STUDY OF THE PORTAL VEIN AND ITS COLLATERALS BY ENDOSCOPY AND ULTRASONOGRAPHY IN BILHARZIAL LIVER FIBROSIS

THESIS

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By
GAMAL LOTFY ALY EL ANSARY
M. B., B. Ch.

Supervised By

Prof. Dr. YEHIA Z. MOHRAN
Professor of General Medicine
Ain Shams University

Prof. Dr. SAMI A. ABDEL FATTAH
Professor of General Medicine
Ain Shams University

Dr. IBRAHIM ABD-ALLA
Lecturer of General Medicine
Ain Shams University

Faculty of Medicine
Ain Shams University

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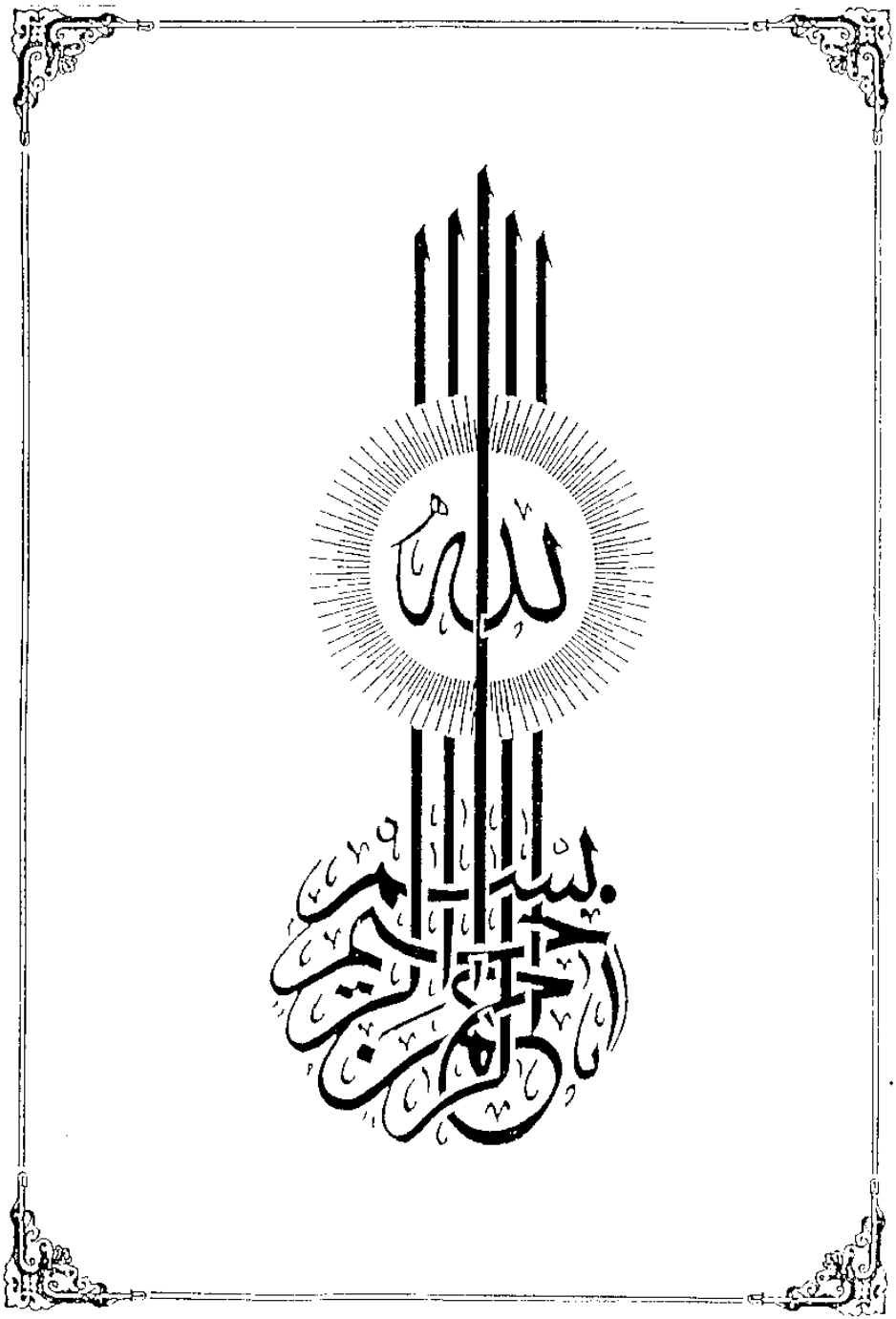

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INTRODUCTION

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Human schistosomiasis is one of the major health problems.

It headed the list of the communicable diseases in Egypt, both as regards its prevalance and its great repercussion on the national economy of our countery (Mousa, 1976).

The liver is expected to be affected in nearly every case, the resulting periportal fibrosis leads to pre-sinusoidal portal hypertension with subsequent development of portal systemic collaterals.

The most important of which is oesophago-gastric varices, as they are liable to serious bleeding.

Evaluation of the degree of portal hypertension is an essential step in these patients. Various methods both invasive and non invasive are currently used with various degree of success.

Invasive technique, both radiological and manometric, appear most reliable, more informative, but rather risky, expensive and time consuming.

The newly developed, non invasive, safe, easy and rapid ultrasonographic technique, have opened a new way in this respect.

