بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / منى مغربي أحمد

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد

End to End versus end to side oesphagogastrostomy after oesphageal resection, a prospective cohort study

Thesis

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List of Contents

List of Abbreviations

Abb.	Full term
5-FU	5-fluorouracil
AJCC	American Joint Committee on Cancer
AL	Anastomotic leakage
COPD	Chronic obstructive disease
CT	Computed tomography
DM	Diabetes mellitus
DVT	Deep vein thrombosis
EC	Esophageal cancer
EGJ	Esophagogastric junction
ETE	End to End
ETS	End to Side
GERD	Gastroesophageal reflux disease
GIT	
HTN	Hypertension
ILE	Ivor Lewis Esophagectomy
LES	Lower esophageal sphincter
LMB	Left main bronchus
MRI	Magnetic resonance imaging
OTSC	Over-the-scope-clip
PET	Positron emission tomography
PP	Postoperative pneumonia
RCT	Radio-chemotherapy
RCTs	Randomized clinical trials
RLN	Recurrent laryngeal nerve
RMB	Right main bronchus
THE	
TNM	
UES	Upper esophageal sphincter

List of Tables

List of Figures

Fig. No.	Title	Page No.

List of Figures Cont...

Fig. No.	Title	Page No.

Introduction

Several indications for esophagectomy exist ranging from benign to malignant conditions. Almost all of malignant esophageal neoplasms are treated surgically combined to neoadjuvant therapy, yet in benign conditions, esophagectomy is done when other measures of management fail. For example, post corrosive stricture's primary treatment is dilatation. Regarding Achalasia, Heller myotomy with or without fundoplication is gold standard in symptomatic achalasia. Esophagectomy for achalasia is done in tortuous and massive esophagous (Sigmoid esophagus) ***(Mormando et al., 2018).***

The most pressing concern after esophagectomy is leak at the gastroesophageal anastomosis. Early identification of leaks provides the best opportunity to minimize morbidity and mortality from a historically mortal complication ***(Yeung et al., 2020).***

Of all the anastomoses performed in the alimentary tract, the esophagogastrostomy has one of the highest complication rates ***(Martin et al., 2006).***

Usually, leaks arise as a result of ischemia at the anastomosis, preventing adequate healing. The gastroesophageal anastomosis is particularly susceptible because the gastric conduit relies on the right gastroepiploic vessel as the sole source of blood supply, and careful preservation of this vessel during creation of the gastric conduit is important.

Several medical and surgical complications arise from esophagectomy. Cardiopulmonary complications and anastmotic leaks are acute post operative complication leading to significant morbidity and mortality. On the other hand, Stricture is non acute complication occurring few months after surgery ***(Sharma, 2013).*** Several techniques have been adapted to prevent these complications for better post-operative morbidity and mortality rates ***(Mboumi et al., 2019).*** Several methods for anastmosis are studied to decrease incidence of anastmotic leaks including hand sewn, stapled, shape of anastmosis (Circular vs. triangulating), type of suture (End to end vs. end to side) ***(Cheng et al., 2021)***. Also robotic, laparoscopic, and open methods for esophagectomy had been studied ***(Zhang et al., 2019).*** However, according to an international survey done by ***Hagens et al. (2018)*** no international standardized guideline for diagnosis and management of anastmotic leaks ***(Hagens et al., 2018).***

Few studies had compared End to End (ETE) vs. End to Side (ETS) anastmoses for esophagectomy. We aim to compare these two types of anastmoses regarding post operative complications mainly anastmotic leakage and stricture, operative time, and hospital stay.

Aim of the Work

The aim of this study to evaluate different approaches in management of leakage after gastroesophageal anastomosis in Upper GIT surgery unit in Ain Shams University Hospitals.

Chapter 1

ANATOMY OF THE OESOPHAGUS

The esophagus is a muscular canal approximately 25 cm long extending from the pharynx to the stomach ***(Devenney-Cakir et al., 2011).***

Along its course, it traverses 3 body areas: the neck, the chest, and the abdomen. Accordingly, it is subdivided into 3 anatomic segments: cervical, thoracic, and abdominal ***(Petrov et al., 2019).***

The transition to the esophagus occurs at the cricopharyngeus muscle (vertebral level C5/6). The cervical esophagus is posterior and to the left of the trachea and extends to the thoracic inlet.

