Recent Trends in Management of Esophageal Emergencies

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الحديث في تشخيص وعلاج حالات المريء الطارئة

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List of Abbreviations

ACS ……Acute Coronary syndrome
CAD……Coronary artery disease
CNS ……Central nervous system
CT ……Computed tomography
DES……Diffuse esophageal spasm
EFBs ……Esophageal foreign bodies
EGD……Esophagogastroduodenoscopy
EV ……Esophageal varices
EVL…….. Endoscopic variceal ligation
GER……Gastroesophageal reflux
GERD……Gastroesophageal reflux disease
GI……Gastrointestinal
HVPG…… Hepatic venous pressure gradient
ISMN……..…Isosorbide mononitrate
IV ……Intravenous
LES……Lower esophageal sphincter
MRI ……Magnetic resonance imaging
PEG ……..Percutaneous endoscopic gastrostomy
PHT ……Portal hypertension
SPG……Swallowing program generator
TIPS……..…Transjugular intrahepatic portosystemic shunt
UCP ……Chest pain of undetermined origin
UES……Upper esophageal sphincter

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Introduction

Esophageal emergencies result in significant morbidity and mortality if they are not recognized and treated promptly. The spectrum of esophageal emergencies includes esophagitis, foreign body impaction, and traumatic esophageal injury **(Young et al., 2008).**

Most esophageal causes of chest pain are not immediate threats to life however, differentiating esophageal pain from ischemic chest pain can be impossible in the emergency department. Patients with esophageal pain can report spontaneous onset of pain or pain at night, regurgitation, odynophagia, dysphagia, or meal-induced heartburn; however, these symptoms also found in patients with coronary artery disease (CAD), and then there is no historical feature that is sensitive or specific enough to routinely make a differentiation between the two. To minimize missing patients with acute coronary syndrome (ACS), the emergency physician's default assumption is that the pain is cardiac in nature and not esophageal **(Lang and Shaker, 1997).**

Esophageal perforation is a true emergency. Prompt diagnosis, in less than 24 hours, is vital to good outcomes. Recognition of the importance of early diagnosis and aggressive, definitive surgical intervention has brought about a dramatic decline in mortality related to esophageal perforation. There is a mortality of 10% with early diagnosis and that

mortality goes up to 50% with late diagnosis (**Kiernan et al., 2006**).

The three most common clinical features of esophageal perforation includes pain, fever and subcutaneous or mediastinal emphysema **(Braghetto et al., 2005).**

Iatrogenic injuries account for up to 60% of all cases of esophageal perforation. The risk of perforation increases significantly from 0.6% for purely diagnostic endoscopy to 6% for operative procedures **(Tsao and Damrose, 2010).**

Foreign body (FB) ingestion is a frequent occurrence in children, especially in their first six years of life with a peak in children older than 3 years. Various reasons for this event can be pointed out, stressing that all the characteristics such as sex, age, socioeconomic level and parents' influence are closely interrelated **(Andrade-Alegre, 2005)**

Exposure to chemical agents is a serious problem in different age groups. Ingestion of chemical agents can cause extensive damage to the upper gastrointestinal tract, which may result in perforation and death. In the acute phase, perforation and necrosis of the esophagus may occur, while long-term complications may be stricture formation, antral stenosis or development of esophageal carcinoma. After corrosive esophagitis, the risk of developing esophageal carcinoma is 1000-3000 times higher than in the normal population **(Gumurdulu et al., 2010).**

Esophageal varices are present in 40% and 60% of Child-Pugh A and C patients, respectively when cirrhosis is diagnosed. Esophageal varices bleeding are a life-threatening complication of liver cirrhosis with a high probability of recurrence. Treatment to prevent first Esophageal varices bleeding or rebleeding is mandatory **(Lee, 2010).**

Aim of the Work

To discuss the recent updates in management of esophageal emergencies and to detect the best updated ways to dealing with them.

