

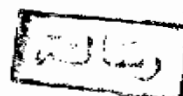
MANAGEMENT OF GASTRIC VARICEAL HAEMORRHAGE

AN ESSAY

SUBMITTED FOR PARTIAL FULFILMENT
OF MASTER DEGREE IN
GENERAL SURGERY

BY

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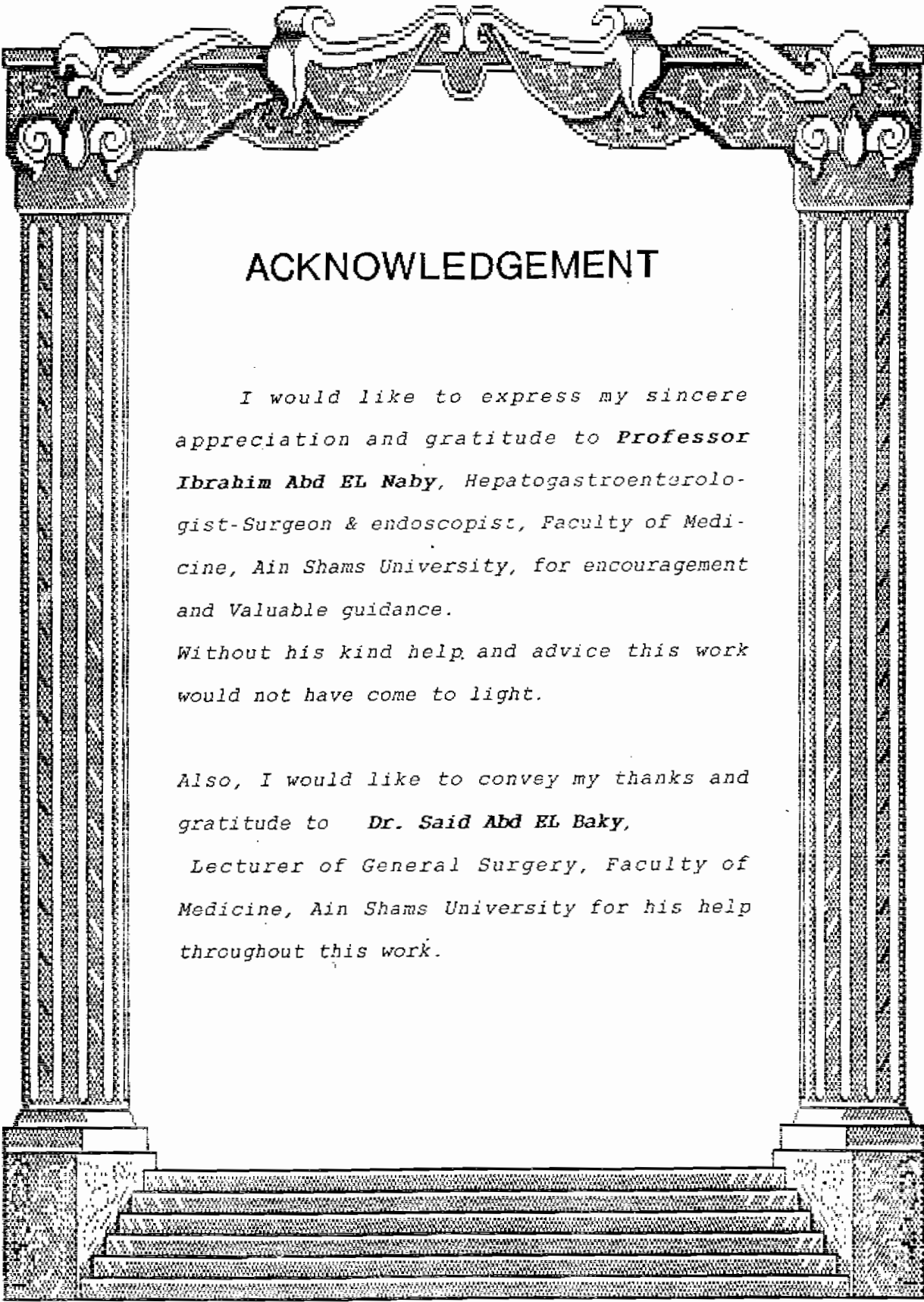
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*Thanks be to God who offers me time,
power and ability to complete
this work.*



TO
MY FAMILY



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Aim of work

This work aims to study types, different methods of diagnosis and management of bleeding gastric varices.

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**ANATOMY
OF THE CARDIO-ESOPHAGEAL
JUNCTION**

Anatomy

The lower esophagus (abdominal part), emerging from the right diaphragmatic crus, slightly left of the midline and level with the tenth thoracic vertebra, grooves the posterior surface of the left lobe of the liver.

