NON-SHUNTING PROCEDURES IN MANAGEMENT OF BLEEDING OESOPHAGEAL VARICES

E S S A Y

submitted in partial fulfilment

of the **M.Sc. Degree in General Surgery**

by

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بسم الله الرحمن الرحيم

سبحانك

لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

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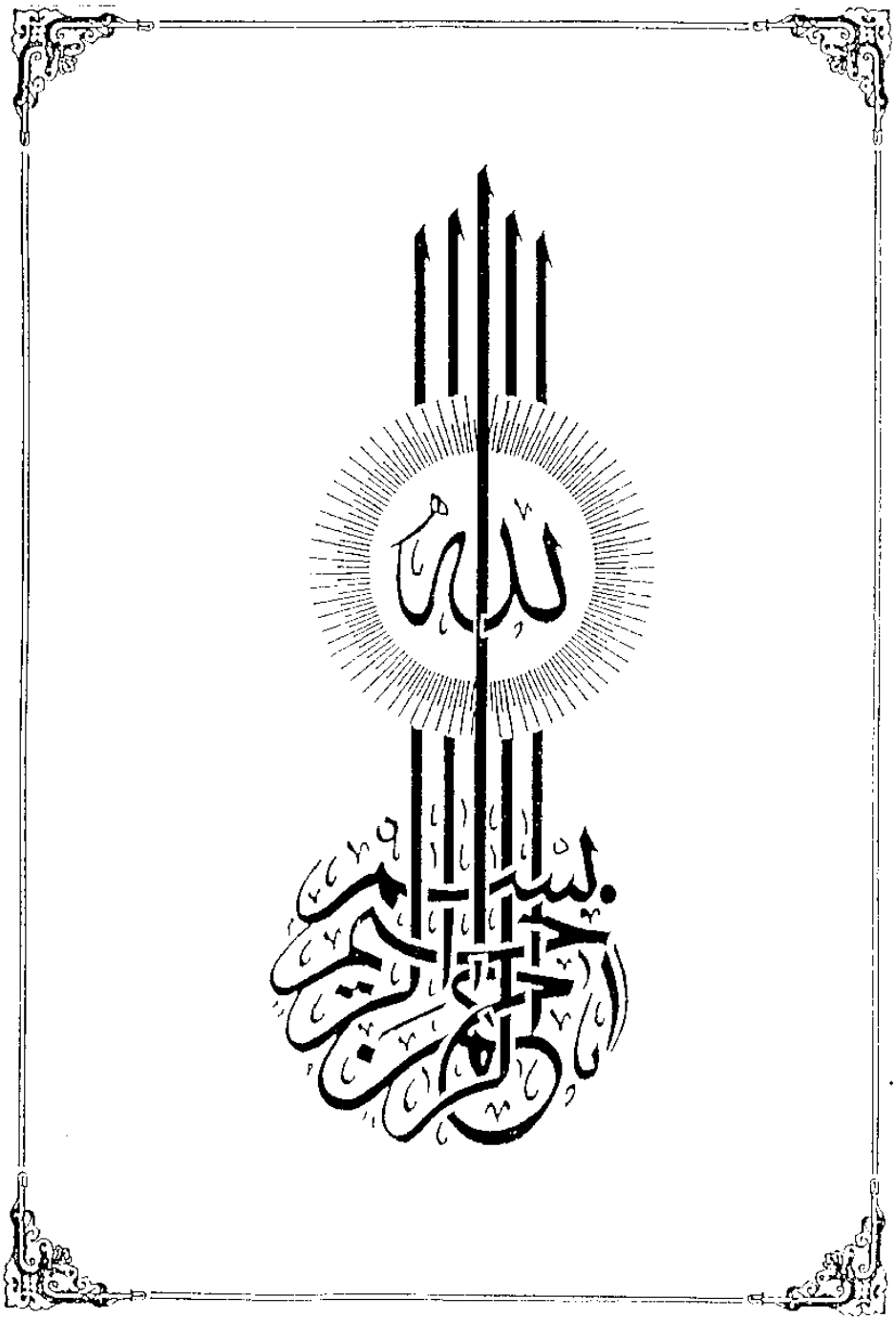
"سورة البقرة الآية ٣٢"



TO THE MEMORY OF MY FATHER

ACKNOWLEDGMENT

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C O N T E N T S

I N T R O D U C T I O N

INTRODUCTION AND AIM OF THE WORK

Bleeding oesophageal varices is one of the major health problems in Egypt, besides being the commonest form of upper gastrointestinal bleeding (Khairy, 1960b). Bleeding varices remain a catastrophic event with a high mortality, and the procedure employed as an effort to arrest the bleeding may add to the risk of the bleeding (Aster, 1966).

The successful management of bleeding oesophageal varices and the choice of the best management to deal with bleeding varices remains unsolved. The available methods of treating bleeding oesophageal varices should not be viewed as isolated forms of therapy, but each can be considered as a single link in the chain of therapy (Conn et al., 1975). So, more than one procedure can be used together to get the best results.

Many questions still remain unanswered, regarding which patient will benefit from certain forms of management.

