an activated interleukin signaling. (IL-10 and IL-18 pathway) after neoadjuvant chemotherapy. Inflammatory plasma proteins as CX3CL1 could be an interesting candidate to predict PRR and to identify patients, who will benefit from neoadjuvant chemotherapy. However, further prospective studies are needed to validate our first observations.

417. ROBOT-ASSISTED MINIMALLY INVASIVE ESOPHAGECTOMY WITH UPPER MEDIASTINAL LYMPHADENECTOMY

Shigeru Tsumoda, Tatsuto Nishigori, Shigeo Hisamori, Hisatsugu Maekawa, Nobuaki Hoshino, Keita Hanada, Shinya Yoshida, Kazuhiro Nishiyama, Kazutaka Ohama

Department of Surgery, Kyoto University, Kyoto, Japan

We started robot-assisted minimally invasive esophagectomy (RAMIE) in 2012 using da Vinci S. After the reimbursement in the national insurance system in 2018, RAMIE has been indicated as an institutional standard surgery simply depending on the da Vinci availability. Our early series of 45 RAMIEs showed significantly less postoperative morbidity (p = 0.03) mainly due to less pulmonary complication (p = 0.006) compared to conventional minimally invasive esophagectomy using propensity score matching (Ann Surg Oncol. 2020).

This study aims to retrospectively evaluate the feasibility of RAMIE and to demonstrate our standardized RAMIE with updated data.

Our surgical technique is as follows. A patient is placed in a prone position with both lung ventilation with 8-10 mmHg artificial pneumothorax. In the upper mediastinum, the thoracic duct is usually preserved unless there is tumor invasion. Then, the tracheoesophageal arteries flowing into the visceral sheath over the recurrent laryngeal nerve (RLN) are divided first and RLN is isolated laterally. Then, the lymphatic tissue is dissected from the trachea. This procedure is identical on both sides of RLN nodal dissection.

By January 2022, 89 RAMIEs (S: 6 cases and X: 83 cases) were performed. Thoracic operation time was 348 min and console time was 296 min. Intraoperative blood loss was 80 g and the number of harvested thoracic nodes was 23. There was no conversion from RAMIE to MIE nor to open procedure. Overall severe postoperative morbidity (Clavien-Dindo Grade 3 or higher) was 17% (15/89) and clinically relevant postoperative recurrent laryngeal nerve palsy (Clavien-Dindo Grade 2 or higher) was 10% (9/89). There was no postoperative mortality.

RAMIE was safe and feasible.

418. STRATEGIES FOR OLIGOMETASTATIC AFTER CURATIVE RESECTION OF ESOPHAGEAL CANCER

Kohei Tajima, Kohei Kanamori, Kentaro Yatabe, Miho Yamamoto, Akihito Kazuno, Yoshiki Suyoi, Kazuo Koyanagi

Tokai University School of Medicine, Department of Gastroenterological Surgery, Ichihara, Shinokazuya, Japan

The recurrence rates in patients with esophageal cancer who are treated by curative esophagectomy is reported to be 29-43%. Recently, the concept of oligometastasis recurrence (OLR) has gained attention.

To clarify the relationship between treatment strategy and prognosis of patients with OLR after esophagectomy. We included 124 patients with recurrence among 446 patients who underwent esophagectomy for esophageal cancer.

OLR was defined as five or fewer recurrences in a single organ or five or fewer recurrences in a single lymph node. Patients were divided into two groups: OLR and non-OLR group. Recurrence within 6 months after surgery was defined as early recurrence. The relationship between early recurrence and prognosis was examined. We focused on liver and lung metastases and examined treatment methods and prognosis.

Of the recurrence patients, 40 (32%) were in the OLR group and 84 (78%) were in the non-OLR group. The overall survival was 49 months in the OLR group and 17 months in the non-OLR group (p = 0.001). Survival after recurrence was 26 months in the OLR group and 6 months in the non-OLR group (p = 0.001). In comparison of the early relapse and non-early relapse groups, both OS and survival after recurrence tended to be worse in the early relapse group (p = 0.05). The prognosis was better in the lymph node recurrence group and worse in the liver recurrence group (p = 0.05).

Oligometastasis is related to prognosis in patients with recurrence after esophagectomy, and patients with early recurrence or liver recurrence may have a poor prognosis.

420. IDENTIFICATION AND CLASSIFICATION OF TUMOR CELLS IN PATIENTS WITH BARRETT’S CARCINOMA BY HYPERSONSPECTRAL IMAGING (HSI)

Marianne Maktabi1, Yannis Wichmann1, Hannes Köhler2, Claire Chalopin2, Boris Jensen-Winkel1, Ines Gockel1, René Thieme1

1. Department of Visceral, Transplant, Thoracic and Vascular Surgery, University Hospital Leipzig, Leipzig, Germany
2. Innovation Center Computer Assisted Surgery (ICCAS.), University of Leipzig, Leipzig, Germany

Hyperspectral imaging (HSI), as recently applied in medicine, is a novel technology combining imaging with spectroscopy. It might be used to identify, classify and discriminate malignant and non-malignant cells of histopathologic specimens. HSI allows the determination of a spectrum between the visual and near-infrared light (300-1000 nm).

After surgical resection, specimens (n = 96) of Barrett’s cancer were fixed in 4% formaldehyde and slices were conducted (3 μm), which were stained with hematoxylin and eosin (HE). Differences in the absorbance of squamous