The opening from the esophagus into the stomach is the cardiac orifice, situated to the left of the midline behind the seventh costal cartilage, 2-5 cm (1 in.) from its sternal junction at the level of the eleventh thoracic vertebra. It is about 10 cm (4 in.) from the anterior abdominal wall and 40 cm (16 in.) from the incisor teeth.

The abdominal part of the esophagus, 1.25 cm long, shaped like a truncated cone, the base of the cone being continuous with the gastric cardiac orifice. The right side of the esophagus continues smoothly into the lesser curvature, while its left side joins the greater curvature at an acute angle, (the cardiac notch or incisure).

The part of the stomach above the level of the cardiac orifice is the fundus, an inappropriate term, but it is the bottom of the stomach, when entered surgically from below.

Its level with the left fifth intercostal space just below the left nipple in males, though varying with respiration.

The lower part of the esophagus is covered by peritoneum on its front and left side, it is contained in the upper left part of the lesser omentum, the peritoneum reflected from its posterior surface to the diaphragm is part of the gastrophrenic ligament through which esophageal branches of the left gastric vessels reach it.

The vagus nerves vary in relation as the esophagus traverses the diaphragm. Sometimes one trunk (mainly of left vagal fibers) is anterior and another (mainly right vagal fibers) is posterior, but each vagus may consist of two or three trunks at this level.

The lesser omentum is attached to the lesser curvature and contains the right and left gastric vessels near the curvature.

The greater omentum is attached to the greater curvature and contains the left and right gastroepiploic vessels. [Warwick R., 1989].

**Venous Anatomy of the
Cardio - esophageal Junction**

The most comprehensive study was that of **Butler in (1951)**, who classified esophageal veins into three groups:-

- (a) Intrinsic veins.
- (b) Extrinsic veins and
- (c) Venae comitantes of the vagus nerve.

(A) The Extrinsic System

Butler is the first to subdivide this system into the extrinsic set proper and the venae comitantes of the vagus nerves.

1- The Extrinsic Set Proper:-

The extrinsic venous drainage of the abdominal esophagus is carried through 3-4 veins which join the left coronary veins. Direct and indirect contribution of the vasa brevia in the drainage of the abdominal esophagus was also demonstrated and confirmed by **[Warren et al., 1967]**.

The extrinsic veins around the thoracic esophagus are generally arranged longitudinally on its right and left margins, and are 8-10 in each location. On the right side, they drain into the vena azygos, and on the left side, into the hemiazygos below, and accessory hemiazygos above.

Few imperfect valves are found in the azygos vein, but its tributaries are provided with complete valves.

2- The Vena Comitantes of the Vagus Nerves

There are two longitudinal venous trunks: left and right. They arise as tributaries of the coronary vein, they pass upward accompanying the nerve trunks.

The left vena comitant terminates into the hemiazygos or the left posterior bronchial vein, while the right joins the azygos vein, the right posterior bronchial vein or the venous plexus on the surface of the right bronchi.

These form the main extrinsic direct connection between the portal and superior vena caval system at the gastro-esophageal region. [Butler, 1951].

(B) The intrinsic System:-

Kitano et al., (1986) identified three distinct layers of veins in addition to perforating veins. Fig. (1) .

1- Intraepithelial Channels :-

Consist of fine vessels running radially within the epithelium of the esophagus which drain the capillary network of this area. They join the superficial venous plexus at right angle immediately below the epithelium.

Spence (1984) have suggested that the intraepithelial channels represents the endoscopic findings of cherry red spots and red wale marking in advanced cases of varices.

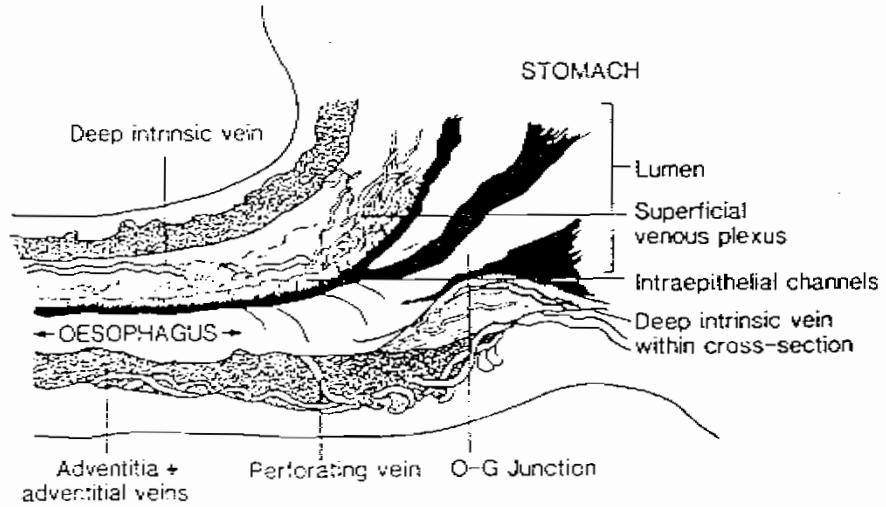


Fig. (1)

Normal venous anatomy of the gastroesophageal junction area.
(Potted from Kitano S. et al., 1986).

