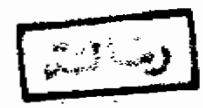
AIDS TO EARLY DIAGNOSIS OF ACUTE ABDOMEN

By

Ahmed Abdel Sattar Morsi



Essay

SUBMITTED TO

the Graduate Division

IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

(GENERAL SURGERY)

SUPERVISOR

Prof. Dr. Abdalla El Feky

Prof. of General Surgery

FACULTY OF MEDICINE

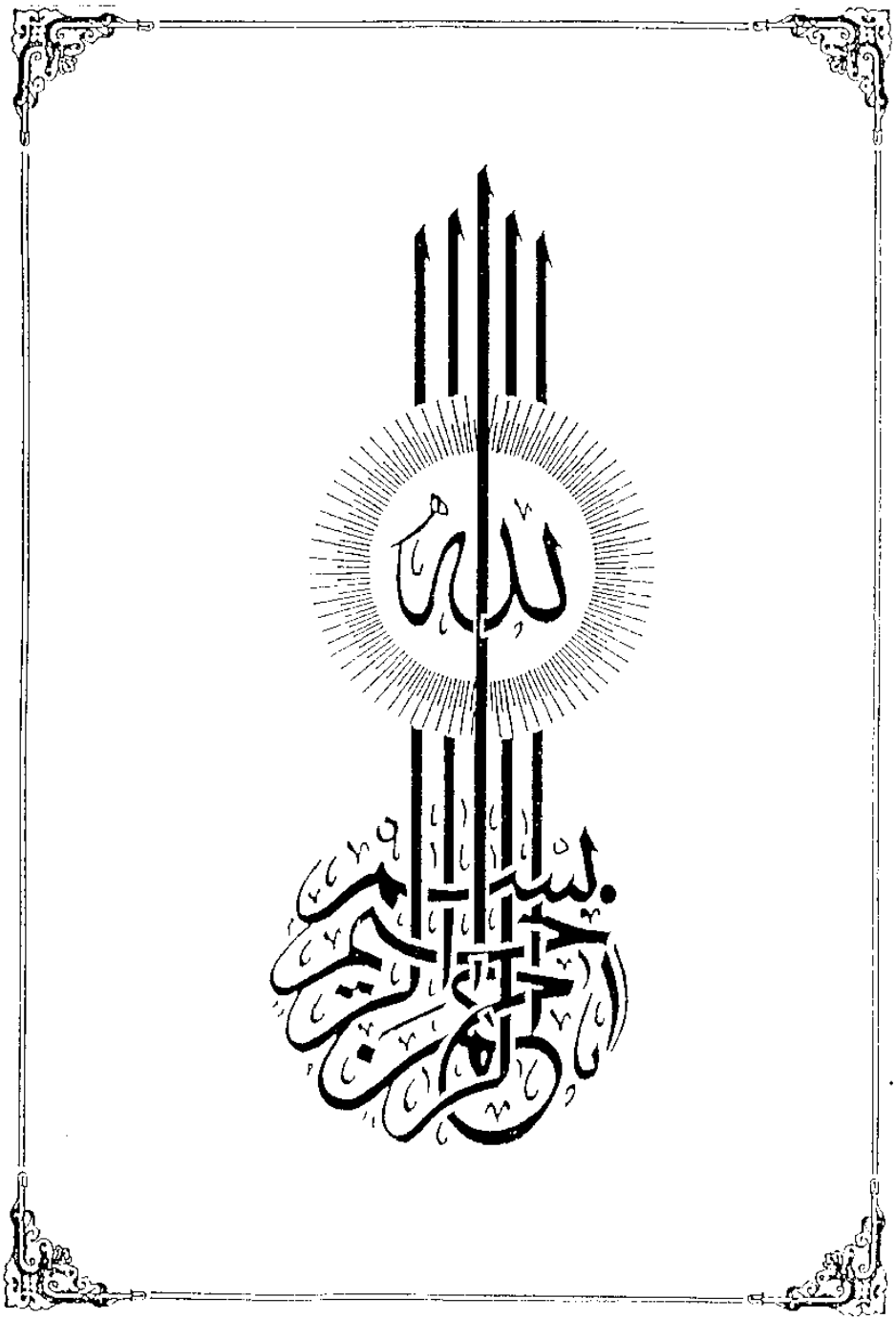
AIN SHAMS UNIVERSITY

1985

ACKNOWLEDGEMENT

I wish to express my deep appreciation and gratitude to Professor **ABDALLA EL FEKY**, Professor of general surgery for his supervision and helpful guidance . His criticism and advice were always stimulating and were especially essential to complete this work. He did not save any effort in his supervision and direction .

