

IMAGING OF INTRA-ABDOMINAL ABSCESS

ESSAY

**SUBMITTED IN PARTIAL FULFILLMENT OF
THE MASTER DEGREE
IN
RADIODIAGNOSIS**



BY

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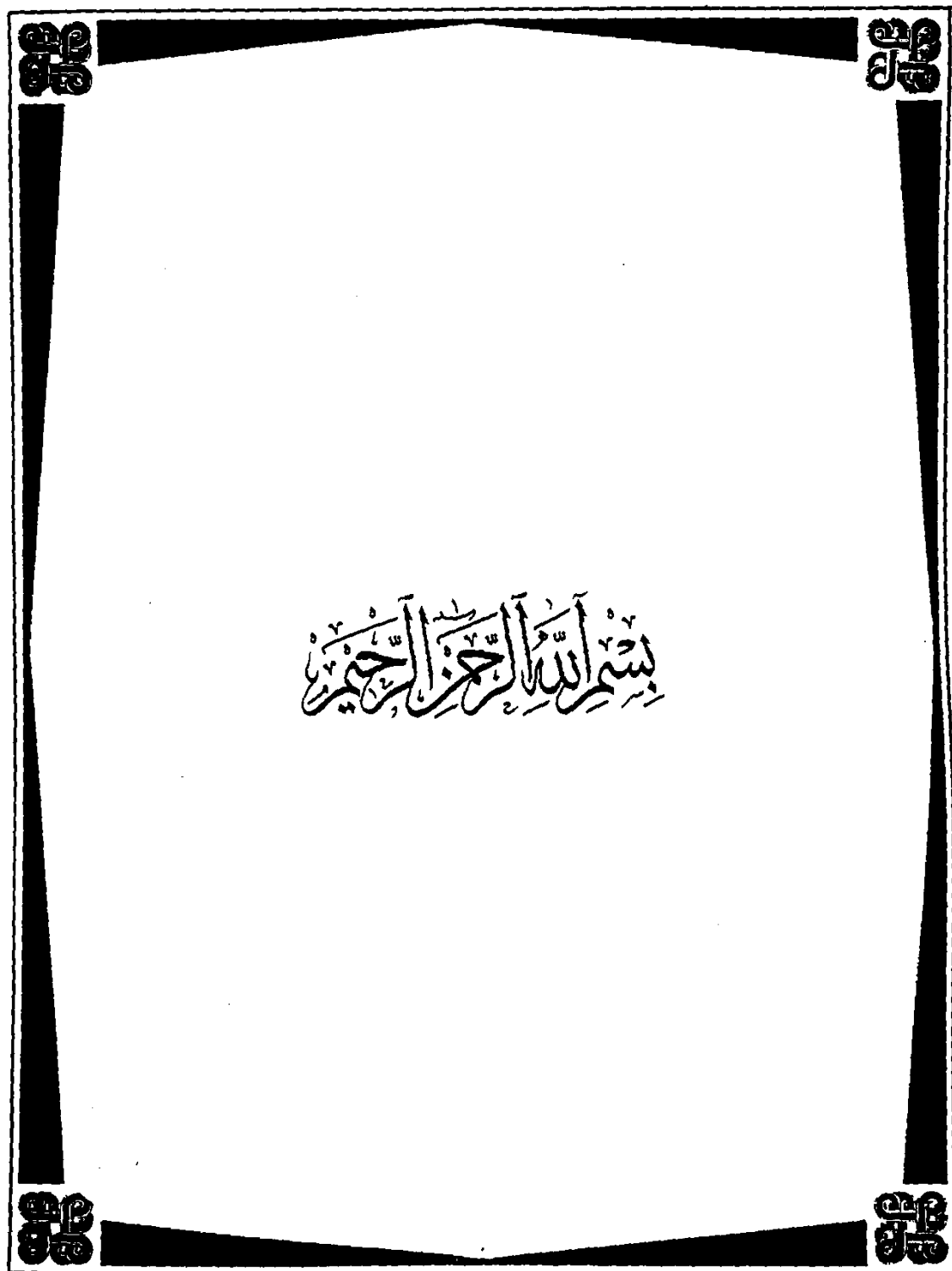
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INTRODUCTION
AND
AIM OF THE WORK

INTRODUCTION AND AIM OF THE WORK

Intra-abdominal abscess is a common clinical problem especially post-operative. It is often misdiagnosed because of its vague symptoms and signs such as fever, leucocytosis, abdominal pain and tenderness; besides patients present clinically from 1 week to 1 year after surgery.

Now, a variety of imaging modalities are available to help diagnose these cases starting by the conventional techniques as plain X-ray and radionuclide scanning to the more recent ultrasonography and computed tomography up to the most recent magnetic resonance imaging.

The aim of the present work is to express the use of each of these imaging modalities and their role in reaching the diagnosis.

ANATOMICAL
CONSIDERATIONS

Anatomy of the peritoneal cavity:

The peritoneal cavity or intraperitoneal space is a potential space between the parietal and the visceral layers of peritoneum. It consists of a main region (greater sac) and a diverticulum from this (lesser sac) behind the stomach. They are communicated by the epiploic foramen (of Winslow) [Williams and Warawick, 1980].

The visceral peritoneum invests certain viscera. In some cases, it merely passes over the front of the organ, e.g. duodenum, ascending and descending colon. In other cases, it has two leaves forming a mesentery which completely invests the organ, e.g. small intestine. The liver and spleen are almost completely invested in it, so they possess double layers, while only the upper parts of pelvic organs are covered with it and it hangs down in depressions or pouches between them [McMinn, 1990].

