ROLE OF ULTRASONOGRAPHY IN CASES OF ACUTE RIGHT HYPOCHONDRIAL PAIN

THESIS

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BY

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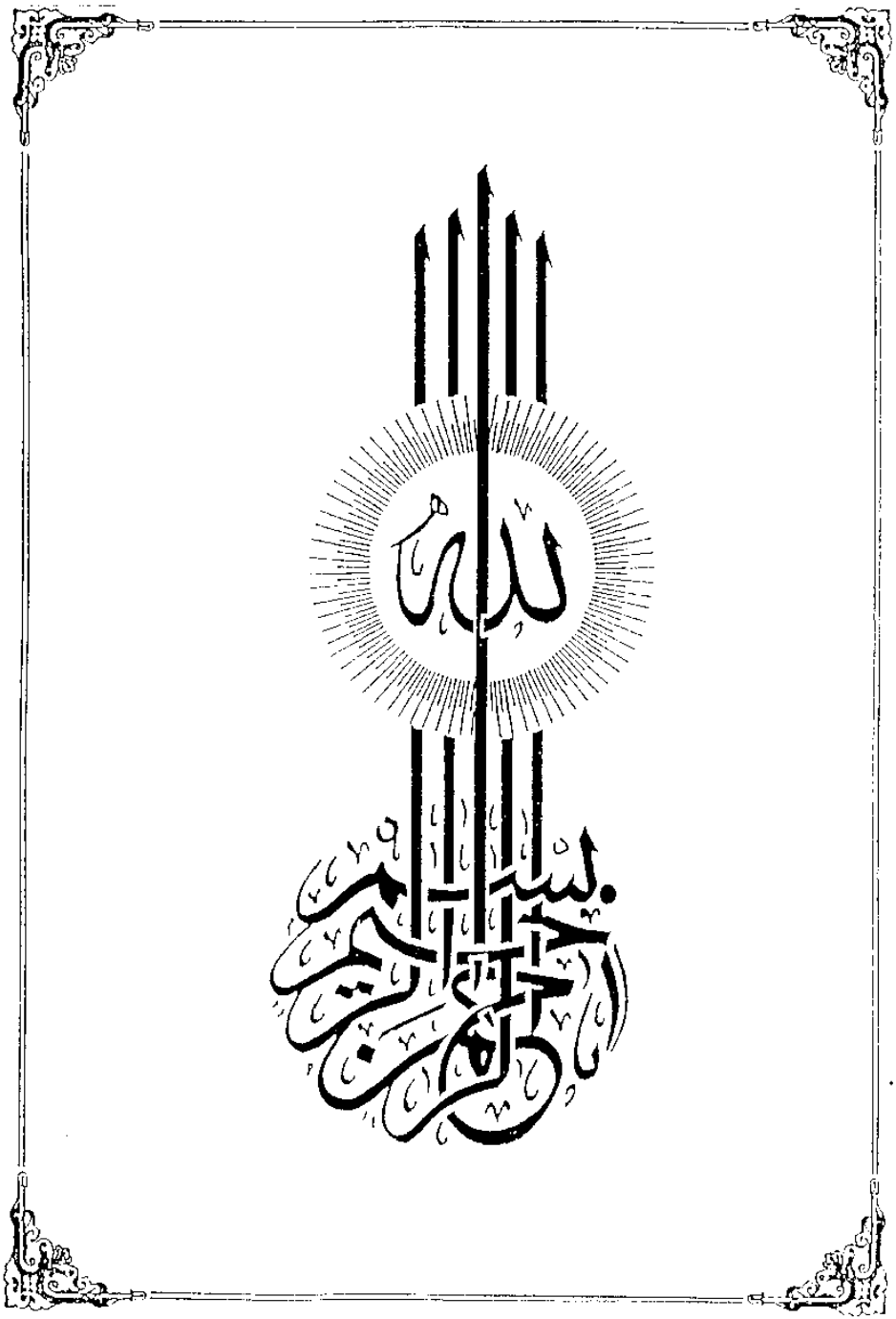

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B.FACHI

THIS WORK IS DEDICATED TO MY *MOTHER*,
TO MY *FATHER*, TO MY *WIFE MAHA*, AND
TO MY *DAUGHTER NADA*.

