TUMOURS OF THE LIVER
ESSAY

Submitted for Partial Fulfilment
Of
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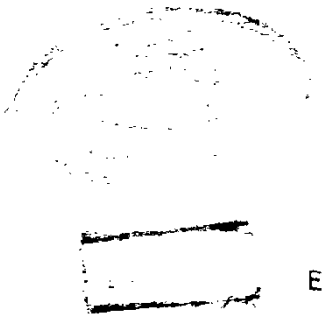

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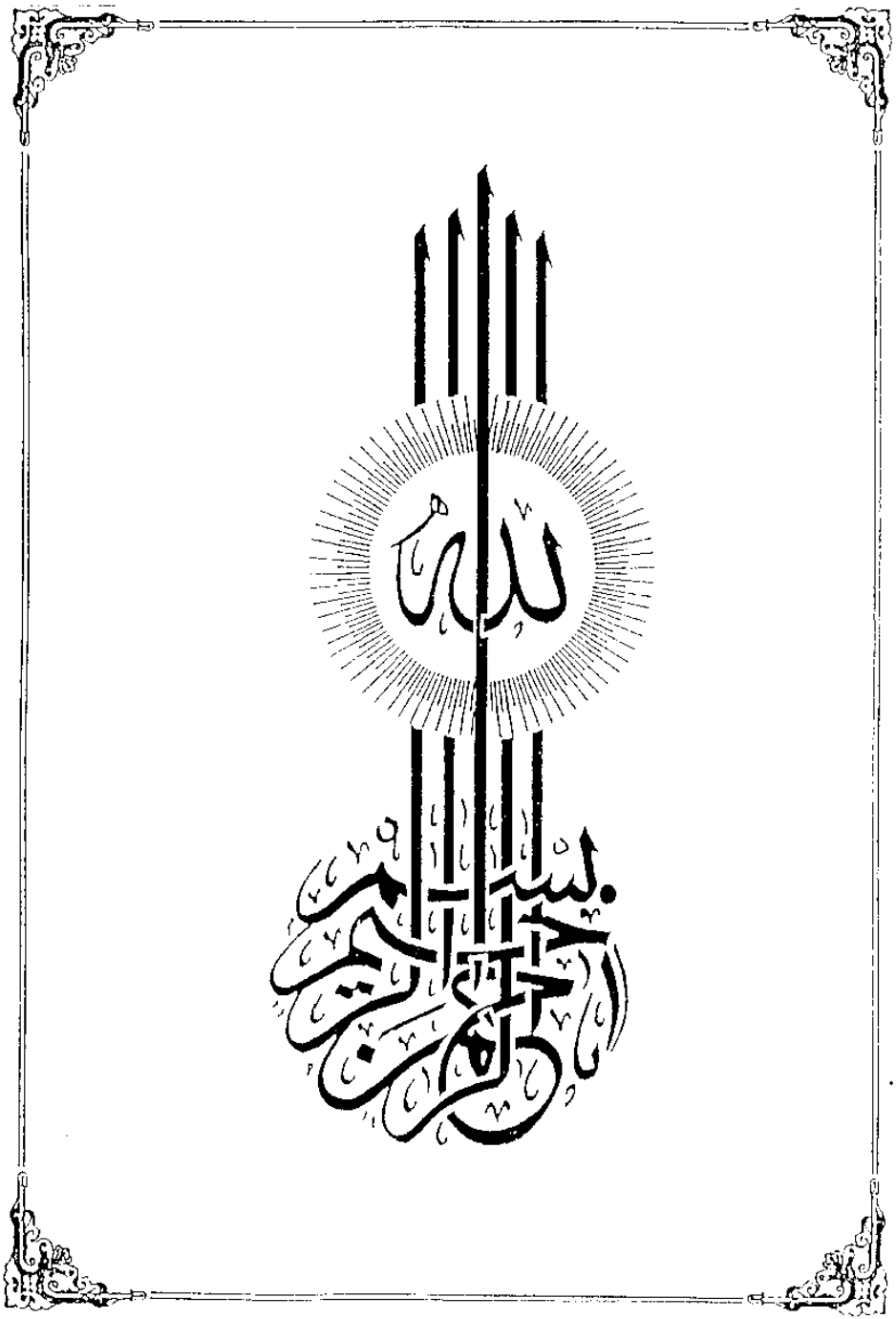

To...

My Wife

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INTRODUCTION

Hepatic tumours are important subject nowadays. Hepatic tumours have high frequency in Africa, South of Sahara. Indonesia, China and Europe. Hepatic tumours are in common association with cirrhosis.The importance of hepatic tumours is due to its increasing incidence in Egypt.

Cancer Liver is one of the most aggressive tumours. No treatment effectively controls it. Alpha fetoprotein is a valuable diagnostic tool but its value as a screening technique is limited.