Anatomy of the Esophagus

The esophagus is a flattened muscular tube of 18 to 26 cm length from the upper sphincter to the lower sphincter. Between swallows the esophagus is collapsed but the lumen can distend to approximately 2 cm in the antro-posterior dimension and up to 3 cm laterally to accommodate a swallowed bolus **(Feldman, et al., 2002).**

The esophagus connects the pharynx to the stomach. Beginning in the neck, at the pharyngoesophageal junction (C5-6 vertebral interspace at the inferior border of the cricoid cartilage), the esophagus descends anteriorly to the vertebral column through the superior and posterior mediastinum. After traversing the diaphragm at the diaphragmatic hiatus (T10 vertebral level) the esophagus extends through the gastroesophageal junction to end at the orifice of the cardia of the stomach (T11 vertebral level) **(Kuo and Urma 2006).**

Generally vertical in its course, it has two shallow curves. At its beginning it is median but inclines to the left as far as the root of the neck, gradually returns to the median plane near the fifth thoracic vertebra, and at the seventh deviates left again, (Fig. 1) **(Bannister, 2003).**

Constrictions of the esophagus:

There are major constrictions and minor constrictions, (Fig. 2).

A) Major constrictions:

1. The cricopharyngeal or pharyngo-esophageal constriction is produced by the cricoid cartilage and the cricopharyngeal muscle 6 inches (15 cm) from the incisors.

2. The broncho-aortic constriction is produced by the arch of aorta and the left primary bronchus 9 inches (22.5 cm) from the incisors.

3. The diaphragmatic constriction is produced by the diaphragmatic crura forming the hiatus at the level of T9 or T10 16 inches (40 cm) from the incisors **(Townsend et al., 2002).**

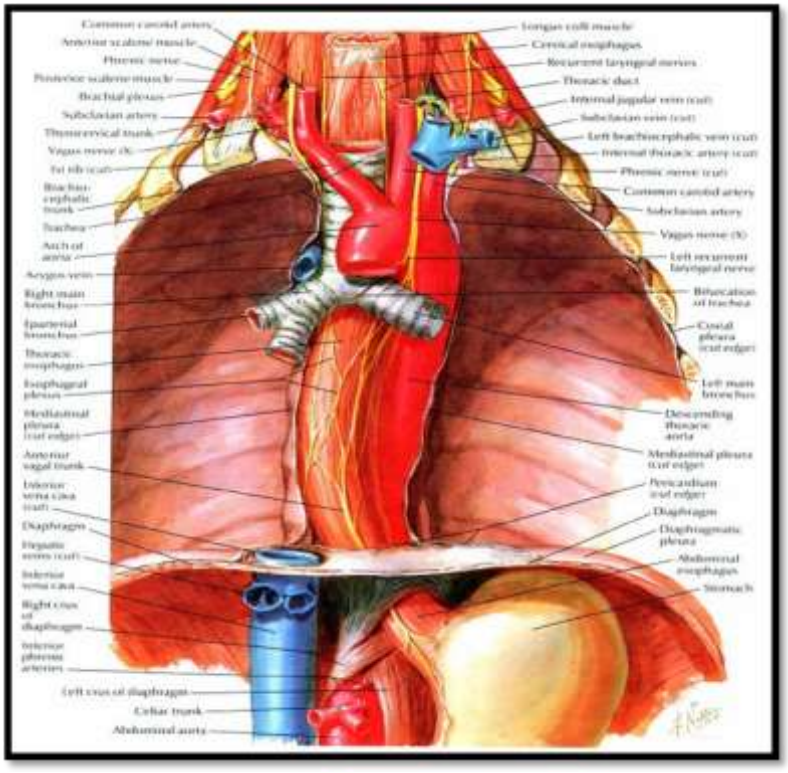

Fig. (1): Relations of the esophagus **(Elsevier.inc Netterimages.com).**

B) Minor constrictions:

There are minor constrictions seen occasionally as retrosternal constriction which may lie between the pharyngoesophageal and aortic constriction, a cardiac constriction and supradiaphragmatic constriction **(Lafontaine, 1988).**

