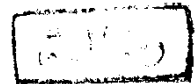


VALUE OF ULTRASONOGRAPHY IN CASES OF AMOEBIC LIVER ABSCESS

**THESIS PRESENTED BY
OLA HELMY YACoub
M.B., B. Ch.**



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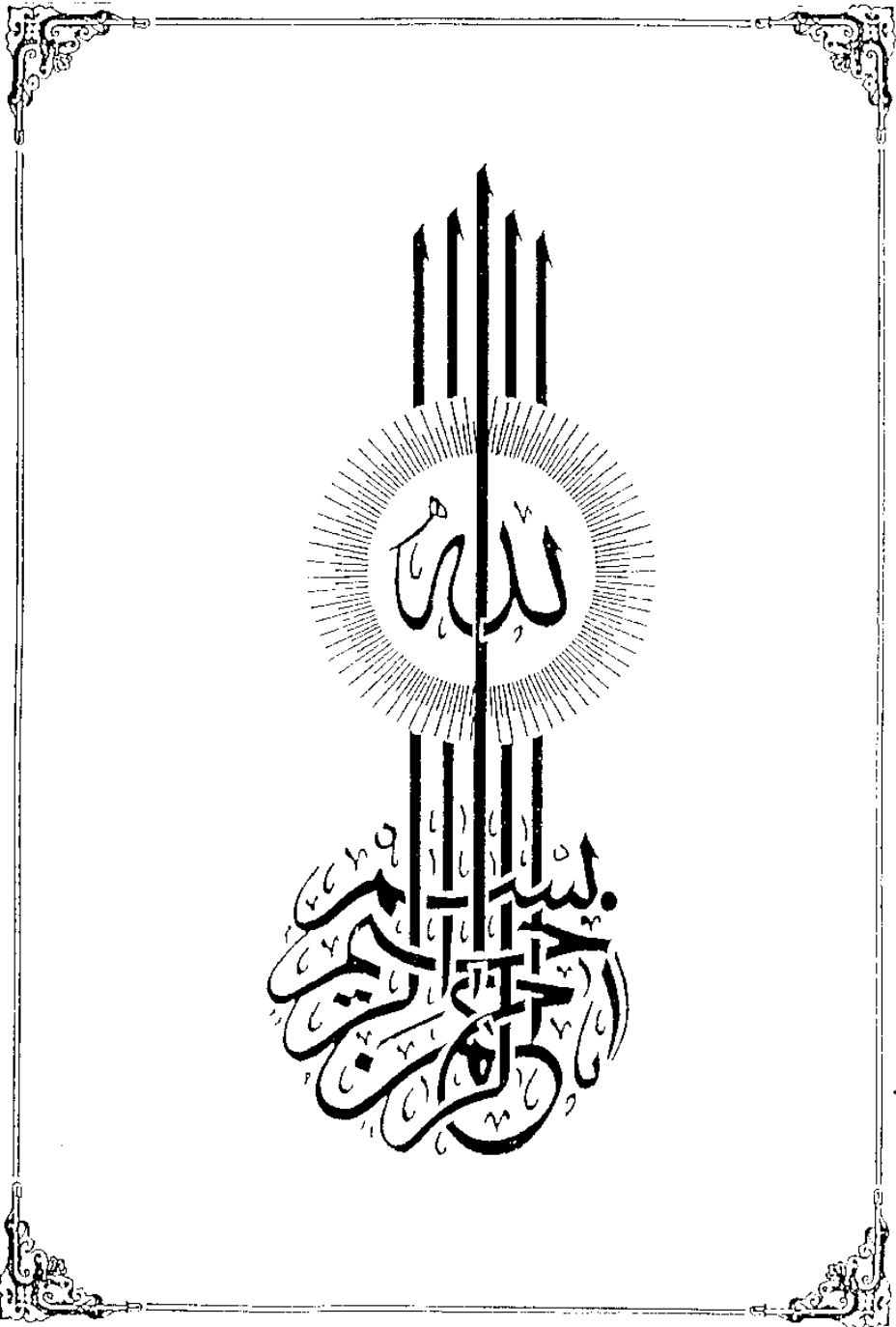


