MANAGEMENT OF LIVER TRAUMA

ESSAY
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In
GENERAL SURGERY

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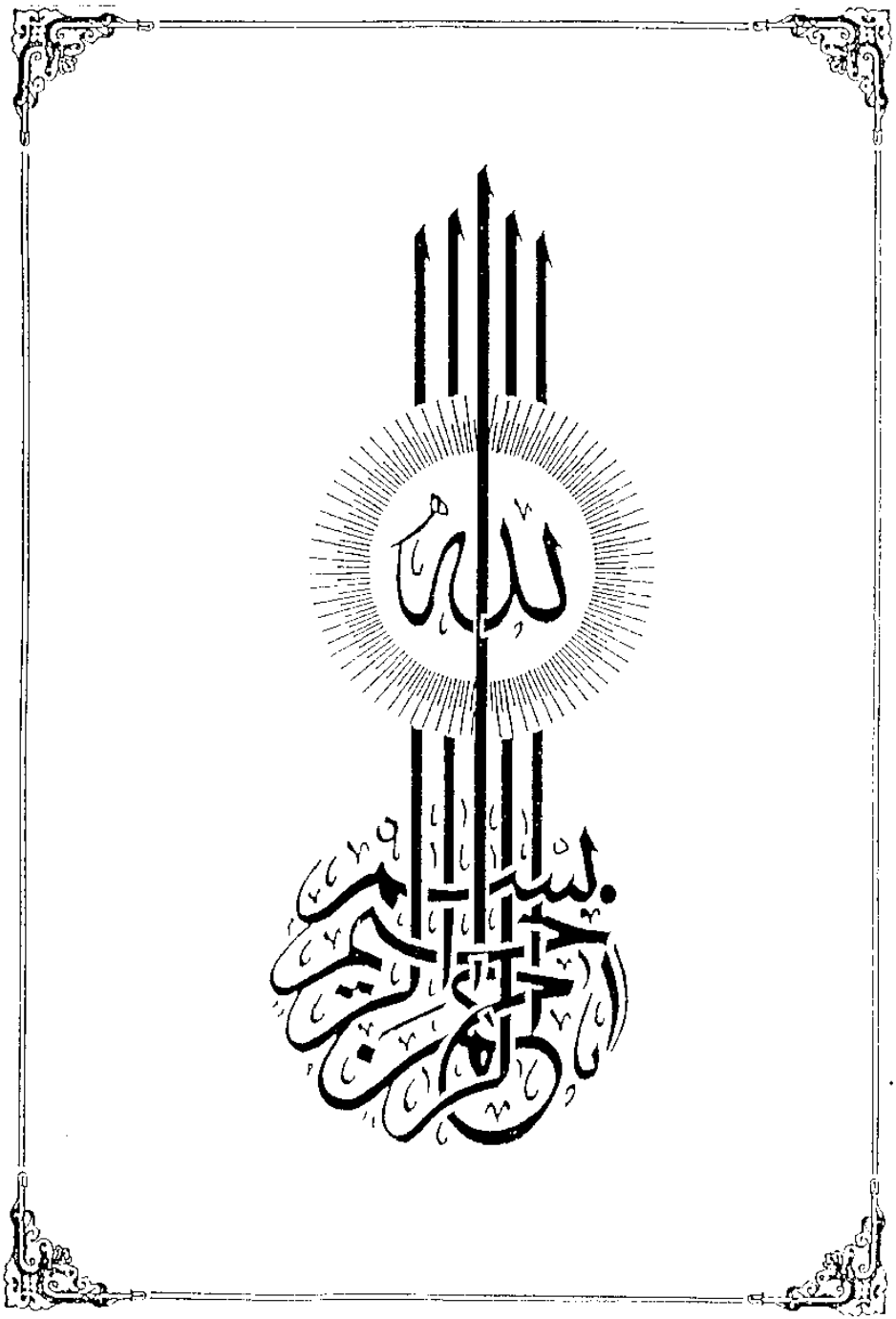

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INTRODUCTION

Injury to the liver is one of the leading contributors to morbidity and mortality in patients suffering from abdominal trauma. (Defore et al., 1976)

The liver is the second most commonly injured intraabdominal organ from blunt trauma despite its protected location (Levien et al., 1978).

The incidence of liver injuries has been steadily increasing largely as a result of the increasing incidence of motor vehicle accidents and violent crimes, however the mortality from hepatic trauma in general has decreased over the past several decades primarily as a result of improved patients resuscitation and rapid transport (Carmona, 1982).

Control of hemorrhage and prevention of abdominal sepsis remain a primary problem. Prompt diagnosis, improved techniques of vascular isolation, and ligation of individual bleeding vessels have contributed in improved success in controlling hemorrhage in complex liver injuries (Brotman et al., 1984).

Chapter 1

Surgical anatomy of the liver

Chapter 1

SURGICAL ANATOMY OF THE LIVER

General topography

The liver is the largest gland in the body it constitutes approximately 1/50 of the total body weight, its size reflects the complexity of its function.

The liver is located in the right hypochondrium, extending across the midline toward the left into the upper part of the epigastric region. Although the liver moves up and down with respiration, the upper limit of its right lobe, in the midline is at the level of the junction between the body of the sternum and the xiphoid process. (Gray, 1985).