The thoracic esophagus extends from the thoracic inlet (vertebral level T1) to the esophageal hiatus at T11. The abdominal esophagus extends from the esophageal hiatus to the stomach at the gastroesophageal junction ***(Tracy et al., 2020).***

Of these, the thoracic part is the longest, and may be further subdivided into a superior mediastinal segment and a posterior mediastinal segment ***(Mahadevan et al., 2017).***

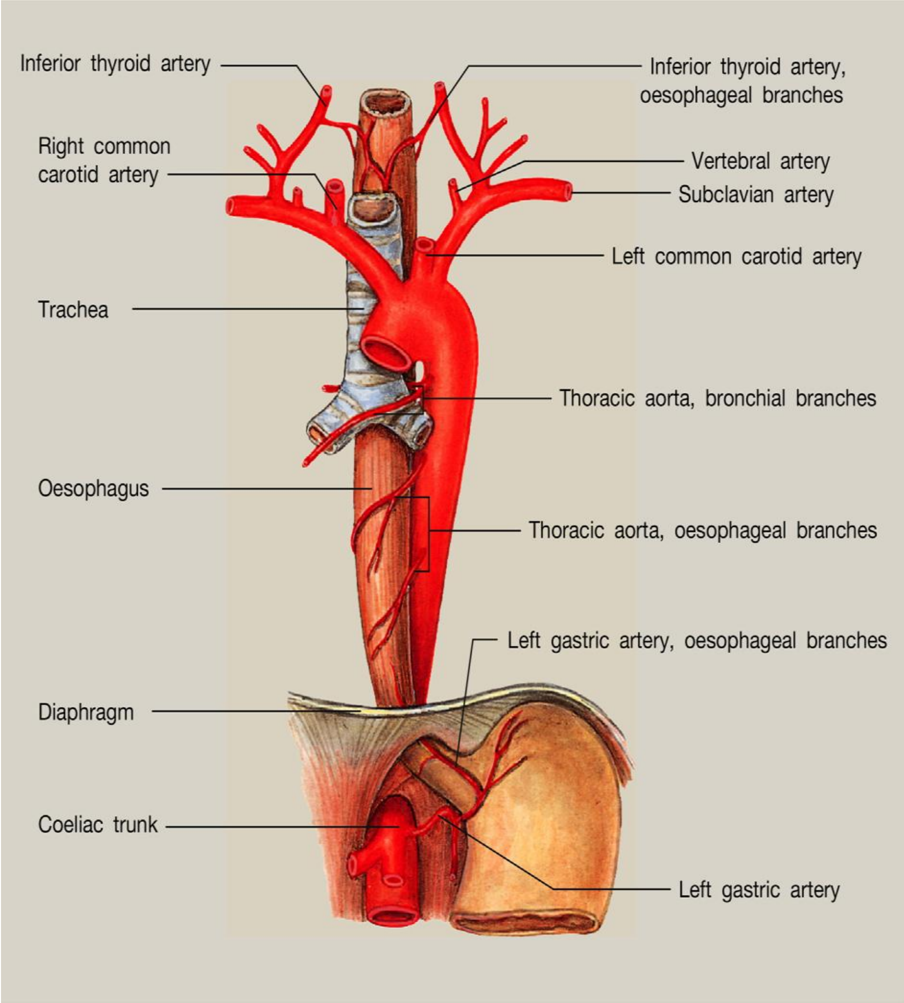

Figure (1): Course of oesophagus and oesophageal arterial supply (as viewed from the front) ***(Mahadevan et al., 2017).***

The esophagus has three areas of normal narrowing of its lumen: the cricopharyngeal (pharyngoesophageal) constriction at the cricoid cartilage, the bronchoaortic constriction, and the diaphragmatic constriction at the diaphragmatic hiatus.

The esophageal wall contains four layers: mucosa, submucosa, muscularis propria, and tunica adventitia.

In the upper esophageal third, musculature consists of skeletal (striated) muscle. In the middle third, the skeletal muscle dominates, but smooth muscle fibers are blended. In the lower third, esophageal musculature consists of smooth muscle alone.

The UES is composed of the cricopharyngeus muscle along with fibers from the esophageal wall and the inferior constrictors of the pharynx.

The LES is not a distinct anatomic structure but is a physiologic region of intrinsic high pressure identifiable using manometry.

