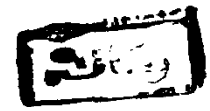
UPPER GASTROINTESTINAL BLEEDING
DIAGNOSIS AND MANAGEMENT



Essay
Submitted in Partial Fulfilment
for the Mastership Degree
in
(General Surgery)

Presented by
Osama Ahmed Mehriz
M.B., B.Ch.

Under Supervision of

Prof. Dr. Abdallah El Fiky
Professor of General Surgery
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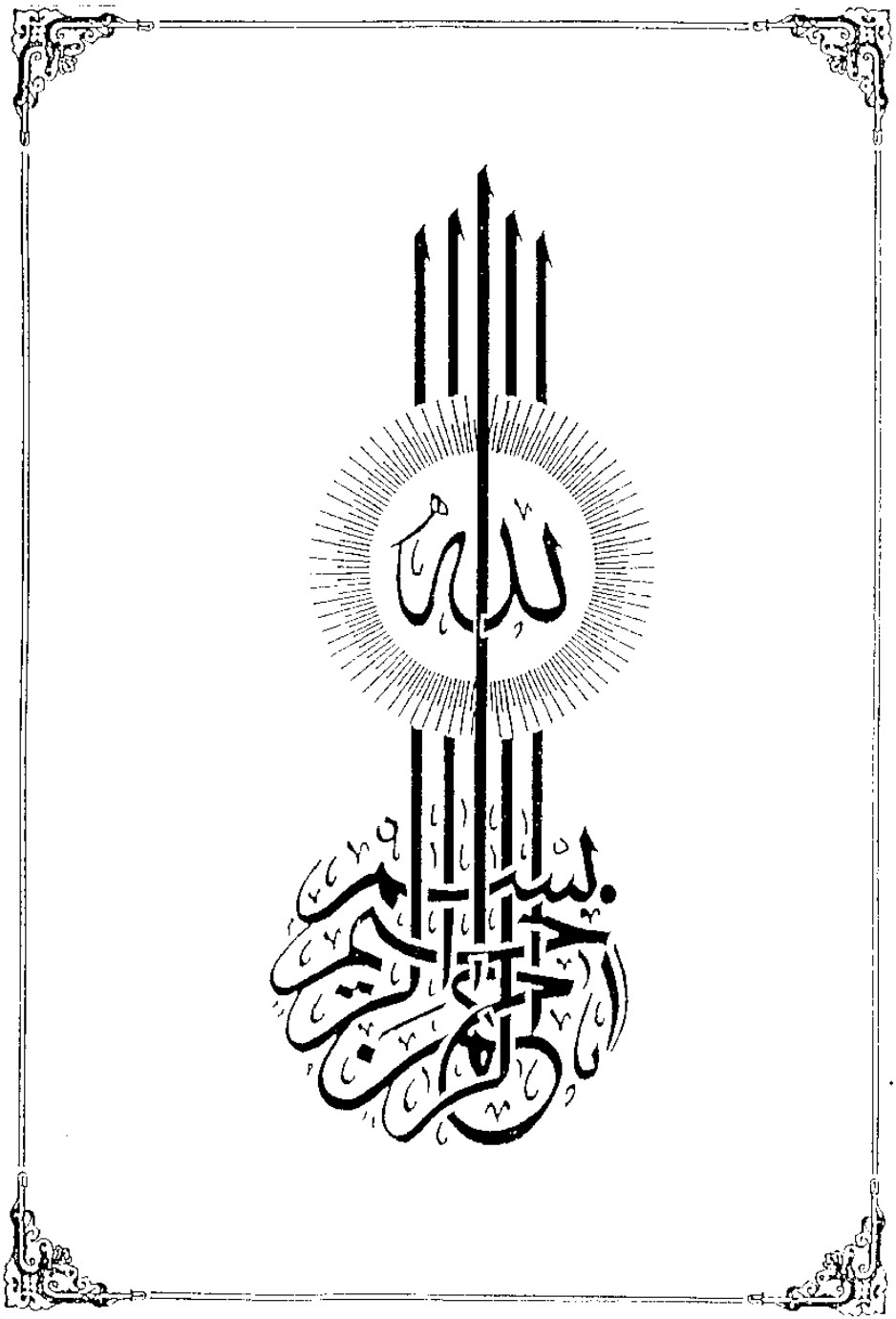

A C K N O W L E D G E M E N T

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C O N T E N T S

INTRODUCTION

Upper gastrointestinal bleeding is a common emergency that needs early diagnosis and management.