**Supervised By
Dr. MAMDOUH AHMED GHONEIM
Assistant Professor of Radio-Diagnosis
Faculty of Medicine
Ain Shams University**

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**INTRODUCTION
AND
AIM OF THE WORK**

INTRODUCTION AND AIM OF WORK

"*Entamoeba histolytica*" exists in a free-living vegetative form and as cysts which survive outside the body and are highly infectious. The cystic form passes unharmed through the stomach and small intestine and changes into the vegetative, trophozoite form in the colon. Here, it invades the mucosa, forming typical flask-shaped ulcers. Amoebae are carried to the liver in the portal venous system. Occasionally, they pass through the hepatic sinusoids into the systemic circulation with the production of abscesses in lungs and brain.

Amoebae multiply and block small intrahepatic portal radicles with consequent focal infarction of liver cells. They contain a proteolytic enzyme which destroys the liver parenchyma. The lesions produced are single or multiple and of variable size.

The amoebic abscess is usually about the size of an orange the most frequent site is in the right lobe, often supero-anteriorly, just below the diaphragm. The centre consists of a large necrotic area which has

liquefied into thick, reddish-brown pus. This has been likened to anchovy or chocolate sauce. Although it is referred to as amoebic pus, it is not strictly so because it is produced by lysis of liver cells. Fragments of liver tissue may be recognized in it. Initially, the abscess has no well-defined wall, but merely shreds of shaggy, necrotic liver tissue. Histologically, the necrotic areas consist of degenerated liver cells, leucocytes, red blood cells, connective tissue strands and debris. Amoebae may be identified in scrapings from the wall.

Small lesions heal with scars, but larger abscesses show a chronic wall of connective tissue of varying age (Sheila Sherlock, 1989).

Amoebic liver abscess constitutes an important complication of intestinal amoebiasis, a disease which is not only endemic in Egypt, but is also world wide in distribution. Endemic areas are Africa, South East Asia, Mexico, Venezuela and Colombia.

It often presents a pitfall in clinical diagnosis and a challenge to surgical diagnostic acumen. Early diagnosis and prompt initiation of therapy almost certainly lead to a complete cure, and a corresponding

low mortality rate. In the same respect, late diagnosis carries a high mortality rate (Mohamed Helmy et al., 1981).

In the tropics a new arrival is heavily exposed spread of infection by faeces is easier when sanitation is poor. Locals are less prone to hepatic amoebiasis than Europeans, presumably because of partial immunity induced by repeated contact.

The latent period between the intestinal infection and hepatic involvement has not been explained (Sheila Sherlock, 1989).

The available means of diagnosis of amoebic liver abscess are often of limited value. But since the introduction of ultra sonography as a diagnostic device, more accurate diagnosis was made in almost every case (Mohamed Helmy et al., 1981).

ANATOMY

GROSS ANATOMY OF THE LIVER

The liver is the largest glandular organ of the body. It lies mainly in the right upper quadrant of the abdominal cavity and extends for a variable extent into the left upper quadrant. It is covered by the ribs and costal cartilages, except in the epigastric region, where it comes into contact with the anterior abdominal wall below the infrasternal angle. The inferior border may project a short distance below the right costal margin but normally the liver may only be palpable in this region on deep inspiration.

In the adult the liver constitutes approximately one-fortieth of the body-weight, about 1500g in the male, and rather less in the female. In the child at birth it is relatively larger than in the adult and weighs about 120g, which is approximately one twenty-fifth of the body-weight. It doubles its weight during the first year and by puberty its birth-weight has increased ten fold.