The aim of this work is to evaluate the use of the non-shunting procedures in the management of bleeding varices.

ANATOMY OF VENOUS DRAINAGE OF THE OESOPHAGUS

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Butler (1951) divided the veins of the oesophagus into extrinsic veins, intrinsic veins, and perforating or communicating veins. He described the extrinsic veins which are formed by the union of groups of perforating veins, and also subdivided the extrinsic system into an extrinsic set proper, and venae comitantes of the vagus nerve.

Postlethwait et al. (1979) divided the extrinsic set proper into three regions: the neck, the thorax, and the abdomen. In the neck, the extrinsic veins arise mainly along the lateral border of the oesophagus, close to the recurrent laryngeal nerves, and terminate in the inferior thyroid vein, the venous plexus on the surface of the lower pole of the thyroid gland, or a small group of veins that may go to the vertebral and the anterior deep cranial veins.

In the thorax, the venous drainage is mainly through the azygos veins and their tributaries. The superior portion of the oesophagus is mainly drained by two veins running to the azygos major.

High on the right side, a vein may join the first intercostal vein. Below, the oesophagus is drained by 8-10 veins on each side; on the right side, they join the azygos major; on the left side, they join the hemiazygos system. Occasionally, these veins enter an intercostal vein. Few imperfect valves are found in the azygos vein, but its tributaries are provided with complete valves.

In the abdomen, the drainage is carried through three or four oesophageal veins, to join the left gastric vein, where it turns to the right to leave the lesser omentum. These veins drain the lower part of the thoracic oesophagus, and the abdominal part of the oesophagus. As the oesophagus passes through the diaphragm, some extrinsic veins join the superior and inferior phrenic veins. The short gastric veins also contribute to the drainage of the abdominal oesophagus.

The venae comitantes of the vagus nerves are two longitudinal veins that run on the outer surface of the oesophagus in close proximity to the oesophageal plexus of the vagus nerve. They pass upwards, accompanying the nerve trunks. The right or posterior vein begins as a posterior oesophageal branch of the left gastric vein on the posterior surface of the abdominal oesophagus, and runs with

the posterior vagus nerve; it terminates in the azygos major, the right posterior bronchial vein, or in the venous plexus on the surface of the right bronchus. The left, or anterior vein, begins in a similar manner on the anterior surface of the oesophagus and runs with the branches of the left oesophageal nerve plexus to end in either the hemi-azygos, or the left posterior bronchial vein (Postlethwait, 1979).

Butler (1951) described the intrinsic oesophageal veins, as veins situated in both the subepithelium and in the submucosa. The subepithelial venous plexus extends for the whole length of the oesophagus. In adults, these veins form a close polygonal network that is slightly elongated in the line of the long axis of the oesophagus; this plexus drains into the larger veins of the submucosa by numerous short veins that pierce the muscularis mucosa. No valves are present in this plexus. In the distal one centimeter of the oesophagus, this network is replaced by a more longitudinal arrangement of veins that are connected by scanty cross anastomoses. This pattern, when present, terminates abruptly at the level of the cardia, where the veins join the denser subglandular venous plexus of the stomach.

Beswick and Butler (1951) emphasized the importance of the subepithelial veins in a patient who had bled from varices. They found that the dilated subepithelial vessels extended only to 2 inches above the cardia, and that these veins appeared to be the site of the bleeding.

The submucous venous plexus is formed by numerous small veins that pierce the muscularis mucosa, and then turn to run longitudinally, uniting in groups to form large vessels. They are 10-15 longitudinal veins with numerous cross anastomoses, lying midway between the muscularis mucosa and the circular muscle coat of the oesophagus. They are free due to the presence of loose connective tissue framework, poorly supporting them. They are distributed around the circumference of the oesophagus and run for its full length, at the lower end of the oesophagus. These veins increase in number, but decrease in diameter, becoming congregated in the four or five longitudinal folds of the mucosa that begin a short distance above the cardia. In these folds, the veins are markedly tortuous, and they connect the submucosal veins of the oesophagus to those of the stomach. Valves may be present in these veins, which direct blood flow from the oesophagus to the stomach.

The perforating or communicating veins are large veins connecting the longitudinal submucosal veins with the perioesophageal ones, by perforating the muscle coat of the oesophagus, mainly along the right border of the oesophagus, in close proximity to the recurrent laryngeal nerves, or the oesophageal plexus of the vagus nerves. Butler (1951) described the perforating veins as arising from the submucosal plexus, perforating the muscular coat and reaching the perioesophageal venous plexus. Valves may be present at the site of their exit from the muscular coat, suggesting that venous drainage of the oesophagus is directed outwards. Khairy (1959) and Hassab (1964) also suggested that the venous drainage of the oesophagus passes outwards.

Normally the blood flow from the lower third of the oesophagus goes to the coronary vein, the vasa brevia, and the phrenic veins. In portal hypertension, blood flow is reversed along these veins. With the reversal of flow along these veins, the left half of the stomach will be flooded with portal blood, in addition to its arterial blood supply. This amount of blood has to return, mainly via the intrinsic and extrinsic oesophageal veins.

In the lower third of the oesophagus, the extrinsic veins are engorged with portal blood