

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

HIATUS HERNIA

Essay

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The Candidate

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CONTENTS

	<u>Page</u>
★ Introduction	1
★ Anatomy of the oesophagus and gastroesophageal region	3
★ Physiology of the lower end of oesophagus	30
★ Types of esophageal hernia	41
★ Complications	45
★ Clinical presentations	52
★ Investigations	58
★ Medical treatment	77
★ Surgical treatment	83
★ Summary	112
★ References	115
★ Arabic Summary	

INTRODUCTION

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A hiatus hernia can be defined as intermittent or permanent intra-thoracic protrusion of the oesophagogastric junction and for the proximal portion of the stomach (**Maingots, 1985**).

It is the most common form of diaphragmatic hernia in adult. 98% of diaphragmatic hernia occurs through the esophageal hiatus (**Farser and Pare, 1979**). The commonest situation is when the cardia slides through the oesophageal hiatus into the mediastinum (the sliding hernia) less commonly the gastroesophageal junction remains in its correct position with the gastric fundus rolling along side it through the hiatus into the thoracic cavity (the rolling or paraesophageal hernia), while in some cases the two conditions co-exist. Review of a large series of cases shows that the sliding hernia occurs in order of 75% of cases, the paraesophageal hernia in 20% and mixed variety in 5% (**Hollender and Meyer, 1985**).

Hiatus hernia is extremely common in the Western World with a prevalence some 50 to 100 times greater than exist in Africa and Asia.

Although equally distributed between the two sexes, symptomatic hernia is at least twice as frequent in the female. All ages may be affected, but the incidence rises with each decade until, in the elderly. It is present radiologically in some 60% of the population (**Ellis, 1986**).

In infant esophageal hiatus hernia is less common than hernias through the foramen of Bochdalek but more common than those of foramen of Morgagni (Fraser and Pare, 1979).

Nowadays, two main types of hiatal hernia are recognized and may rarely occur together as mixed hiatal hernia 10%. The very common type 85% (sliding hernia), causes no symptoms or complications unless associated with abnormal reflux and by itself requires no surgical treatment. The rare type (paraesophageal) present a different problem. Since the stomach herniates into a free peritoneal sac extending into the thorax through a defect in the phreno-esophageal ligament, the hernia tends to enlarge by the combined effects of the high abdominal and the negative intrathoracic pressure. Such hernias are notorious for the high incidence of serious complications such as obstruction, strangulation and bleeding so that surgical repair is always indicated even when they are asymptomatic (Pridie, 1966).

ANATOMY

Anatomy of the oesophagus and gastroesophageal region: (Fig. 1 & 2)

The esophagus is a fibre muscular tube extending from the cricopharyngeal sphincter opposite the cricoid cartilage at the levels of the 6th cervical vertebra to the cardiac orifice of the stomach at the level of 10th thoracic vertebra and 7th costal cartilage. It is about 10 inches "25 cm" long in adult (Last, 1986).

There are 3 physiological constrictions in the tube at distance 15, 25 and 40 cm from upper incisor teeth corresponding to the cricopharyngeal constriction, the aortic and bronchial constriction and the diaphragmatic constriction (Rains and Mann, 1988).

1. Thoracic Oesophagus:

It pierces the diaphragm 2.5 cm to the left of the midline opposite the body of the 10 thoracic vertebra behind the 7th costal margin in front. Perforations of the lower third of the oesophagus are therefore more likely to result in left sided pleural effusion (Last, 1986).

2. Abdominal Oesophagus:

The abdominal portion distal to hiatal orifice, measures between 3 and 6 cm in length to the lesser curve of the stomach and from 2 to 5 cm to the level of the greater curvature.

The length varies according to the tone of its muscle and the degree of the distension of stomach (Last, 1986).

The abdominal esophagus grooves the posterior surface of the left lobe of the liver and is covered by peritoneum in its front and left side only (Skandalakis et al., 1982).

