MANAGEMENT OF LIVER TUMOURS

AN ESSAY SUBMITTED IN
PARTIAL FULFILMENT
OF MASTER DEGREE
IN GENERAL SURGERY

PRESENTED BY

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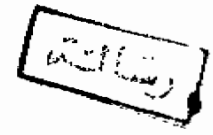

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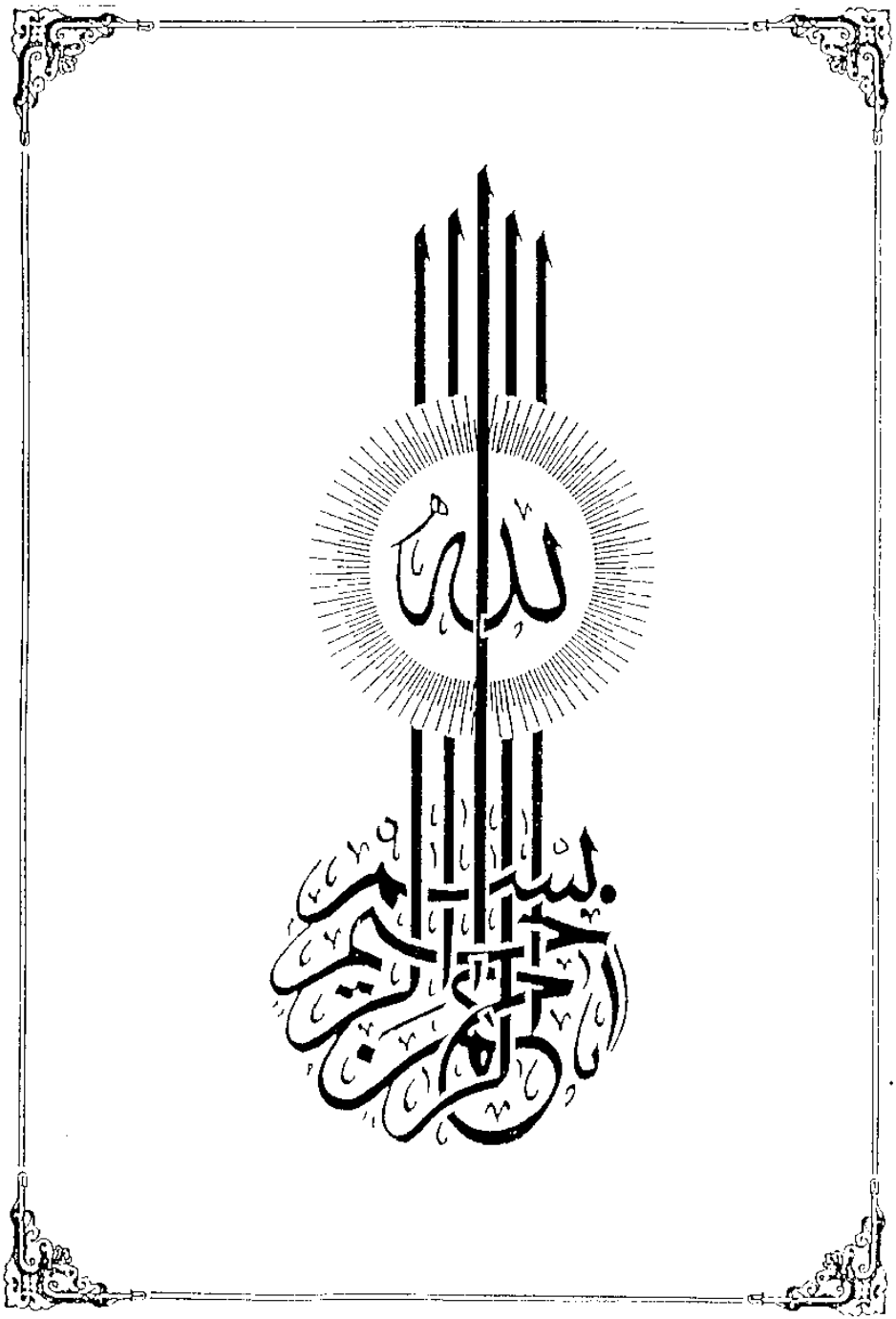

TO THE SOUL

OF MY FATHER

CONTENTS

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INTRODUCTION

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Liver is one of the most important organs in human body and liver tumours are a very serious category of liver diseases with high frequency in Africa, Eastern Asia and Europe. Tumours of the liver are in common association with cirrhosis, hence, it developed its great importance in Egypt. We are mainly concerned in this essay with management of hepatic tumours with special stress on recent methods of proper, early diagnosis and control of these tumours with possible ways of treatment.

ANATOMY OF THE LIVER

ANATOMY

The liver is the largest organ in body weighing about 1500 gm. in adult. It is situated in the right upper quadrant extending through midline to the left upper quadrant. It extends in the right midclavicular line from the fifth intercostal space down to and slightly below the costal margin. The gall bladder lies in the undersurface of liver at a point where midclavicular line & transpyloric plane meet. (Meyers, 1986).