Hepatic tumours are primary (benign and malignant) or metastatic. Treatment is either surgical or conservative. Conservative treatment is either radiotherapy or chemotherapy. The prognosis with treatment is very poor due to late discovery of cases and broad spectrum of heterogenecity in behaviour of tumours.

REVIEW OF LITERATURE

EMBRYOLOGY

The liver, gallbladder and bile ducts arise as a ventral bud, (hapatic diverticulum) from the most caudal part of the foregut, the hepatic diverticulum extends into the septum transversum and expands the ventral mesentery, The hepatic diverticulum divide into :

1- A large cranial part which gives rise to interlacing cords of liver cells and intraepithelial lining of the intrahepatic portion of the biliary apparatus The Liver cells anastomose around preexisting endothelium lined spaces which will become the hepatic sinusoids, the fibrous, hemopoietic and kupffer cells are derived from the measenchyme of the septum transversum .

2- A small caudal part which expands to form the gall-bladder its stalk becomes the cystic duct. Initially the extrahepatic biliary apparatus is occluded with endodermal cells, but it is later recanalized, the stalk connecting the hepatic and cystic ducts to the duodenum becomes the common bile duct.

(Mc cregor 1987)

SURGICAL ANATOMY OF THE LIVER

The liver is the largest organ in the body weighing approximatly 1200 to 1500 grams in the adult it is proportionately bigger in the child and is one of the reasons that the developing intestine seek an extracoelomic refuge early in fetal life. In the young child it is partly responsible for the protuberant abdomen .

The Liver is situated in the right upper quadrant and extends across the midline to the left upper quadrant. Despite protection by the overlying ribs and cartilages it is still a commonly injured organ. The fibrous capsule (Glisson) of the Liver gives the cadaveric Liver a fairly definite shape. In life however the organ is soft and easily ruptured and less easily sutured. **(Anderson et al., 1983).**

Ligaments of the Liver :

1- The round ligament (Ligamentum teres hapatis) is not realy a ligament but a fibrous cord resulting from the obliteration of the left umbilical vein.

2- The ligamentum venosum is the fibrous remnant of the ductus venosus that connect the left branch of the portal vein and the left hepatic vein near its junction with the inferier vena cava .

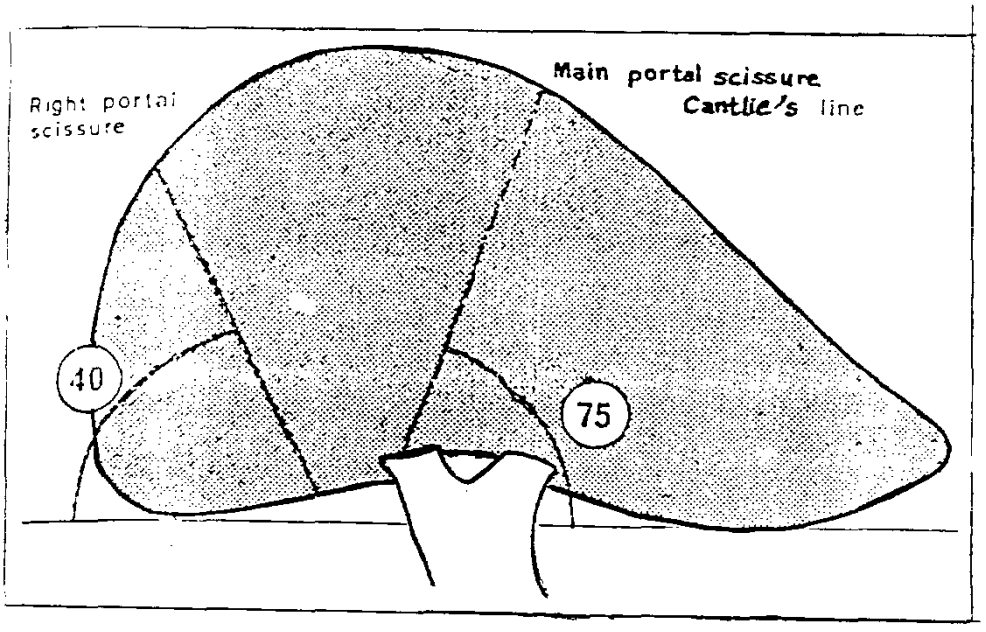

Fig. (1): The obliquity of the middle and of the right portal scissurae. (Source: From Bisumuth H, 1982, with permission).