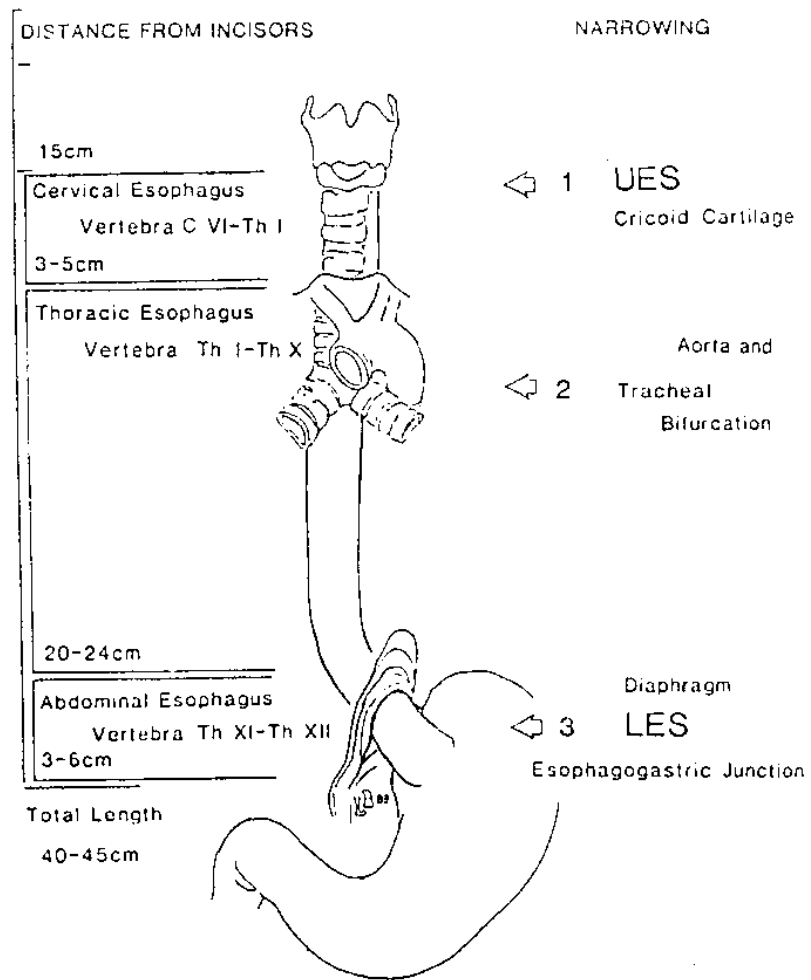


Fig. (1): Classification of the esophagus and its relationships to the vertebrae (C = cervical; Th = thoracic). The approximate length of each segment is given, and the three narrowings of the esophagus are shown (LES = lower esophageal sphincter; UES = upper esophageal sphincter) (Schackelford's, 1991).

Structure of the oesophagus: (Fig. 3)

The wall is composed of an inner circular layer of muscle and an outer longitudinal layer without a surrounding serosal covering and for this reason, it does not heal as readily after injury or surgical anastomosis as other portion of the gastrointestinal tract.

The upper third of muscle layers consists of striated muscle and the lower two thirds of smooth muscles. There is a short transition for both striated and smooth muscle between these segments. On the whole, the muscle layer of the oesophagus are friable and this, is a factor that anastomosis of the esophagus to another portion of gastrointestinal tract is prone to leak (Decker and du plessis, 1986).

Accessory slips of smooth muscular fibers some times pass between the oesophagus and the root of the left bronchus, trachea, pericardium or aorta and help to fix the oesophagus to the neighboring structures (Harwick et al., 1973). There is a prominent submucosa. Containing mucous glands, blood vessels, Meissner's plexus of nerves and a rich network of lymphatic vessels.

The mucosal lining consists of stratified squamous epithelium with scattered mucous glands throughout, although ectopic islands of gastric mucosa have identified particularly in the proximal portions of the oesophagus.

T.S. IN OESOPHAGUS

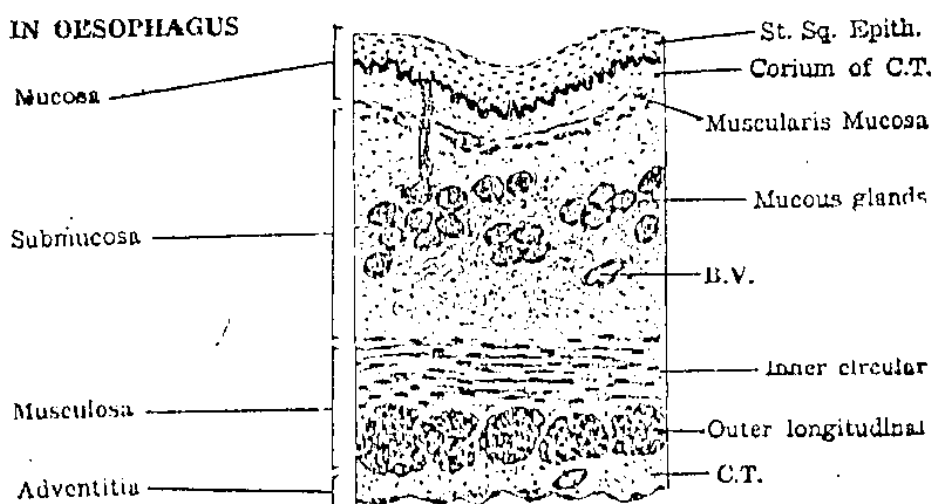


Fig. (3): In the oesophagus "from histology second edition by Zakaria Abd El-Hamid, 1983).

The mucosa is early stripped away from the muscle layer this feature is evident during circumferential myotomies to lengthen a shortened esophagus after tracheo-esophageal fistula repair and during modified Heller's coriomyotomy for achalasia or diffuse spasm of the oesophagus (Decker and du plessis, 1986).

The Proximal Gastric Surgical Unit:

The esophagus joins the stomach in the abdomen just below the diaphragm. It is defined "the termination of a tube, the oesophagus and the beginning of a pouch, the stomach".

The length of abdominal esophagus is given as being from 0.5 to 2.5 cm. **Terracol and Sweet, (1958)** have pointed out that by taking the level of the lowest connective tissue fibers attaching the oesophagus to diaphragm as the inferior limit of the mediastinum, there is technically no abdominal oesophagus. In spite of this view, the surgeon has access to an appreciable length of the oesophagus below the diaphragm (**Skandalakis, 1982**).

The abdominal esophagus lies at the level of 11th or 12th thoracic vertebra, perhaps lower in tall, asthenic subjects and higher in short subjects (**Terracol and Sweet, 1958**). Its relations with surrounding structures are:

- ★ Anterior: The posterior surface of the left lobe of the liver.
- ★ Posterior: The right crus of the diaphragm and aorta.
- ★ Right: The caudate (spigelian) lobe of the liver.
- ★ Left: The fundus of the stomach (**Skandalakis et al., 1982**).