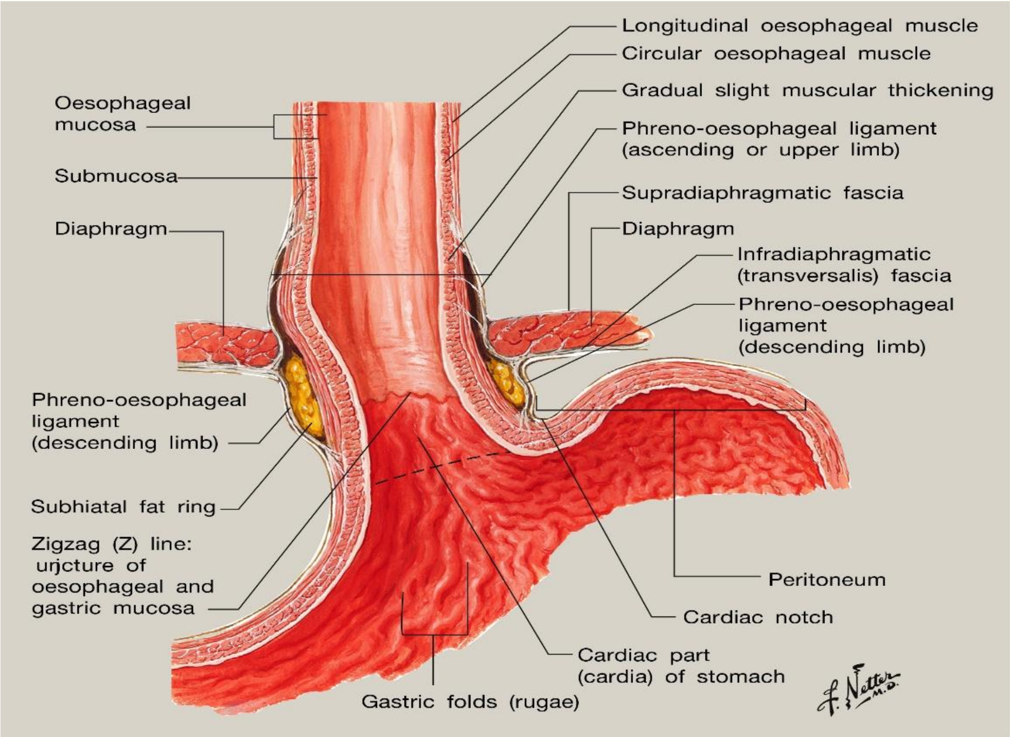

Figure (2): Anatomy of gastro-oesophageal junction ***(Mahadevan 2017).***

Arterial Blood Supply:

Upper Esophageal Sphincter and cervical esophagus are supplied by branches of the right and left inferior thyroid arteries, which arise from the thyrocervical trunk of the subclavian artery.

Inferior thyroid arteries give off branches 2–3 cm long called tracheoesophageal arteries.

Rare variants, such as direct esophageal branches from subclavian artery, superior thyroid artery, thyroidea ima artery, and common carotid artery, are rather insignificant.

Proximal thoracic portion is supplied by 1–4 unpaired tracheobronchial arteries, originating from the concavity of the arch and upper descending aorta, and bronchoesophageal artery.

Frequently, one bronchoesophageal artery originates 1–3 cm caudal to the vascular bundle from the anterolateral aspect of descending aorta.

Abdominal esophagus and EGJ are supplied by branches of left gastric, left phrenic, and splenic arteries. The left gastric artery mainly supplies the anterior and right lateral aspects of the esophageal wall with its ascending branches, which run on the lateral side of the EGJ following the longitudinal axis of the esophagus.

Venous Drainage:

The venous drainage of the oesophagus corresponds largely to the arterial supply.

Thus the cervical oesophagus drains into the inferior thyroid veins and thence to the brachiocephalic veins.

The thoracic oesophagus drains into the azygos and hemiazygos veins, while the lower part of the oesophagus empties into the oesophageal tributaries of the left gastric vein, which in turn drains directly into the portal vein.

In the mucosa and submucosa of the distal oesophagus there exists a natural venous anastomosis between oesophageal tributaries of the left gastric vein (portal system) and oesophageal veins that join the azygos veins.

This is an example of a portosystemic anastomosis and one that is of great clinical significance.

In portal hypertension this venous anastomosis becomes engorged to form oesophageal varices.

Rupture of these varices may cause life-threatening hemorrhage presenting as massive hematemesis and circulatory shock ***(Mahadevan et al., 2017).***