SEGMENTAL ANATOMY

The liver is divided into segments which are delineated by fissures and the distribution of the vascular and ductal structures create 8 segments which may be resected singly or in combination. there are 4 fissures, only one of them "the portoumbilical fissure" is represented superficially while the other 3 are related to the three large hepatic veins. The right fissure commences at the right margin of the inferior vena cava (IVC) and follows the attachment of the right superior coronary ligament to about 3-4 cm from the Junction of

the later with the right inferior layer. The fissure then curves anteriorly to a point on the inferior margin about mid way between the gallbladder fossa and the right margin of the liver. Passing posteriorly, the fissure follows a line that runs parallel to the gall bladder fossa and crosses the caudate process to reach the right side of IVC. lying almost in the coronal plane, the fissure contains the right hepatic vein, with branches passing anteriorly to segments V and VIII and posteriorly to segments VI and VII.

MEDIAN FISSURE passes from the gall bladder fossa to the left margin of the IVC . Postero- inferiorly, the fissure is represented by a line from the gallbladder fossa to the main bifurcation of the hepatic pedicle (portal triad) and, thence, to the retrohepatic IVC.

LEFT FISSURE runs from the left side of IVC. to a point between the dorsal one third and ventral two thirds of the left margin of the liver. Inferiorly, the fissure passes to the commencement of the ligamentum venosum.

PORTOUMBILICAL FISSURE is marked superficially by the attachment of the falciform ligament, which contains the

ligamentum teres hepatis in its inferior border. Angled less generously than the right fissure, it meets the inferior margin of the liver at an angle of about 50. (Moore et al., 1980).

From the above, it is obvious that, the median fissure can devide the liver into 2 separate lobes/hemilivers/Livers being independent as regards the portal, arterial vascularization and the biliary drainage. The right liver is composed of segments V,VI,VII, VIII where the right fissure runs between segments V& VIII to the left and segments VI, VII to the right. The left liver is composed of the caudate lobe (Segment I), segments II, III to the left of the left fissure and lastly segment IV to the right of the left fissure.

(From Ger R: Surgical anatomy of the hepatic venous system. Clin. Anat . 1 : 15-22, 1988, with permission) coated by surg. Clin. N. Am. vol 69:2, 1989.

