Management of Benign Hepatic Focal Lesions In Children

Essay

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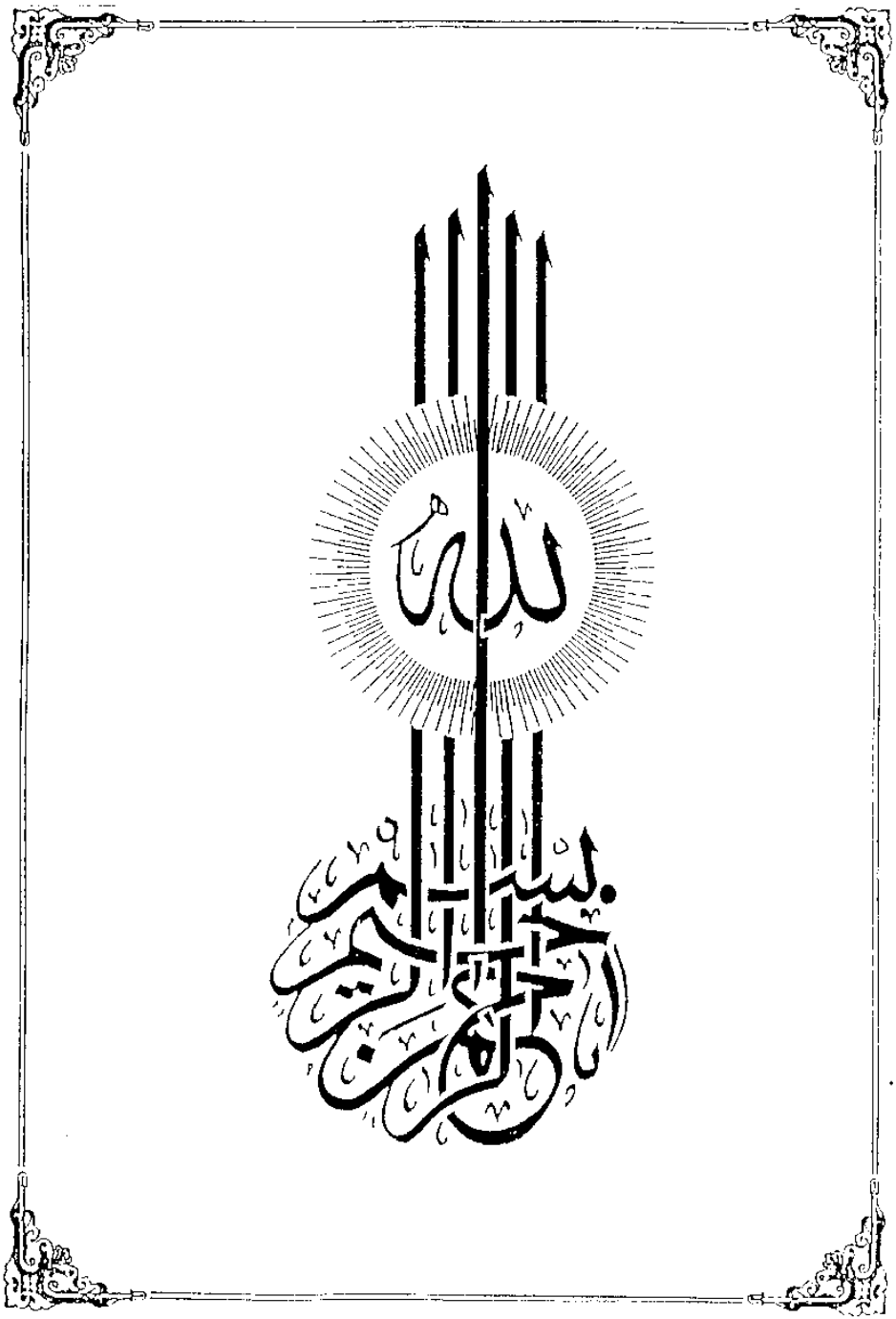

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Introduction

Liver is one of the most important organs in human body and benign hepatic, focal lesions in children pose a diagnostic and therapeutic dilemmas when discovered during evaluation of a patient suffering from abdominal mass.

The most common causes are hepatic cysts and abscesses, solid tumors are less frequent.

We are mainly concerned in this essay with management of these lesions with special stress on recent method of proper, early diagnosis and control of these lesions with possible way of treatment.

Surgical Anatomy of The Liver

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The liver constitutes approximately one-fifth of total body weight. Its size reflects the complexity of its function.

The division into right and left lobes is in line with the fossa for inferior vena cava posteriorly and the gall bladder fossa anteriorly.

A right segmental fissure divides the right lobe into anterior and posterior segment while the falciform ligament divides the left lobe into medial and lateral segment.

Recently, there is a second discription can be called functional antomy of the liver ***(Bismuth, 1982)***.

This study permits the representation of an hepatic segmentation based upon the distribution of portal pedicles and location of the hepatic vein.

The liver is divided into two liver lobes by the portal scissura in which the middle hepatic vein coarses.

The right lobe is divided into two sectors by the right portal scissura containing the right hepatic vein:

A) The right posterolateral sectors contain segment VI anteriorly and segment VII posteriorly.