C O N T E N T S

INTRODUCTION AND AIM OF THE WORK

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Ultrasonography has become an important and integral part of the investigation of the abdomen. It's increasing use during last years contributed greately to recogenition of early lesions.

The evaluation of patients with acute Rt. hypochondrial pain is frequently a rewarding task for the ultrasonographer. This is in large part due to ideal imaging characteristics of the anatomical structures in the right hypochondrium. The liver which lies adjacent to the anterior and lateral abdominal wall and thus closs to the u/s transducer can be easily imaged. Additionally,the liver serves as an acoustic " window" to the perihepatic structures. Thus, the liver, G.B. biliary system, pancreas, right kidney, right subphrenic space, subhepatic and right posterior costophrenic spaces can be readily and throughly, in most instances, evaluated.

A prospective study was performed in order to disscuse the role of ultrasonography in the evaluation of pathological processes which may cause the patient to present with acute right hypochondrial pain.

We hope to clarify the advantage of this technique to reach a confirm diagnosis. This advantage being a non-invasiue, readily available, easily carried out and quickely performed safely repeated modality.

In this study we tried to give a simplified idea about how the ultrasound occupies now the first step in investigating acute right hypochondrial pain.

ANATOMY

The major structure in the right hypochondrium is the liver. This more or less triangular organ hugs the right diaphragm. The gall bladder hangs on its inferior aspect, and the right kidney lies to the right and posteriorly.

The porta hepatis (a fibrous structure containing the hepatic artery, portal vein, and common bile duct) enters the liver from its inferior aspect close to the midline.

Adjacent to the porta hepatis are the duodenum, gall bladder, and head of the pancreas. the inferior vena cava runs through the posterior aspect of the center of the liver. The aorta lies just to the left of the midline behind the left lobe of the liver.
(Isadore Meschan 1984)

THE LIVER

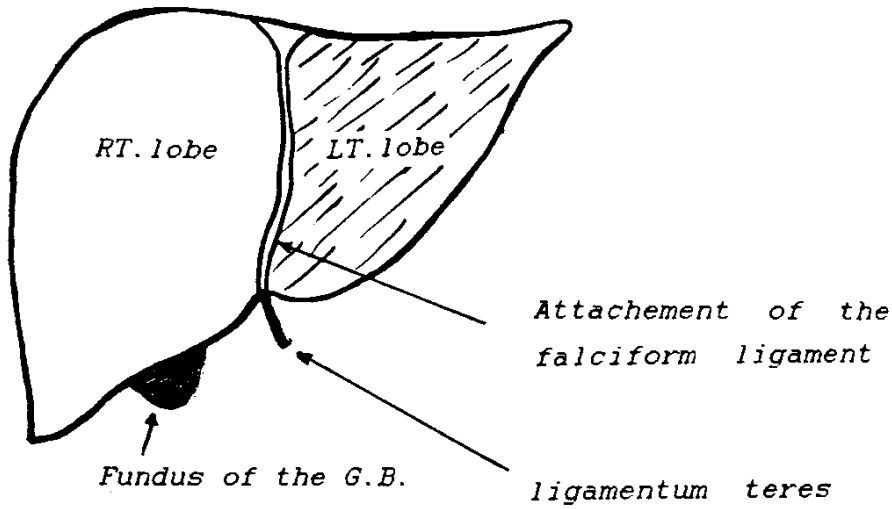
The liver, the largest glandular organ in the body occupies the right hypochondrium, and most of the epigastrium, and often extends, into the left hypochondrium as for as the left mammary line.