I wish also to thank all colleagues and staff of surgery for thier cordial help .



CONTENTS

INTRODUCTION AND AIM OF WORK

INTRODUCTION AND AIM OF THE WORK

Patients with acute abdominal diseases are critical patients need a good and correct dicision from the surgon , how to manage and treat. The correct dicision taken by the surgon should be based on a scientific scheme that can help him to reach the proper diagnosis of the case very early for this critical patient. This correct and early diagnosis is considered the real problem after which the management will be more easier .

Beside the good clinical examination , many recent advances of investigations are of great help especially if suspicion occurs in the clinical examination or if the patient is not cooperative or in shocked and comatosed patient .

I aim in this essay to put in hand a simple and easy scheme that can help in the early diagnosis of acute abdominal diseases which is very important both to the patient and the physician .

Aim of the Work

The study was carried out to improve the results of treatment of acute abdominal diseases. To reach such aim , the study provides aids which can be used easily and rapidly to reach the correct diagnosis .

The history and physical examination are the basis of the diagnosis. However , investigations are advised if there is suspecion in the diagnosis. Plain X-rays to the abdomen are the most important of all .

ANATOMY

I. Anterolateral abdominal wall (McVay , 1984)

It is bounded above by the flare of the costal margin and xiphoid process , and below by the iliac crests, inguinal ligaments , pubic crests and pubic symphysis

Superficial structures :

1. Skin: it is loosly attached to the subjacent structures.
2. Superficial fascia: has a superficial stratum (Camper's fascia) and a deep stratum (Scarpa's fascia) which is dense and more closly attached to abdominal muscles .
3. Broad abdominal muscles: the flat muscles (external oblique , internal oblique and transversus abdominis) and the recti form an elastic contractile layer about the abdominal cavity protecting its contents .
4. Fascia transversalis : it is regionally named for the muscle it covers such as ileo-psoas fascia, obturator faseia , etc..
   The integrity of transversalis fascia is essential for the integrity of the abdominal wall and no hernia could be exist (Pietsch et al., 1981) .
5. Preperitoneal connective tissue: a layer that separates the transversalis fascia from the peritoneum .
6. Linea semilunaris : which are the lateral margins of the recti muscles .

7. Linea alba: it is a linear midline furrow .
8. Vessles and nerves: the arterial supply comes from the last six intercostal and the five lumbar artries , togother with superior and inferior epigastric and the deep circumflex iliac artries. The trunks of the intercostal and lumbar artries run with the intercostal, ilio-hypogastric and ilio-inguinal nerves between the internal oblique and transversus abdomins muscles . There are connections between nerves of the abdominal wall and those of the viscera. When viscera are injured or peritonitis develops , the abdominal muscles contract through a reflex action .

II. Posterolateral abdominal wall :

Due to the forward convexity of the lumbar vertebrae , two paravertebral gutters are formed. They are floored in by the psoas, the lumborum muscles . The kidneys lie high up in the paravertebral gutters .

III. Abdominal cavity (Last , 1979) .

The alimentary canal is invested unevenly. The stomach is fixed at its two ends , but eleswhere swings free on ' mesentries ' . The duodenum is plastered down to the posterior abdominal wall , while the whole length of the small intestine swings free on its mesentry .

Ascending and descending colons are both adherent to the posterior abdominal wall , but the transverse colon is mobile on its own mesentry " the transverse mesocolon ". The pelvic colon swings on its pelvic mesocolon. Lastly, the rectum is plastered by the peritoneum to the hollow of the sacrum. The suprarenals , kidneys and ureters lie behind the peritoneum and possess no serous coat. The aorta and vena cava lie behind the peritoneum. The intestinal vessles run through the mesentries to reach the gut .

IV. The peritoneum (Last , 1979 and McVay , 1984) .

The peritoneum is a fibrous membrane that lines the wall of the abdominal cavity , the parietal peritoneum , and invests the abdominal viscera , the visceral peritoneum,. It has a potential space between the parietal and visceral layers which is the peritoneal cavity or the greater sac to distinguish it from the lesser sac or omental bursa which lies behind the stomach. It opens into the greater sac through the epiploic foramen or the foramen of Winslow .