The mortality rate varies from 5 to 50% and it is much higher when the diagnosis is unsettled (Hosny, 1978).

Upper gastrointestinal bleeding is due to great varieties of lesions above the ligament of Treitz, the most common cause in Egypt is bleeding oesophageal varices complicating portal hypertension due to bilharzial hepatic fibrosis (Sadek, 1964). Other causes of upper gastrointestinal bleeding include peptic ulceration, gastritis and erosion, hiatus hernia, Mallory-Weiss syndrome and gastric neoplasms.

Patients with upper gastrointestinal bleeding may present with haematemesis, melena or both, they must be rapidly admitted to the hospital and thoroughly investigated to determine the source of bleeding , so the proper management can be done.To reach the proper diagnosis, a good history must be taken from the patient or from his relatives including any past history of bilharziasis, history of drug intake as salicylates, phenylbutazone and corticosteroids.

Also endoscopic and radiologic examination must be done. The lines of treatment of upper gastro-intestinal bleeding are conservative, surgical or surgical after failure of conservative measures . Surgical management is either an urgent operation to control bleeding or elective surgery to prevent further attacks.

CHAPTER 1

ANATOMY AND PHYSIOLOGY

OF

UPPER GASTROINTESTINAL TRACT

Anatomy of the Oesophagus:

The oesophagus is a fibromuscular tube about 25 cm long extending from the cricopharyngeal sphincter at the 6th cervical vertebra and ending in the cardia of the stomach; 4 cm of this tube lies below the diaphragm.

The blood supply of the oesophagus is provided in its cervical portion by the inferior thyroid arteries and in its thoracic portion by the aorta itself and by the oesophageal branches of the bronchial arteries. Supplemental vessels come from arteries on the abdominal side of the diaphragm as well as branches from the intercostal arteries.

Venous drainage of the oesophagus:

Subepithelial and submucous venous channels course longitudinally to empty above and below into hypopharyngeal veins. They also penetrate the oesophageal muscles, from which they receive branches, and leave the oesophagus to form a perioesophageal plexus. The drainage from the cervical oesophagus empties ultimately into the inferior thyroid and vertebral veins, that from the thoracic portion into the azygos and hemiazygos veins, and that from the abdominal portion mostly into the left gastric vein.

The lymphatic vessels run longitudinally in the wall of the oesophagus before penetrating the muscle layers to reach the regional lymph nodes.

The oesophagus receives both vagal and sympathetic nerves, its upper portion being supplied by the recurrent nerves and branches from the ninth, tenth cranial nerves, the cranial root of the eleventh and by sympathetic nerves. The vagus nerves lie on either side of the oesophagus through most of its course, forming a plexus around it. At the hiatus, two major trunks emerge, the left one coming to lie anteriorly and the right one posteriorly. The vagal plexuses are joined by mediastinal branches of the thoracic sympathetic chain of the splanchnic nerves.

The lower end of the oesophagus and the oesophagogastric junction zone also receive sympathetic branches from the periarterial plexus along the left gastric and left inferior phrenic arteries.

Also the oesophagus has its intrinsic innervation contained in the myenteric plexuses of Auerbach located between the inner circular and the outer longitudinal layers of the tunica muscularis, and the Meissner's plexuses in the submucosa.

Physiology of the Oesophagus:

The main function of the oesophagus is to form part of the co-ordinated mechanism transferring food from the mouth to the stomach. The initial movement of food through the oropharynx is induced voluntarily and involves sequential contraction of the oropharyngeal musculature together with simultaneous closure of the nasal and respiratory passages and opening of the upper oesophageal or cricopharyngeal sphincter. The body of the oesophagus then sweeps the food bolus by the involuntary peristaltic wave through a relaxed gastro-oesophageal sphincter zone into the stomach.

