Diseases of the Esophagus (2019)**32**,1–63
DOI: 10.1093/dote/doz092

DISEASES OF THE ESOPHAGUS

ISDE The International Society for Diseases of the Esophagus

ABSTRACT SUPPLEMENT

P4 FULMINANT CEREBRAL AIR EMBOLISM FOLLOWING ENDOVAC-THERAPY IN ESOPHAGEAL ANASTOMOTIC LEAKAGE – A RARE COMPLICATION

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Aim: Anastomotic leakages after esophageal surgery is a major complication with an increased risk of mortality and an extended ICU and hospital stay. Surgical revisions or endoscopic interventions are standard procedures in treatment of such complications. The use of endoscopic endoluminal vacuum therapy (EVT) as introduced in the last years is considered a safe treatment.

Background and Methods: We analyzed 78 patients who underwent a surgical resection of the esophagus from January 2015 until December 2018. We compared patients with endovac-therapy to patients without such endoscopic intervention. Length of stay in ICU and in hospital, patient's demographics and perioperative parameters were analyzed.

Results: In our center, we performed 78 esophageal resections from January 2015 to December 2018. In 14.1% (11 patients) an anastomotic leakage appeared, in 10 patients (12.8% of all cases) we performed an endovac-therapy. In the endovac- group, the mean postoperative hospital stay was 39 days (± 18 days), which is a significant longer postoperative in-hospital time in compare to the other patients (mean 17 days, ±8 days, p=0,004). Patients demographics and perioperative parameters were comparable in both groups. The postoperative 90-days mortality in the endovac-group was 20% (2 patients), in compare to a 90-days mortality rate of 4.4% in the group without an EVT.
In one case we found the rare complication of an air embolism following an extended 35 days endovac-therapy.
Endovac-therapy is a useful tool in the treatment of anastomotic leakage, although it is associated with a significantly prolonged hospital stay. Air embolism during endovac-therapy such as reported in this analysis, is a rare complication associated with endoscopic treatments. This is the first reported case of such an air embolism during endovac-therapy.
Using carbon dioxide for endoscopic interventions might reduce the risk for air embolism, especially in high-risk-patients.

P5 FEASIBILITY AND EFFICACY OF INDOCYANINE GREEN ANGIOGRAPHY DURING ESOPHAGECTOMY: A SYSTEMATIC REVIEW

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Aim: The aim of this review was to evaluate feasibility and effectiveness of Indocyanine green fluorescence angiography (ICGA) as an assessment tool for gastric tube (GT) perfusion during the construction of the esophagogastric anastomosis, and as a predictor of anastomotic leakage (AL). Moreover, attention was given to attempts made to quantify this method in esophageal surgery.

Background and Methods: After an esophagectomy, a GT is most commonly used to restore continuity of the upper gastrointestinal tract. Esophagogastric anastomoses are known for their complications such as AL, associated with high morbidity and mortality. Graft perfusion is an important predictor for anastomotic integrity. Tissue perfusion assessment is currently based on subjective parameters as tissue color and vessel pulsations. Near infrared fluorescent (NIRF) imaging is an emerging medical imaging modality, requiring penetrating NIR light that excites a NIRF agent within the tissue, generating fluorescence that can then be captured by adapted cameras. Indocyanine green Angiography (ICGA) is such a NIRF imaging technique which can be used as a method to visualize anastomotic perfusion. For this review, 2 reviewers independently searched Pubmed and Embase for studies evaluating intraoperative ICGA perfusion assessment of the GT. Feasibility, complications, intraoperative surgical changes based on ICGA findings, quantification attempts, anatomical data and the impact of ICGA on postoperative anastomotic complications were documented and further analyzed.

Results: Nineteen studies were included for qualitative analyses. All described ICGA as a safe and easy method for gastric graft perfusion assessment. AL occurred in 13.8% of the entire cohort, 10% in the ICG guided group and 20.6% in the control group (p<.001). AL in the well-perfused group was 6.3% vs. 20.5% in the control group without ICGA (p< .001). The group with an altered surgical plan based on the ICG image had similar AL rates as the well perfused group (6.5% vs. 6.3%) and significantly less than the poorly perfused group (47.8%) (p<.001), suggesting that the technique is able to identify and alter a potential bad outcome.

Conclusion: the present review suggest that ICGA is a safe and easy method for GT perfusion assessment. Differences in AL rate between the well perfused and poor perfused anastomotic sites suggest that a good fluorescent signal is a predictor of good outcome.

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