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Using ultrasonography it is possible to identify the portal system (weill, et al, 1975), diagnose portal hypertension (Taylor and Carpenter, 1975), detect porta caval and mesocaval shunt (Goldberg and Patel, 1977), diagnose portal venous obstruction (Webb, et al, 1977), and the size and dimensions of the spleen can be determined (Goldberg et al. 1975).

Combining this method of examination of the portal vein with fiberoptic oesophago-gastroscopy for varices is the aim of this study to evaluate the portal venous systems in patients with different stages of hepatic fibrosis with schistosomiasis.

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REVIEW OF LITERATURE

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Anatomical Consideration

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THE LIVER

The liver is the largest organ in the body, it is situated in the upper and right part of the abdominal cavity, occuping almost the whole right hypochondrium, the greater part of the epigastrium and extending into the left hypochondrium as far as the left lateral line (Gray's 1962)

Sheltered by the ribs in the right upper quadrant and it is shaped like a pyramid whose apex reaches the xiphisternum (sherlock,1981)

The liver is divided into a large right and a much smaller left lobe. On the anterior and superior surface the two lobes meet along the line of attachment of the falciform ligament. On the inferior surface they are separated by fissure for ligamentum teres, and posteriorly by fissure for ligamentum venosum (Gray;s 1962).

The left lobe is thin, flattened from above downwards and only about one-sixth of the size of the whole organ.

The right lobe constitutes the remaining five-sixths of the whole organ. The portion of the right lobe which adjoin the left lobe on the inferior and posterior

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surfaces is further subdivided into smaller lobes, termed the quadrate and caudate lobes (Gray's 1962).

The quadrate lobe is placed on the infeior surface and is somewhat rectangular in outline. The caudate lobe is situated on the posterior surface.

The porta hepatis is a deep fissure placed on the inferior surface of the liver between the quadrate lobe in front and the caudate process behind. Through the porta hepatis, the portal vein, the hepatic artery proper and the hepatic plexeus of nerves enter the liver and the right and left hepatic ducts and some lymph vessels emerge (Gray's 1962).

The liver is completely covered with peritoneum except in three places. It comes into direct contact with the diaphragm through the bare area which lies to the right of the fossa for the inferior vena cava. The other two areas are the fossa for inferior vena cava and gall bladder.

The liver is kept in position by peritoneal ligaments and by the intra abdominal pressure transmitted by the tone of the muscles of the abdominal wall (sherlock, 1981).

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Segmental anatomy of the liver:-

One lobar fissure is in line with the fissure of the inferiorvena cava above and the fossa of the gall bladder below. This fissure takes on oblique course from left to right to the porta hepatis and divides the liver into two anatomical left and right lobes. The left segmental fissure divides the two left lobes into medial and lateral segments. The right segmental fissure divides the right lobe into an anterior and a posterior segment (Healey, 1970). Knowledge of this anatomy is particularly valuable in planning hepatic surgery.

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THE PORTAL SYSTEM OF VEINS

The portal system includes all the veins which drain the blood from the abdominal part of the digestive tube (with the exception of the lower part of the anal canal) and from the spleen, pancreas and gall bladder. From these viscera the blood is conveyed to the liver by the portal vein (Gray's 1962).

THE PORTAL VEIN

The valveless portal vein is an afferent nutrient vessal of the liver and in this sense is an arterial channel (Rappaport, 1975).

Embryology of the portal vein:-

The portal vein derives from the omphalomesenteric vein which bring blood from the yolk sac and the intestine to the liver. (Rappaport, 1975).

The omphalic portion of the vein regresses with the disappearance of the yolk sac. With the growth of the intestine, the mesenteric portion persist and become the tributaries of the portal vein (Rappaport, 1975).

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Its stem is formed by the omphalo-mesentric trunks arranged in a figure of"8" around the first and third portions of the duodenum. Its spiral course is formed by dropping out of the posterior(right) limb of the "8" below and the anterior (left) limb of the "8" above (Rappaport, 1975).

Anomalies of the portal system:-

These are relatively rare. The cavernomatous transformation of the portal vein is considered by Simonds, 1936, as an acquired anatomic anomaly due to early thrombosis and recanalization of the portal system.
Or it is considered as an atypical of the plexus of veins between the omphalo-mesentric and the hepatic veins during the seconed month of foetal life.

Leger et al., 1962 stressed the point that the postnatal obliterative process in the umbilical veins and the duct of aranitus may spread to the portal system.
A number of small veins form in the process of bypassing the obliterated vascular area.

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Extrahepatic portion of the portal vein:-

The portal vein is formed at the level of the second lumbar vertebra by the junction of the superior mesenteric and splenic veins, the union of these veins taking place on front of the inferior vena cava and behind the neck of the pancreas (Gray's 1962).

The portal vein extend slightly to the right of the middle line for a distance of 5.5-8cm to the porta hepatis (Sherlock,1981).

It runs in the hepato-duodenal ligament in a plane dorsal to the bile duct and hepatic artery and divides into two lobar branches before entering the portal fissure(Rappaport,1975).

The right lobar branch is short and thick and receive the cystic vein. The left lobar branch is longer and smaller and is joined in front by the paraumbilical veins and by a fibrous cord named the ligamentum teres which represents the obliterated left umbilical vein. It is connected to the inferior vena cava by a second fibrous cord termed the ligamentum venosum. The left lobar vein gives branches to the quadrate and caudate lobes before entering the liver at the left end of the porta hepatis (Gray's 1962).

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