The human liver has four anatomical lobes, a large right lobe, a smaller left lobe, and two much smaller lobes, called the " caudate" and "quadrate" lobes.

The anterior surface is separated by the diaphragm from the sixth to the tenth ribs, and their costal cartilages on the right side, and from the seventh and eighth cartilages on the left. In the median plane it is posterior to the xyphoid process and that part of the muscular abdominal wall between the diverging costal margins. It is completely covered by peritoneum except along the line of attachement of the falciform ligment.

The superior surface is separated by the domes of the diaphragm from the pleura and lungs on the right, and by the pericardium and heart on the left. The area near the heart is marked by a shallow concavity, the cardiac fossa. This surface is mostly covered by the peritoneum

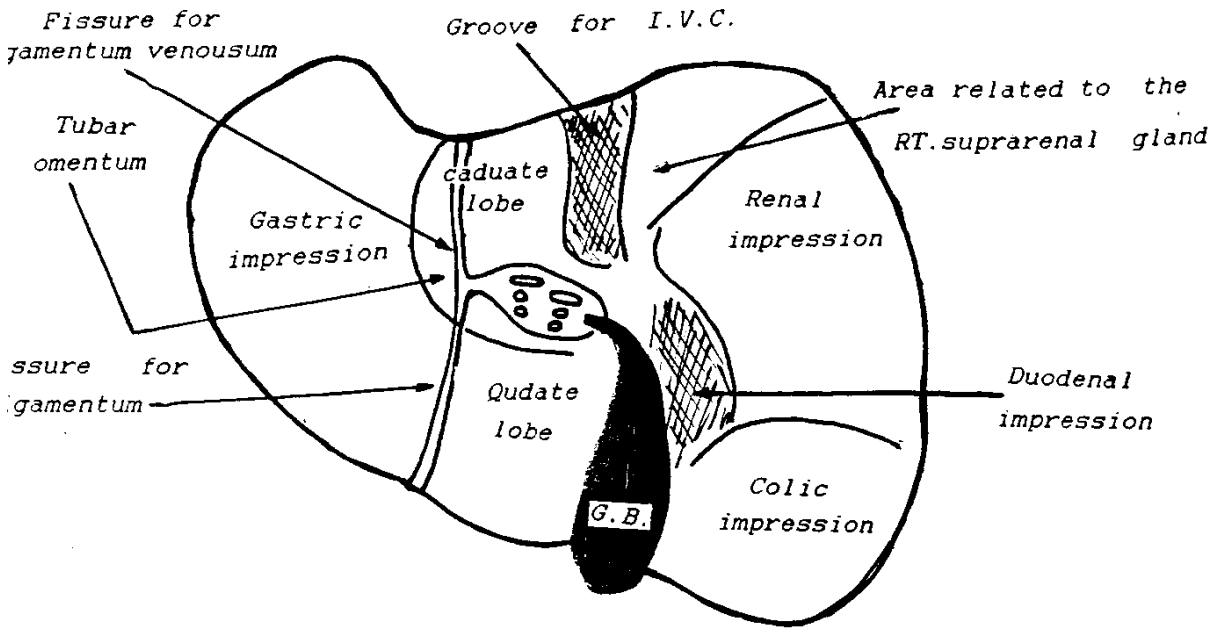
but along its dorsal part it is attached to the diaphragm by the suerior reflection of the caronary ligament, which separates the part covered with pentoneum from the so-called bare-area.(Lasty R.J. 1984).



