The study aimed to evaluate the usefulness of prone-position computed tomography (CT) for predicting relevant thoracic procedure outcomes in minimally invasive esophagectomy (MIE) for thoracic esophageal cancer.

Methods: A total of 59 patients underwent esophagectomy between May 2019 and December 2020 in Tokai University Hospital. Preoperative CT imaging was conducted with the patient in both the supine and prone positions, and the magnitude of change in the intramediastinal space was calculated. In the 56 patients (94.9%) who had undergone MIE, the effects of such a difference on the surgical outcomes were analyzed.

Results: A significant correlation of the magnitude of change in VE (distance between ventral aspect of vertebral body and the midpoint of esophagus) with the surgical outcome was revealed in the 17 patients (30.4%) in whom the magnitude of change in VE was over the 75th percentile. That is, in this subgroup, VE showed a negative correlation with the thoracic operation time ($p = 0.01$) and blood loss during the thoracic procedure ($p = 0.01$). Multivariate analysis identified a magnitude of change in VE □9 mm as an independent risk factor for postoperative pneumonia.

Conclusion: This study indicates that preoperative prone-position CT imaging is useful for predicting the level of ease or difficulty of securing an adequate operative field, surgical outcomes, and the risk of postoperative pneumonia in MIE.

670 THE STERNO-TRACHEAL DISTANCE IS AN IMPORTANT FACTOR OF ANASTOMOTIC LEAKAGE OF RETROSTERNAL GASTRIC TUBE RECONSTRUCTION AFTER ESOPHAGECTOMY

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Anastomotic leakage (AL) is a serious complication after esophagectomy. The retrosternal (RS) route has been selected majorly to reduce reflux and related pneumonia and considering mediastinal recurrences. AL has been developed more in RS than posterior mediastinal (PM) route reconstruction. Therefore, we suspected the sterno-tracheal distance (STD) might be related to AL and started the selection according to the STD from 2009.

Methods: A total of 221 patients who underwent a sub total esophagectomy with gastric tube reconstruction during January 2004—April 2017 were investigated. The patients were classified into the 'after STD selection' (A; n = 144) group and the 'before STD selection' (B, n = 77) group. The incidences of and the risk factors for AL between the two groups were compared.

Results: The incidence of AL was high in the B group (18.2%), and 78.6% of the patients who developed AL were treated with RS route reconstruction. The median STDs of the patients with AL and no AL were 10.3 mm and 14.5 mm, respectively ($p = 0.001$). These results demonstrated that the STD was a risk factor for AL in RS route. Based on these results, 13 mm was set as the cutoff value. After STD selection, the median STD increased from 14.0 mm to 17.3 mm ($p = 0.001$), and the incidence of AL decreased significantly from 26.2% to 11.1% in RS route ($p = 0.037$).

Conclusion: The STD was the independent risk factor for AL in the RS route. RS route reconstruction should be avoided for the patients with STD <13 mm.

672 OESOPHAGOGASTRIC ANASTOMOTIC LEAK IN THE THORAX TREATED WITH COVERED METAL STENTS: SAFE AND HIGHLY SUCCESSFUL

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Anastomotic leak (AL) develops in 5–22% of cases following oesophagectomy, and results in additional morbidity, and reduction in overall survival. The management of AL has evolved significantly with advances in endoscopic therapies. Covered cylindrical metal stents have been increasingly used, and insertion techniques have improved over time. We aimed to investigate the effectiveness and safety of modern metal stents in the management of AL.

Methods: All patients who underwent oesophagectomy with thoracic anastomosis between 2006–2020, and subsequently developed AL were retrospectively identified. Initially, treatment details and patient outcomes were assessed for the subgroup of patients where the AL was initially managed using a stent. In all cases, these were cylindrical covered metal stents. Those patients that progressed to surgery after treatment with a stent were then excluded, with the remainder compared to the subgroup of patients that underwent conservative (i.e., non-interventional) treatment for AL.

Results: Of 63 patients with AL, primary management was with stents in 32 (57%). Technical success was achieved in all stenting procedures, although three patients (9%) developed complications (stent migration). After stenting, six cases (19%) subsequently required escalation to operative management (thoracotomy). The remainder (N = 23) were then compared to those managed conservatively (N = 26) and were found to have a significantly longer length of hospital stay (median: 37 vs. 20 days, $p = 0.003$). The AL healing rate was 96% in both groups ($p = 1.000$); one conservatively managed patient died before healing, and one stented patient refused further treatment.

Conclusion: Endoscopic treatment of oesophageal AL with cylindrical covered metal stents is safe, with a high technical success rate, and low rates of stent-related morbidity. Treatment with stents also avoids the need for operative management including oesophageal disconnection in the majority of cases, whilst leading to successful healing of the AL. However, treatment with stents does significantly increase hospital stay over conservative management, particularly where multiple procedures are required.

674 TRANSITION FROM ESOPHAGECTOMY TO ENDOSCOPIC THERAPY FOR EARLY ESOPHAGEAL CANCER

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To assess the outcomes of patients with early esophageal cancer (EEC) and high-grade dysplasia (HGD) comparing esophagectomy, the historical treatment of choice, to endoscopic eradication therapy (EET).

Methods: Retrospective cohort study of consecutive patients with EEC/HGD, treated between 2000 and 2018 at a tertiary referral centre. Primary outcomes were all-cause and disease-specific mortality assessed by multivariable Cox regression and a propensity score matching sub analysis, providing hazard ratios (HR) with 95% confidence intervals (CIs), adjusted for age, tumor grade (G1/2 vs G3), tumor stage and lymphovascular invasion(LVI). Secondary outcomes included complications, hospital stay, and overall costs.

Results: Among 269 patients, 133 underwent esophagectomy and 136 received endoscopic mucosal resection (EMR)+/−further EET. Adjusted survival analysis showed no difference between groups regarding all-cause mortality (HR 1.85,95%CI 0.73,4.72) and disease-specific mortality (HR 1.10,95%CI 0.26,4.65). In-hospital and 30-day mortality was 0% in both groups. The surgical group had a significantly higher rate of complications (Clavien-Dindo ≥3 26.3% vs EMR 0.74%), longer in-patient stay (median 14 vs 0 days EMR) and higher hospital costs ($20.426 vs $10.988 per patient).

Conclusion: This series of patients with EEC/HGD treated during a transition period from surgery to EET, demonstrates a primary endoscopic approach does not compromise oncological outcomes with the benefit of fewer complications, shorter hospital stays, and lower costs compared to surgery. EET should be available as the gold standard treatment for patients with early esophageal cancer. Those with adverse prognostic features may still benefit from esophagectomy.

675 FUNDOPLICATION VERSUS ORAL PROTON PUMP INHIBITORS FOR GASTROESOPHAGEAL REFLUX DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS

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