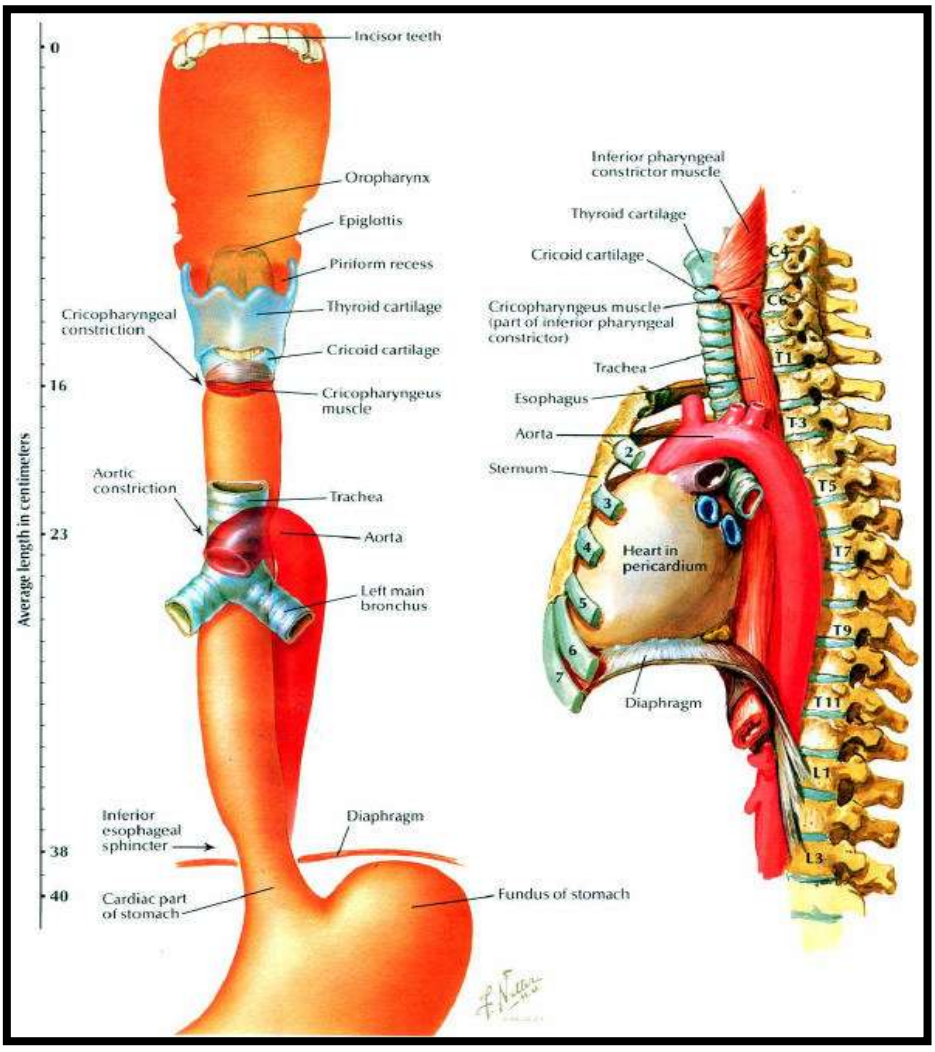

Fig.(2): Constrictions of the esophagus **(Elsevier.inc Netterimages.com).**

Topographically, there are three distinct regions: cervical, thoracic, and abdominal esophagus.

The cervical esophagus extends from the pharyngoesophageal junction to the suprasternal notch and is about 4 to 5 cm long. At this level, the esophagus is bordered anteriorly by the trachea, posteriorly by the vertebral column, and laterally by the carotid sheaths and the thyroid gland **(Shields, 2003).**

The thoracic esophagus is approximately 20 cm long and extends from the suprasternal notch to the diaphragmatic hiatus, passing posterior to the trachea, the tracheal bifurcation, and the left main stem bronchus. The esophagus lies posterior and to the right of the aortic arch at the T4 vertebral level. From the level of T8 until the diaphragmatic hiatus the esophagus lies anteriorly to the aorta **(Shields, 2003).**

The abdominal esophagus extends from the diaphragmatic hiatus to the orifice of the cardia of the stomach. Forming a truncated cone, about 1 cm long, the base of the esophagus transitions smoothly into the cardiac orifice of the stomach. The abdominal esophagus lies in the esophageal groove on the posterior surface of the left lobe of the liver **(Bannister, 2003).**

Arterial Blood Supply of the Esophagus:

The rich arterial supply of the esophagus is segmental (Fig. 3). The branches of the inferior thyroid artery provide arterial blood supply to the upper esophageal sphincter and cervical esophagus. The paired aortic esophageal arteries or