B) The right anterolateral sectors contain segment V and segment VIII posteriorly.

The left lobe is divided by the left portal scissura containing the left hepatic vein:

A) The left anterior sector is divided by the umbilical fissure into segment IV, the anterior part of which is the quadrate lobe and the segment III which is anterior part of left lobe.

B) The posterior sector is segment II.

The spig'l lobe (or segment I) must be considered from the functional part of view as an autonomous segment. For its utilization is independent of the portal division and of the three main hepatic veins. It receives its vessels from the left but also from the right branches of the portal vein and hepatic artery. Its hepatic veins are independent and end directly into the inferior vena cava. The autonomy of this third liver is revealed in some pathological condition as in Budd Chiari disease due to obstruction of the three main hepatic vein, the hepatic blood outflow is ensured through the spig'l lobe which is hypertrophic ***(Bisthmus, 1982)***.

Blood supply:

The liver receives blood from two sources arterial (oxygenated blood) is carried by the hepatic artery which divides into right and left branches in the porta hepatis. The division is Y-shaped

in contrast to the T-shaped division of right and left branches of the portal veins. The common hepatic artery arises from the caeliac axis and divides into right and left branches. The right branch of the hepatic artery normally passes behind the common hepatic duct. Somtimes, the common hepatic artery arises from the superior mesenteric artery or the aorta instead of the caeliac trunk in this case it usually runs behind the portal vein ***(Last, 1990)***.

The right and left hepatic branches may themselves arise from the superior mesenteric or left gastric artery respectively constituting the aberrant hepatic artery, they may replace the normal branches or exist in addition to them.

The hepatic vein:

The venous drainage of the liver is arranged more simply than the portal system and is returned by the hepatic vein which empty into the inferior vena cava.

The major portion of the venous drainage return by three veins; the right hepatic, middle and left hepatic veins.

The caudate lobe is drained by two main less constant veins that enter the vena cava in its left side anteriorly.

A venous blood is carried to the liver by the portal vein which is about 8 Cm long and start at the level of the second

lumber vertebra by the junction of the superior mesenteric and splenic veins in front of the inferior vena cava and behind the neck of the pancreas.

The portal vein is divided in the porta hepatis into right and left branches. The hepatic artery and portal vein have equal sized right and left branches, they lie together, they ramify in each half of the liver and they are accompanied by tributaries of the hepatic duct, the three together lie in the portal canal. There is no commuication between right and left halves of the liver indeed even within each half, the arteries are end arteries (hence infarction of the liver) although the infarction may illustrate this point in the presence of the disease there are often enough anastomoses with phrenic vessels (across the bare area) allowing ligation of hepatic artery ***(Last, 1990)***.

Biliary system:

Bile drains from canaliculi into smallest interlober ducts running with the branches of portal vein and hepatic artery between liver lobules. The small duct unit to form segmental ducts, which join to form lobar duct, the right hepatic duct is formed by union of anterior and posterior segmental ducts near the hilus and is about 0.5 Cm long.

The confluence of the duct from segment II, III, IV form the left hepatic duct which crosses from left to right over the base of

the quadrate lobe superior to the left branch of the portal vein. The left and right lobar duct join in the transverse fissure to form the common hepatic duct which is joined at a variable level by the cystic duct to form the common bile duct.

Clinical Presentation

Clinical Presentation

The clinical menifestation of focal lesion of the liver are variable and no one manifestation may be considered pathognomonic.

Symptoms:

The most common presenting symptom of benign focal lesions of the liver in children is abdominal mass or generalized abdominal enlargement that may be detected initially by the parents or a pediatrician during examination ***(Lowis 1986)***.

In addition pain, anorexia, weight loss, jaundice, fever and vomting may be present.

- Abdominal pain is frequent in patient with benign liver tumour but rarely severe. It is felt as a non-specific continous dull ache in the epigastrium, right upper guadrant of the abdomen, the back or the shoulder.

- Jaundice may be present in liver abscess and is detected in about one third of patients and most often associated with biliary tract disease especially suppurative cholangitis. Jaundice is rare in cases of benign tumour, only about 3.5% of patients present with jaundice ***(Judsan 1988)***. Jaundice is also rare in cases of liver cyst it occurs especially with haemangioma (4%) it is of obstructive type.

- Fever is common especially in cases of liver abscess. It is present in 90% ***(Pineiro Carrero, 1989)*** the pattern of fever is different according to the type of pathology.

- Dyspnea is a late symptom which may be due to large size of the tumour.

Other symptoms may be present if complications arise.

Signs:

On physical examination hepatomegaly is the most common sign. The liver is enlarged not only in the abdomen but also upward to the thorax tenderness is present in liver abscess.

Jaundice may be present. A friction rub due to perihepatitis is occasionaly heard, spleenomegaly may be found, Pallon may be present.

In endemic area in preterminal stage haemoperitoneum is a common occurence due to rupture and may be present insidiously as acute abdomen. Right pleural effusion may be present in hydatid cyst and amoebic liver abscess.

In vascular tumours signs of heart failure may be present due to arterio-venous fistula within the tumour.

Investigations