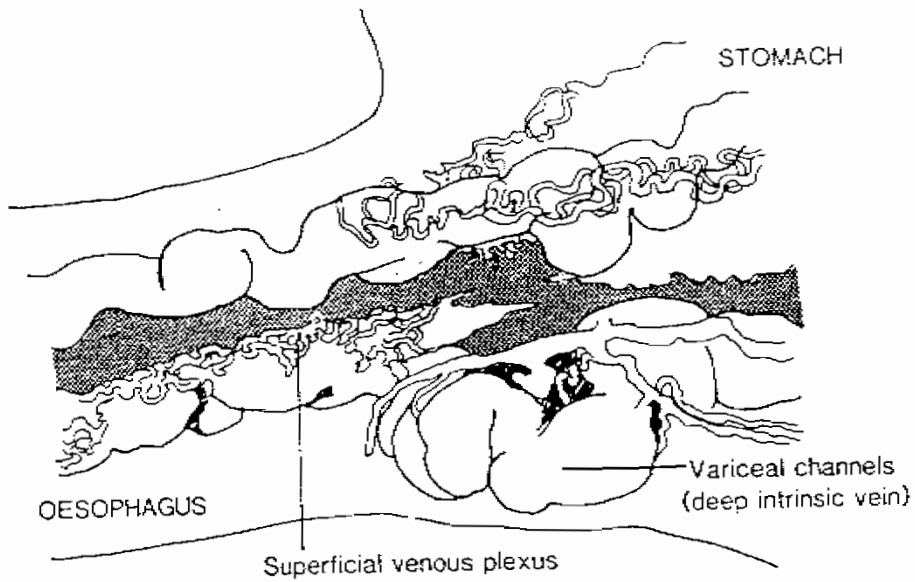


Fig. (2)

Large tortuous deep intrinsic variceal channels are demonstrated with the overlying superficial venous plexus.
(Potted from Kitano S. et al., 1986).

2- Superficial venous plexus:-

They form a rich network or plexus, freely communicating with equivalent venous plexus of the stomach. They lie within the lamina propria. They drain without the intervention of valves into the submucous group. [Butler, 1951].

3- Deep intrinsic Veins:-

They lie deep to the muscularis mucosa which separates them from the superficial venous plexus. They constitute three to five main trunks with few cross communications between them. However, they have communications with the superficial venous plexus.

In the lower esophagus the main trunks are connected directly with counterpart veins in the stomach.

De carvallo, (1966) found that these veins come to lie in the mucosa in the distal 1.5 - 3.5 cm from the esophago-gastric junction, whereas in the stomach and proximal esophagus the veins seemed to lie mostly in the submucosa. This pattern is similar to that found by Spence (1984).

Kitano et al., (1986) stated that these deep veins become massively enlarged in portal hypertension and develop into the tortuous variceal channels. In areas large varices displace the superficial venous plexus and lie immediately below the epithelium. Fig. (2).

4- Perforating Veins:-

They communicate the adventitial veins with the deeper veins. They are present predominately in the area above the esophago-gastric junction. These perforators were first demonstrated by **Butler (1951)**, and clearly confirmed by **Mc Cormack et al., (1983)**, as well as **Kitano et al., (1986)**.

Recently, **Vianna A. (1987)** identified four well-defined zones in the lower esophagus and proximal stomach, which were designated as follows: (a) gastric zone, (b) palisade zone, (c) perforating zone, and (e) truncal zone.

Gastric Zone:-

The gastric zone consisted of a 2-3cm circular band of veins in the proximal stomach, with its upper border at the gastro esophageal junction. The veins, located within the lamina propria and submucosa, were disposed longitudinally, in contrast to other areas of the stomach where the common arrangement is an irregular network.

In the proximal region of this zone, the veins were numerous and of small diameter, showing the tendency to be arranged in groups containing at least one larger trunk within the submucosa that divided superiorly into several small longitudinal vessels. Numerous anastomosis were identified between the groups of veins, running transversely and forming polygonal configurations. At the distal region of the gastric zone, the veins within the submucosa