The cricopharyngeal sphincter is normally closed at rest and serves as a protective mechanism against regurgitation of oesophageal contents into the respiratory passages.

At the lower end of the oesophagus, there is a physiological sphincter which together with the other anatomical mechansisms prevent reflux of materials along the natural pressure gradient between the abdominal and thoracic cavities.

Anatomy of the Stomach and Duodenum:

The Stomach:

The stomach is a J-shaped organ lying between the oesophagus and the duodenum, it has two orifices, cardiac and pyloric, two borders, lesser and greater curvature, and two surfaces, anterior and posterior.

The cardiac orifice is at the level of 10^{th} thoracic vertebra 2.5 cm to the left of the midline. The pylorus is at the level of the first lumbar vertebra 1 cm to the right of the midline. The lesser curvature is about 7 to 12 cm and is attached to the lesser omentum. The greater curvature is four times as long as the lesser curvature and the greater omentum is attached to it. The postero-inferior surface of the stomach is in contact through the lesser sac with the pancreas, transverse mesocolon, splenic flexure of colon, left kidney, left adrenal, spleen and portion of the diaphragm. The antero-superior surface of the stomach is in contact with the diaphragm, left lobe of the liver, the transverse colon, the seventh, eighth and ninth costal cartilages and anterior abdominal wall.

An indentation on the lesser curvature called the insisura angularis divides the stomach into a large

proximal portion or body and a smaller distal pyloric portion. The area of the body lying above the transverse plane of the cardiac orifice is the fundus, and the area immediately adjacent to the cardiac orifice is the cardia. The pyloric portion is divided into a proximal antrum and distal pyloric canal.

Duodenum:

It is divided into four parts. The first part is below and behind the right lobe and quadrate lobe of the liver and the gall bladder and in front the common bile duct, the gastroduodenal artery and portal vein.

The second part descends vertically to the level of the fourth lumbar vertebra. The common bile and pancreatic ducts empty into it at the ampulla of water. The second part lies in front of the inferior vena cava, right ureter, right psoas muscle. It is crossed anteriorly by transverse mesocolon. The third part extends horizontally to the left and upward crossing the third lumbar vertebra, inferior vena cava and aorta. It is crossed anteriorly by the superior mesenteric vessels. The fourth part of the duodenum ascends along the left side of the aorta and terminates by turning forward as the duodenojejunal flexure.

Blood supply:

The arterial blood supply to the stomach is derived primarily from the celiac trunk. The left gastric artery, a branch of the celiac, ascends behind the lesser sac, gives off short oesophageal branches, and then extends along the lesser curvature of the stomach between the layers of the lesser omentum. Anterior and posterior branches of this artery supply the body and fundus of the stomach.

The right gastric artery usually originates from the hepatic artery, extends to the pylorus and gives off branches to this area of the stomach and then anastomoses with the left gastric artery. The gastroduodenal artery, a branch of the hepatic artery, crosses behind the first part of the duodenum, gives off a branch, the right gastroepiploic artery, which enters between the two layers of the gastrocolic omentum, extends along the greater curvature and anastomoses with the left gastroepiploic artery.

The left gastroepiploic artery originates from the splenic artery near the hilum of the spleen, extends between the layers of the gastrosplenic ligament and the greater omentum along the greater curvature of the

stomach gives off branches to the anterior and posterior walls of the stomach, and anastomoses with the right gastroepiploic artery. The short gastric arteries, branches of the splenic artery, supply the anterior and posterior surfaces of the fundus and the upper part of the body of the stomach.

Branches from these arteries ramify through the entire submucosa, forming a plexus from which branches supply the mucosa of the entire stomach, except for the lesser curvature, this receives its arterial supply directly from branches of the right and left gastric arteries. This anatomic arrangement of the arterial supply to the lesser curvature has been interpreted as rendering the lesser curvature more liable to ischaemia.

The right and left gastric veins originate from the area of the lesser curvature and terminate in the portal vein. The left gastroepiploic vein and short gastric veins join the splenic vein, while the right gastroepiploic vein empties into the superior mesenteric vein.

The main extrinsic lymph vessels follow the principal vessels of the stomach to reach the perigastric