VALUE OF SONOGRAPHY IN CASES OF BILHARZIAL PORTAL HYPERTENSION

THESIS

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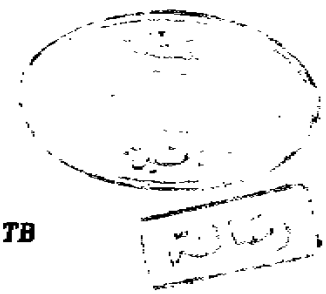

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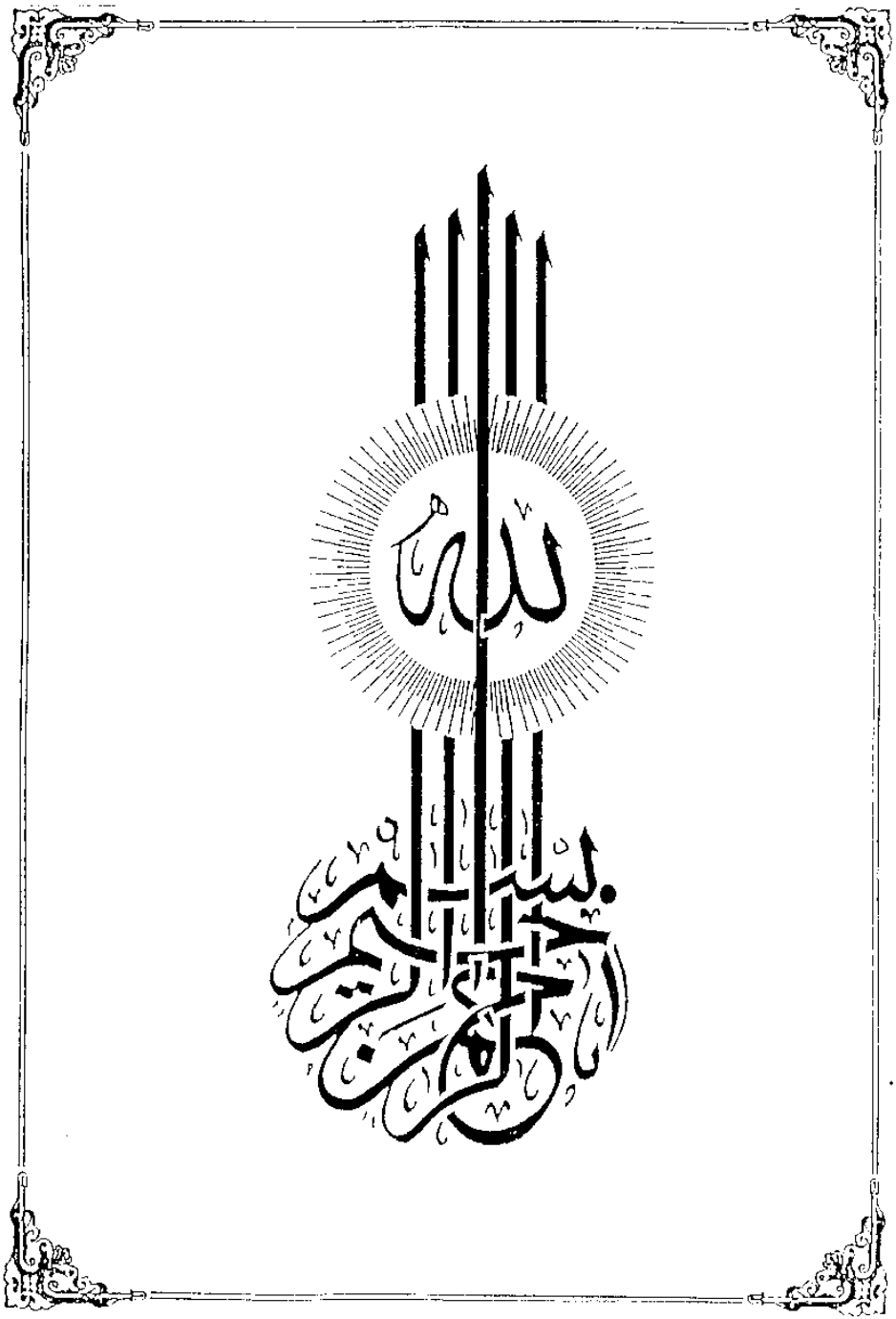
بسم الله الرحمن الرحيم

" اقرأ باسم ربك الذي خلق * خلق الإنسان من علق *
اقرأ وربك الأكرم * الذي علم بالقلم * علم الإنسان ما لم يعلم "

صدق الله العظيم



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"FIRST AND FOREMOST, THANKS ARE DUE TO GOD"

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C O N T E N T S

INTRODUCTION

AND AIM OF WORK

Introduction and aim of work

Schistosomiasis is a common cause of ill health throughout the tropics.

Hepatic schistosomiasis has been reffered to by Warren, 1978, as the great neglected disease because of the low international interest in one of the most common and severe liver disease.

The disease is well established in Egypt, and it is estimated up to 70% of the rural population in endemic areas is affected.