Anatomy of the peritoneal spaces: (Figure 1)

The peritoneal cavity is divided into three compartments by virtue of the attachments of peritoneum to the posterior abdominal wall and to various viscera. The transverse mesocolon divides the abdominal cavity into supracolic and infracolic compartments. The first one is the supracolic compartment which is subdivided into right (upper and lower) and left (upper and lower). The second one is the infracolic compartment which is

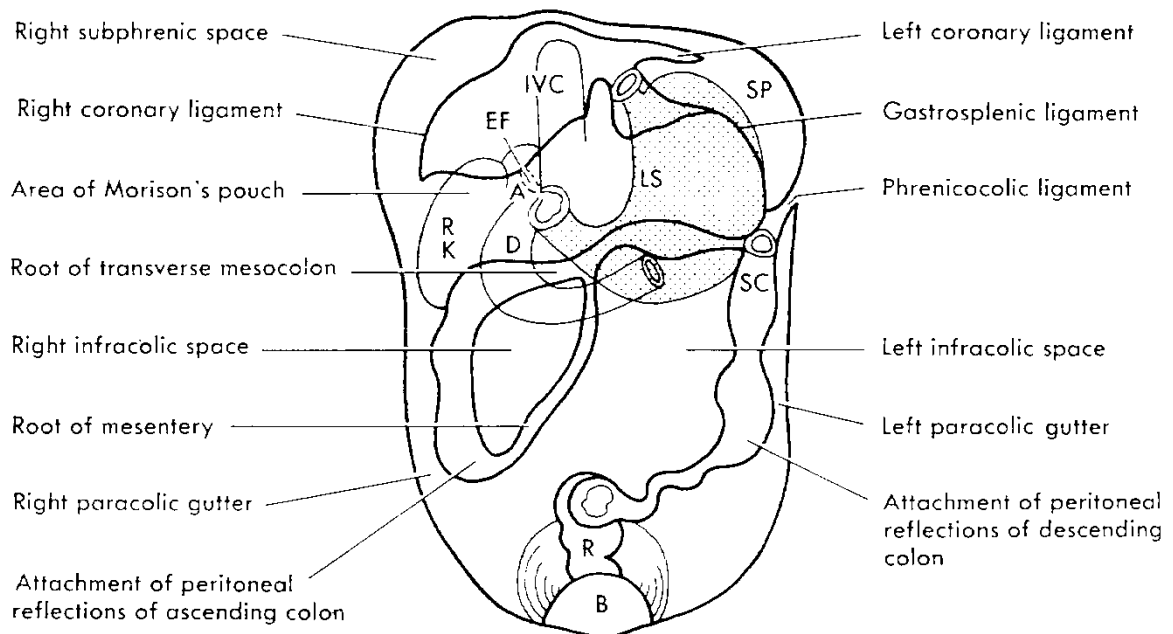


Figure (1): The posterior peritoneal reflections and recesses.

A: Right adrenal.	B: Urinary bladder.
D: Duodenum.	LS: Lesser sac.
IVC: Inferior vena cava.	R: Rectum.
RK: Right kidney.	SP: Spleen.
SC: Splenic flexure of colon.	
EF: Epiploic foramen of Winslow.	

The position of the stomach is shown as a dotted area.
 Quoted from Morley et al. [1983].

subdivided into right (upper) and left (lower), while the third one is the pelvic compartment [McMinn, 1990].

In addition, from the point of view of the spread of pathological collections of fluid, the peritoneal cavity presents a number of potential spaces or recesses which are normally in communication with each other.

These spaces are as follows:

- (1) The supracolic space (or subphrenic region).
- (2) The right infracolic space.
- (3) The left infracolic space.
- (4) The pelvic cavity.
- (5) The paracolic gutters.
- (6) Two extraperitoneal spaces.

(1) The supracolic space (or subphrenic region):

It lies between the diaphragm above and the transverse colon and its mesocolon below. It is subdivided into:

(a) **The right subphrenic space** (or right anterior intraperitoneal space): It lies between the diaphragm and the right lobe of the liver (anterior, superior and right lateral surfaces). It is bounded to the left by the falciform ligament and behind by the upper layer of the coronary ligament.

(b) The left subphrenic space (or left anterior intraperitoneal space):

It lies between the diaphragm and the left lobe of the liver (anterior and superior surfaces), the stomach (anterosuperior surface), the spleen (diaphragmatic surface). It is bounded to the right by the falciform ligament and behind by the anterior layer of the left triangular ligament.

(c) The right subhepatic space (also known as right posterior intraperitoneal space or hepatorenal recess). It is subdivided into anterior compartment and posterior compartment which is known as Morison's pouch. The right subhepatic space is bounded above and in front by inferior surface of the right lobe of the liver (i.e., under the right side of liver), below and behind by right suprarenal gland, right kidney, descending part of duodenum, right colic flexure, transverse mesocolon and part of the head of pancreas. While above and behind it extends between the right kidney and liver as far as the inferior layer of the coronary ligament and the right triangular ligament [[Williams and Warawick, 1980].

(d) The left subhepatic space (Figure 2): It is the omental bursa (lesser sac) or the left posterior intraperitoneal space. The lesser sac is bounded behind by the diaphragm, pancreas, transverse colon and mesocolon. In front, it is bounded by the liver, lesser omentum and stomach. To the left, is the lienorenal ligament, spleen and gastrosplenic ligament. It has a superior recess which is divided from the main recess by a fold of