3- The two layers of the falciform ligament run to the right and the left as the anterior or superior layers and return as posterior or inferior layers of the coronary ligament, where these layer meet on either side they are called the right and left triangular ligaments. On the right the two layers are widely separated and they are named coronary ligaments. On the left two layers are much closure, partly because of the smaller size of this part of the liver. Neverthless, there is a distinct separation of the layers especially medially and it is surprising that this is not called left coronary ligament as there is a distinct, albeit smaller, bare area right and left coronary ligaments would facilitate the descriptive anatomy .

The position of the liver is maintained by the fibrous fixation of the bare area and to a major degree by the attachment of the hepatic veins to the inferior vena cava.

The liver can be partially mobilized by entering this bare area by dividing the coronary ligaments and separating the organ from the diaphragm. **(Moore** Kl. et al., 1980).

Fissures of the Liver :

Right Fissure :

Commences at the right margin of the inferior vena cava and follows the attachment of the right superior coronary ligament to about 3 to 5 cm from the junction of the later with the right inferior layer. The fissure then comes anteriorly to a point on the inferior margin about midway between the gall-bladder fossa and the right margin of the liver.passing posteriorly, the fissure follows a line that runs parallel to the gallbladder fossa and crosses the caudate process to reach the right side of the inferior vena cava, 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 :

This fissure runs from the gallbladder fossa to the left margin of the left margin of the inferior vena cava. Postercinferiorly,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 inferior vena cava.

Left Fissure :

This fissure runs from the left side of the inferior vena cava 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 :

This fissure is marked superficially by the attachment of the falciform ligament which contains the ligamentum teres hepatis in its inferior border. Angled less ganerously than the right fissure it meets the inferior margin of the liver at an angle of about 50 . **(Moore Kl. et al., 1980) .**

Vascular Anatomy :

Venous inflow to the liver is accompl ished by the portal vein which contributes about 75 percent of the blood supply to the organ, the hepatic artery supply the other 25 percent. The portal blood passes through the sinusoidal system to the hepatic veins which empty into the inferior vena cava. The relationship of the hepatic and portal veins to the liver cells is important. The portal veins separated from the cells by an extension of the perivascular fibrous

capasule that surrounds the vein and other elements of the hepatic pedicle(portal triad) and their branches The sheath allows the three components of the hepatic pedicle to be isolated as a single structure for division and it also protects the portal vein and its tributaries from iatrogenic accidental trauma. The hepatic system of veins lies in very close relationship to the liver cells. For this reason, severe bleeding from a traumatic liver lesion is much more likely to emanate from the less-protected hepatic veins.

The large vessels are situated at a considerable depth from the anterior surface of the liver. Superficial lesions such as liver biopsies, removal of cysts and metastatic nodules can therefore be removed without formal control of the major vessels. **(Nelson** et al., 1988) .

Portal Vein :

Carrying splanchnic blood to the liver this 8 cm long valveless vein is formed by the confluence of the superior mesenteric, splenic and inferior mesenteric veins. The perivascalar fibrous capsule is especially thick at the portahepatis so as to constitute a hilar plate. At the right extremity of which the main trunk

divides into right and left branches, as well as to supply blood to the caudate lobe.

Right Branch :

This vein the shorter of the two main branches measuring 0.5 to 1 cm long lies anterior to the caudate process and immediately enters the liver through the hilar plate to divide into anterior and posterior branches. The anterior branch, a large vessel passes anteriorly at an acute angle to curve toward the anterior surface where it divides into ascending and descending branches for segment VIII and V respectively. Thus it lies in a vertical plane. The posterior branch curves superolaterally toward the superior convexity of the liver and divides into ascending and descending branch for segments VII and VI respectively this branch lies in a horizontal plane. The right hepatic vein passes anteroinferiorly between the anterior and posterior branches .

Left Branch :

This branch which is 4 cm long, lies anterior to the caudate lobe and passes leftward in the hilar plate in a posterior direction to reach the portoumbilical fissure. Here it turns sharply to enter the liver substance at which point it is joined anteriorly

by the round ligament (ligamentum teres hepatis) from its lateral side, two branches to segment 11 and into ascending and descending branches. Segment 1 (caudate lobe) is supplied by two to three branches that leave the bifurcation of the portal or its right and left branches. This lobe drains by veins that pass directly into the inferior vena cava independent of the three main hepatic veins. Usually, superior and middle veins drain the lobe and an inferior vein drains the process, but the number of veis is variable.

Accessory right hepatic veins :

Several very short veins (superior, middle and inferior draining segments VI and VII pass directly into the retrohepatic inferior vena cava .

Hepatic Veins :

The hepatic veins course anterior to the major divisions of the hepatic pedicle (portal triad) except for those branches destined for the anterior segments of the right lobe that pass directly ventrally. The hepatic veins are not enclosed in a connective tissue sheath and run from their ventral origins to the dorsally situated large trunks, which empty into the inferior vena cava. The main veins are right, median and left.