In established infestations, perioportal fibrosis develops from an inflammatory response to the portal venous embolization of ova deposited by the adult worms that live in the mesenteric and portal veins. Heavy infestations in chronic cases result in progressive intrahepatic portal venous occlusion and portal hypertension.

The disease has a significant morbidity and mortality rate from the resulting portal hypertension.

It is important to obtain information on the condition of the portal venous system with the aim

of discovering portal hypertension in an asymptomatic state.

Screening examinations commonly carried out to detect esophageal varices are esophagoscopy and barium examination of the esophagus. These examinations obviously cannot supply any data on the morphology of the main portal vessels. Angiographic techniques are only used in special cases.

All of these methods carry some degree of risk and generally encounter a certain unwillingness on the part of the patient. Therefore, the need has arisen for a simple and non invasive method that is able to supply complete information about the portal circulation.

Ultrasonography seems able to satisfy this need, providing images of the splenic and superior mesenteric veins and portal vein with its main intra hepatic branches.

This technique could represent a valid initial screening method for the diagnosis of portal hypertension, the detection of portal vein obstruction, and the evaluation of the patency of surgical porto caval shunts.

The aim of this study is to assess whether characteristic ultrasonographic signs of bilharzial portal hypertension exist.

A N A T O M Y

OF THE PORTAL CIRCULATION

Anatomy of the portal circulation

A) Radiological anatomy :

The term portal is used to describe a venous system which passes through two sets of capillaries before returning to the circulation.
As the word portal itself indicates - the vein which entered the porta hepatis (porta = entrance, Latin) (Joseph, 1982).

The portal system includes all veins collecting 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 blood is conveyed into the liver by the portal vein. In the liver this vein ramifies like an artery and ends in capillary like vessels termed sinusoids, from which blood is conveyed to the inferior vena cava by the hepatic veins.

The blood of the portal system therefore passes through two sets of 'exchange' vessels, (a) the capillaries of the digestive tube, spleen, pancreas, and gall bladder, (b) the sinusoids of the liver.
In the adult the portal vein and its tributaries have no valves. (Gray, 1980).

The portal vein :

This vessel is merely the upward continuation of the superior mesenteric vein (Last, 1979).

It is about 8 cm long, and starts at the level of the second lumbar vertebra from the junction of the superior mesenteric and splenic veins in front of the inferior vena cava and behind the neck of the pancreas. The vein inclines slightly to the right as it passes upwards behind the superior part of the duodenum, the bile duct and the gastroduodenal artery, and in front of the inferior vena cava.
It ascends to reach the right end of the porta hepatis, where it divides into right and left stems, which accompany the corresponding branches of the hepatic artery into the substance of the liver.

In the lesser omentum it is behind the bile duct and the hepatic artery, the former to the right of the latter.

The right branch of the portal vain enters the right lobe of the liver, but before doing so generally it receives the cystic vein.

The left branch is longer but of smaller calibre than the right. It gives branches to the caudate and quadrate lobes and then enters the left lobe of the liver. As it does so, it is joined in front by the paraumbilical veins and by a fibrous cord, the ligamentum teres, the remains of the obliterated left umbilical vein. It is connected to the inferior vena cava by a second fibrous cord, the ligamentum venosum.

The tributaries of the portal vein are : splenic, superior mesenteric, left gastric, right gastric, paraumbilical, and cystic veins (Gray, 1980).

Usually there is an upper segment of the portal trunk, averaging 5 cm in length, which is devoid of major branches. (Rappaport, 1975).

The splenic vein :

This vein (0.94 cm diameter) commences with 5 to 6 branches that return the blood from the spleen and unite to form a single nontortuous vessel. In its course across the posterior abdominal wall it grooves the the upper part of the pancreas, from which it collects numerous short tributaries. It runs close to the hilum of the left kidney and terminates

behind the neck of the pancreas where it joins at a right angle the superior mesenteric vein. Its tributaries are the short gastric veins, the pancreatic veins, the left gastro-epiploic vein and the inferior mesenteric vein (Rappaport, 1975).

The superior mesenteric vein.

It begins in the right iliac fossa by union of tributaries from the terminal ileum, caecum and vermiform appendix.

It ascends in the mesentery on the right of superior mesenteric artery.

Behind the neck of the pancreas it joins the splenic to form the portal vein.

The right gastric vein.

Runs from left to right along the pyloric portion of the lesser curvature of the stomach, and ends in the portal vein.

The para-umbilical veins.

The best marked of these small veins is one which begins at the umbilicus and runs backwards and upwards

in, or on the surface of, the ligamentum teres in the falciform ligament, to end in the left branch of the portal vein.

The cystic veins.

The veins draining the gall bladder vary considerably. Those from its upper surface usually join the hepatic veins. Those from the rest of the gall bladder join to form one or two cystic veins and these commonly enter the liver, either directly or after joining with veins draining the hepatic ducts. Only rarely does a single or double cystic vein drain directly into the right branch of the portal vein.

The short gastric veins.

Four or five in number, drain the fundus and left part of the greater curvature of the stomach, traversing the gastrosplenic ligament to reach the splenic vein or one of its large tributaries.

The left gastric vein.

Derives tributaries from both surfaces of the stomach; it runs upwards along the lesser curvature of the stomach in the lesser omentum, to the oesophageal