In the living subject the liver has a reddish brown colour. It is soft and plastic and is readily moulded by pressure from contiguous viscera (W.J. Hamilton, 1976). It is wedge-shaped and, although firm

and pliant to the touch, it is friable and easily lacerated. For this reason wounds of the liver must not be too tightly sutured. Owing to its great vascularity, wounds of the liver cause considerable haemorrhage. In spite of its relatively great weight, it is widely held that the liver, like the other abdominal organs, is maintained in its position, not by its peritoneal folds or connective tissue attachments, but by the general intra-abdominal pressure due to the tonus of the abdominal muscles. Continuity of the hepatic veins with the inferior vena cava also provides some support (Gray's Anatomy, 1973).

A number of factors affects the liver position, for example, (i) whether the diaphragm is of the high, low or intermediate type; (ii) the movements of the diaphragm during respiration - in forced inspiration the inferior border may be felt below the level of the right costal margin; (iii) position of the body - the liver is situated at a lower level in the erect position than in the horizontal position; (iv) distention of adjacent viscera - if the stomach is distended the liver lies at a higher level (W.J. Hamilton, 1976).

BORDERS OF THE LIVER:

The superior, anterior and right surfaces are united by rounded borders, but a sharp inferior border separates the right lateral and anterior surfaces from the inferior surface. Somewhat rounded where it intervenes between the right lateral and inferior surfaces, the inferior border is thin and sharp where it forms the lower margin of the anterior surface and is marked by the "notch of the ligamentum teres", just to the right of the median plane.

Lateral to the fundus of the gall bladder, which often corresponds to a second notch 4 to 5cm to the right of the median plane, this border generally corresponds with the costal margin. To the left of the fundus of the gall bladder, it ascends less obliquely than the right costal margin and, crossing the infrasternal angle, passes behind the left costal margin in the neighbourhood of the tip of the eighth costal cartilage. Therefore it ascends sharply and merges with the thin left margin of the left lobe.

As it crosses the infrasternal angle the inferior border is closely related to the deep surface of the anterior abdominal wall and is readily accessible to examination in the living subject by percussion,

though normally it is not palpable; in the median plane the inferior border of the liver lies on the transpyloric plane, about a hand's breadth below the xiphisternal joint. In women and children this border usually lies at a slightly lower level, and it tends to project downwards for a short distance below the right costal margin (Gray's Anatomy, 1973).

THE HEPATIC LOBES:

The liver is divisible into a large right and a much smaller left lobe. On the anterior and superior surfaces, the two lobes meet along the line of attachment of the falciform ligament. On the posterior and inferior surfaces, the separation is more obvious and is effected by two fissures which meet end to end at the left extremity of the porta hepatis; they are termed the fissure for the ligamentum venosum and the fissure for the ligamentum teres. The "fissure for the ligamentum venosum" is a deep cleft, lined with peritoneum, which descends on the posterior surface. The "fissure for the ligamentum teres" runs upwards and backwards on the inferior surface and extends from the inferior border of the liver to the left extremity of the porta hepatis.

The **"left lobe"** is thin, flattened from above downwards and only about one-sixth of the size of the whole organ. It presents anterior, superior, posterior and inferior surfaces, which are described with the surfaces of the liver.

The **"right lobe"** constitutes the remaining five-sixths of the organ. It contributes to all of the surfaces of the liver, with which its surfaces will be described. The portion of the right lobe which adjoins the left lobe on the inferior and posterior surfaces is further subdivided into two smaller lobes, termed the quadrate and caudate lobes.

The **"quadrate lobe"** is placed on the inferior surface, and is somewhat rectangular in outline, It is bounded in front by the inferior border of the liver, on the left by the fissure for the ligamentum teres; behind by the porta hepatis, and on the right by a shallow fossa which lodges the gall bladder.

The **"caudate lobe"** is situated on the posterior surface. It is bounded on the left by the fissure for the ligamentum venosum, below by the porta hepatis and on the right by the deep groove which lodges the upper portion of the inferior vena cava. Above, it is continuous with the superior surface to the right of