On the right side the superior border of the liver extend upward as far as the fifth costal cartilage in the midclavicular line. On the left side the liver extends across the midline as far as 7 or 8cm. Its upper margin is somewhat lower than on the right, reaching the sixth costal cartilage. The inferior extent of the liver can be indicated by a line drown 1cm below the lower margin of the thorax on the right side as far as the ninth costal cartilage then obliquely upward to the eight left costal cartilage, crossing the midline just above the transpyloric plane, finally with a slight left convexity, the inferior border reaches the end of the line indicating the upper limit at about the fifth left inter space. (Gray, 1985).

Chapter 1

* **Surface and Relations:-**

The convex or antero-superior surface of the liver is molded to both halves of the diaphragm. It is almost hidden at the costal margin. Save in the subcostal angle. Where it contacts the anterior abdominal wall.

The convex surface of the right lobe is in relation with the right lung and pleura. The convex surface of the left lobe is small and has little relation to the anterior abdominal wall. The right lateral surface lies just beneath the costal margin in the midaxillary line, it rests against the diaphragm and is related in directly to the thin edge of the base of the right lung, to the costal diaphragmatic pleural recess, and to the thoracic wall from the seventh to eleventh ribs, and is covered entirely by peritoneum.

The peritoneum of the superior surface is not continued over the posterior surface, but is reflected to the diaphragm to form the coronary ligaments. The peritoneum of the inferior surface of the right lobe is reflected to the kidney (posterior layer of the coronary ligament) so that the right half of the posterior surface of the liver is devoid of peritoneal covering and is in direct contact with the diaphragm, it is known as the bare area.
(Anson and McVay, 1984)

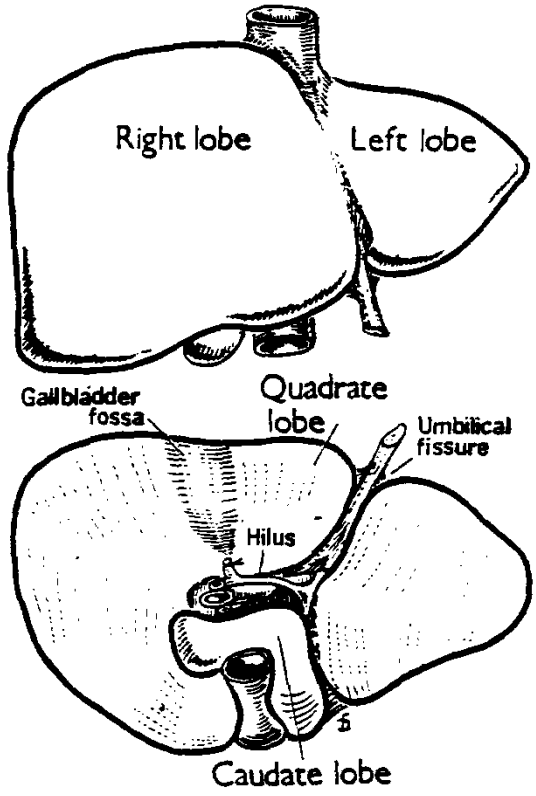

FIG. 1

Morphological aspect of the liver

(Bismuth H., 1988)

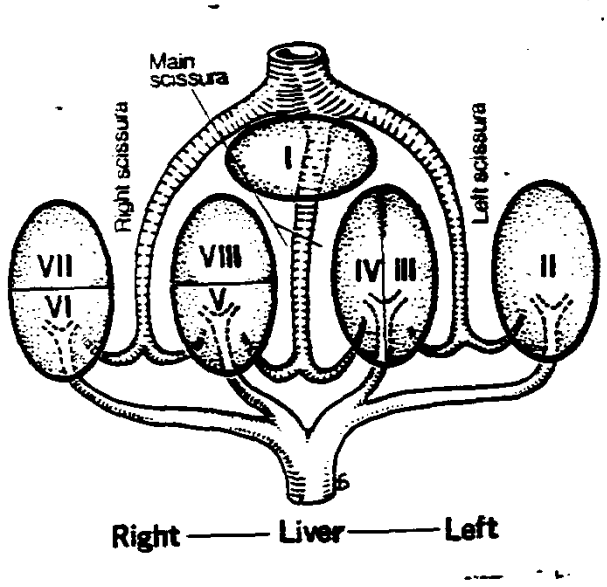

FIG. 2

Schematic representation of the function anatomy of the liver. There are three main hepatic veins lying within the liver scissurae and dividing the liver into four sectors, each receiving a portal pedicle.

(Bismuth H., 1988)

Chapter 1

Segmental anatomy

The division of the liver into segments, are delinated by fissures and the distribution of the vascular and ductal structures. There are four fissures, only one is represented superficial, the porta umbilical fissure, the other three fissures are related to the three large hepatic veins (Schwartz, 1989) Ralph Ger, 1989 described these fissures as follow;

Right fissure:

This fissure commences at the right margin of the inferior vena cava and follows the attachment of the right superior coronary ligament to about 3, 4cm from the junction of the latter with the right inferior layer. The fissure then curves 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 follow a line that run parallel to the gall bladder fossa and cross 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 passes from the gall bladder fossa to the left