Anterior and superior surface of the liver

(Quitted from M.A.NOOR EL-DIN 1983)

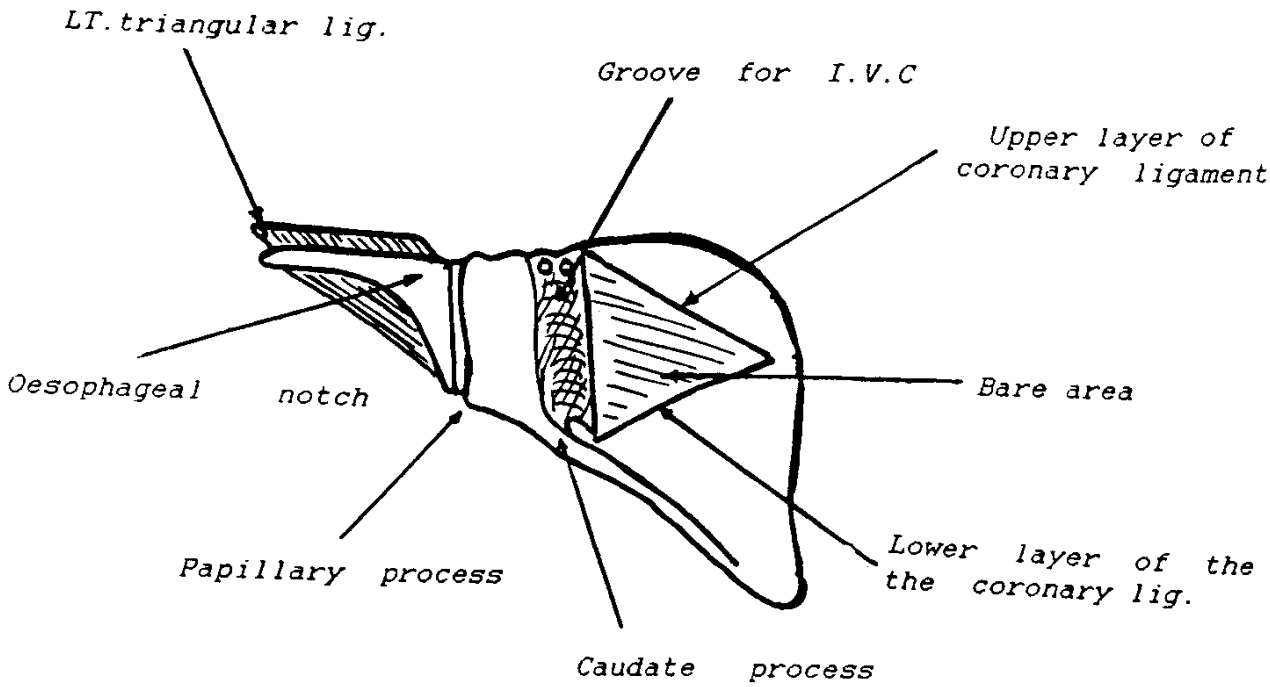
The posterior surface is broad and rounded on the right but narrow on the left. The central part presents a deep concavity which is molded to fit against the vertebral column, and crura of the diaphragm.
Closs to the right of the concavity the inferior vena cava lies buried in its fossa .



Inferior (visceral) surface of the liver
(Quitted from M.A.NOOR EL-DIN 1983)

Two or three centimetters to the left of the vena cava is the narrow fossa for the ductus venosum.

The caudate lobe lies between these three fossae. To the right of the vena cava and partly on the visceral surface is a small, triangular, depressed area, the suprarenal impression for the right supra-renal gland. To the left of the fossa for the ductus venosus is the oesophageal groove for the cardiac antrum of the oesophhagus. a large area of the posterior surface is not covered by the peritoneum. It is attached to the diaphragm by loose connective tissue. The uncovered area. frequently called the bare-area. is bounded by the superior and inferior reflections of the coronary ligaments. (cunningham 1986).



Posterior surface of the liver
(Quitted from M.A.NOOR EL-DIN 1983)

The liver faces the abdominal viscera by a concave visceral surface facing posteriorly . It contains several fossae and impressions for the neighbouring viscera. A prominet marking of the left central part is the porta hepatis, a fissue for the passage of the blood vessels and bile duct. The visceral surface is covered by penitoneum except where the gall bladder is attached to it and at the porta. The right lobe, lying to the right of the gall bladder. has three impressions, a flattened or shallow area for the right colic flexure,