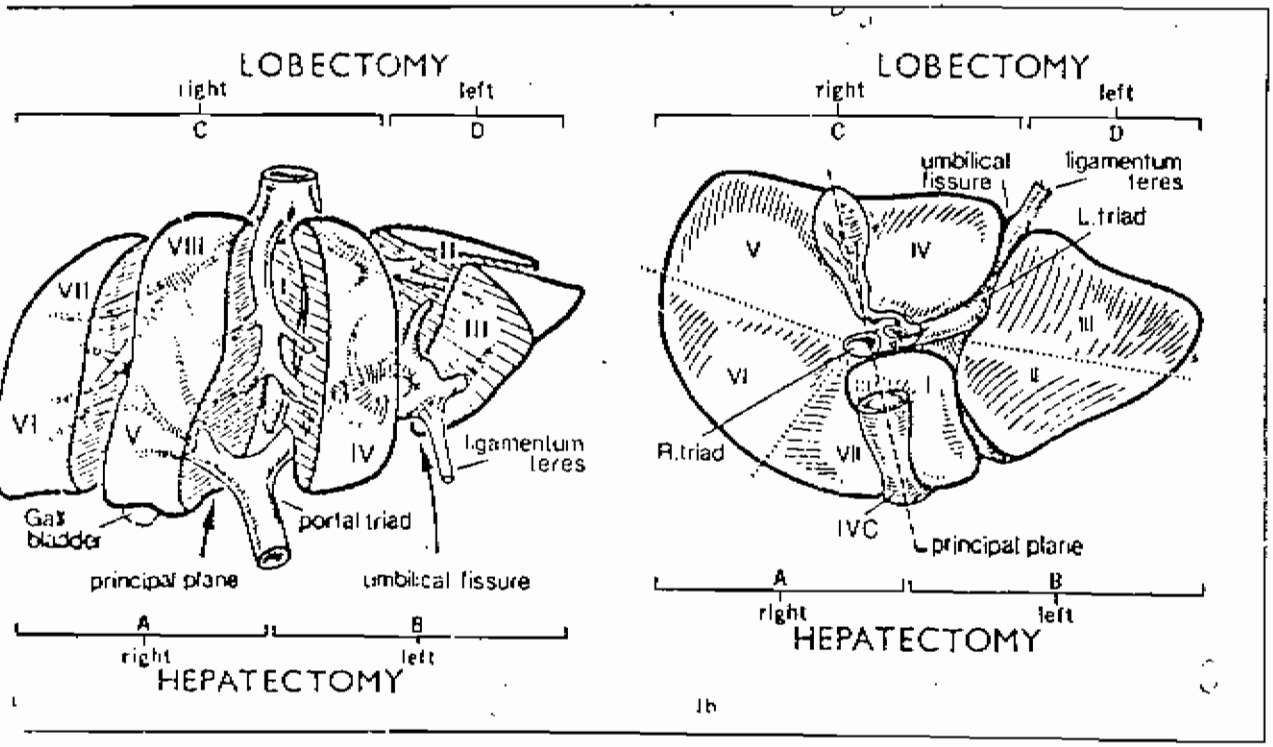

Fig. (1) : Segments of the liver: (a) Exploded view to show the sectors (Separated by the major hepatic veins) and the segmental structure of the liver. The blood supply to segment IV is recurrent as "feedback vessels" from the umbilical portion of the left portal triad. (b) Inferior surface of the liver. Note that segment VIII is not seen as it lies superiorly. The anatomical division into right and left lobes by the umbilical fissure and into right and left liver in the principal plane (principal scissura) is evident. Note the definitions of the right and left livers and of lobectomy and hepatectomy. (from Blumgart L H 1988 In: Surgery of the liver and biliary tract. Churchill Livingstone, Edinburgh).

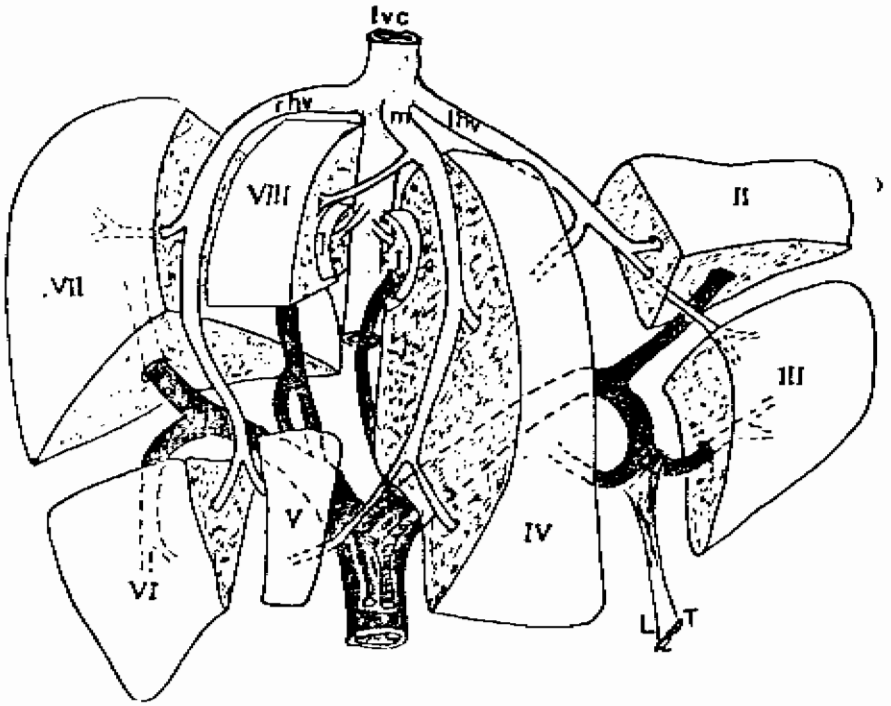

Figure 2. Diagrammatic illustration showing the segmentalfissures and the distribution of the hepatic and portal veins, the latter depicted in the darker solid colour. For purposes of clarity, the ductal system and the hepatic artery and its branches, which accompany the portal vein, have not been carried beyond their first bifurcation. The segments have been numbered. LT = Ligamentum teres, IVC = Inferior vena cava, rhv = right hepatic vein, Lhv = Left hepatic vein, m = middle hepatic vein.

VASCULAR ANATOMY

It is the description of the functional anatomy of liver segments according to their blood supply (through portal V. & hepatic A.) and drainage (into hepatic v. & I.V.C.)

* PORTAL VEIN

75% of liver blood supply is through portal vein which is a valveless vein measuring about 5-8 cm in length. formed by confluence of splenic vein and superior mesenteric vein behind the head of pancreas at the level of second lumbar vertebra. It goes upwards to the right in the hepato -duodenal ligament in front of foramen of Winslow and behind both hepatic artery to the left & common bile duct to the right. As it reaches the porta hepatis, it divides into its two main branches (right & left) with separate branches to the caudate lobe. In 10% of cases, it gives 3 branches: 2 to the right lobe and 1 to the left lobe (Gupta t al., 1977).

- RIGHT BRANCH:

It is 0.5-1 cm long directed to the right where, it gives anterior and posterior branches. The anterior branch gives ascending branch (to segment viii) and descending one(segment v). The posterior branch goes toward the postero-superior aspect where it gives an ascending branch (to segment vii) and descending one (segment vi). Inbetween ant. & Post. branches., right hepatic vein runs.