(a) The greater omentum :

It lies over the coils of small intestine like a vascular apron from the transverse colon. The two layers of the greater omentum enclose the stomach

and leaves its lesser curvature to pass upwards forming the lesser omentum .

(b) The lesser omentum :

Its attachment to the stomach extends from the right side of abdominal oesophagus , along the lesser curvature and the pylorus to the first inch of the duodenum . Its upper attachment passes across the under surface of the liver. From the right side of the porta hepatis to the first inch of the duodenum , the right side of the lesser omentum lies free enclosing the hepatic artery , the common bile duct and the portal vien .

(c) The greater sac :

The transverse mesocolon divides the abdominal cavity into supracolic and infracolic compartments . The infracolic compartment is further subdivided by the root of the mesentry into right and left infracolic compartments. The transverse mesocolon is attached across the second part of the duodenum and ends over the lower pole of the right kidney at the hepatic flexure. On the left side it ends over the lower pole of the left kidney at the splenic flexure .

The mesentry begins its attachment at the duodeno-jejunal flexure , crosses the third part of the duodenum where the superior mesentric vessles lie between its

folds , and slopes downwards across the aorta , inferior vena cava , right psoas muscle and right ureter to the right iliac fossa over the iliacus muscle and fascia .

The right infracolic compertment is triangular in shape. It contains the right end of the inferior pole of the right kidney , crossed by the ascending branch of the right colic vessles. Just to the left of this is the second part of the duodenum .

The left infracolic compartment is quadrilateral in shape. It contains the fourth part of the duodenum , paraduodenal fossae, inferior pole of the left kidney , the ascending branch of the upper left colic vessles , aorta , inferior vena cava , promontry of the sacrum and attachment of the pelvic mesocolon .

The supracolic compartment contains the abdominal part of the oesophagus , stomach , liver and biliary system, most of the body and head of the pancreas and structures forming the stomach bed .

(d) The lesser sac :

It is a diverticulum from the greater sac and communicates with it through the epiploic foramen .

V. The peritoneal recesses :

They are of surgical importance as they may be the site of internal herniation. The recesses are :

1. The lesser sac .

2. Recesses in relation to the duodenum: superior , inferior , para-and retro-duodenal recesses. Also duodenojejunal and mesentrico parietal recesses . The most important recesses are :

a) Superior duodenal recess : lies on the left side of the fourth part of the duodenum. Its opening looks downwards .

b) Inferior duodenal recess : in 75 percent of subjects it is associated with the superior duodenal recess . It lies to the left side of the fourth part of the duodenum. Its opening looks upwords .

3. Caecal recesses :

a. Superior ileocaecal recess: opens downwards and to the left. It is bounded by a vascular fold from the caeum infront , the mesentry of the ileum behind , terminal part of the ileum below and the ileocaecal junction on the right side .

b. Inferior caecal recess .

c. Retrocaecal recess .

4. The intersigmoid recess : it is constantly present in the foetus and during infancy , but may disappear as the age advances. It lies behind the apex of the mesocolon and forms a funnel-shaped recess which is directed downwards (Davies , 1969) .

PHYSIOLOGY OF ABDOMINAL PAIN

PHYSIOLOGY OF ABDOMINAL PAIN

Schwartz (1979) , defined pain (from the latin poena , penalty , punshment , torment) as the predominent sensory experience by which man judges the existence of disease within himself. Most diseases of abdominal viscera are associated with pain at some time during their course. Indeed , the correct diagnosis of acute abdomen usually amounts to the correct identification of the cause of the abdominal pain. About the nature of pain , most physiologists now describe to the specificity theory , which hold that pain is a separate sensory modality with its own specific neural apparatus .

Cryil (1974) , stated that pain may be accompanied by measurable physilogical changes as the heart rate , breathing and sweating .

The parietal peritoneum is senstive to physical and chemical stimuli while visceral peritoneum is insenstive. The liver spleen and kidney are not senstive to incisions, pressure or cauterisation. Also , the alimentary tract is not senstive to the previous stimuli but is senstive to distension. The inflamed organ is senstive to pressure as well as to distension. Ryle (1948) , emphasized that contraction of smooth muscle of hollow viscera is an adquate physiologic stimulus for pain .