AIN SHAMS UNIVERSITY
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ACUTE ABDOMEN

AN ESSAY

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GENERAL SURGERY

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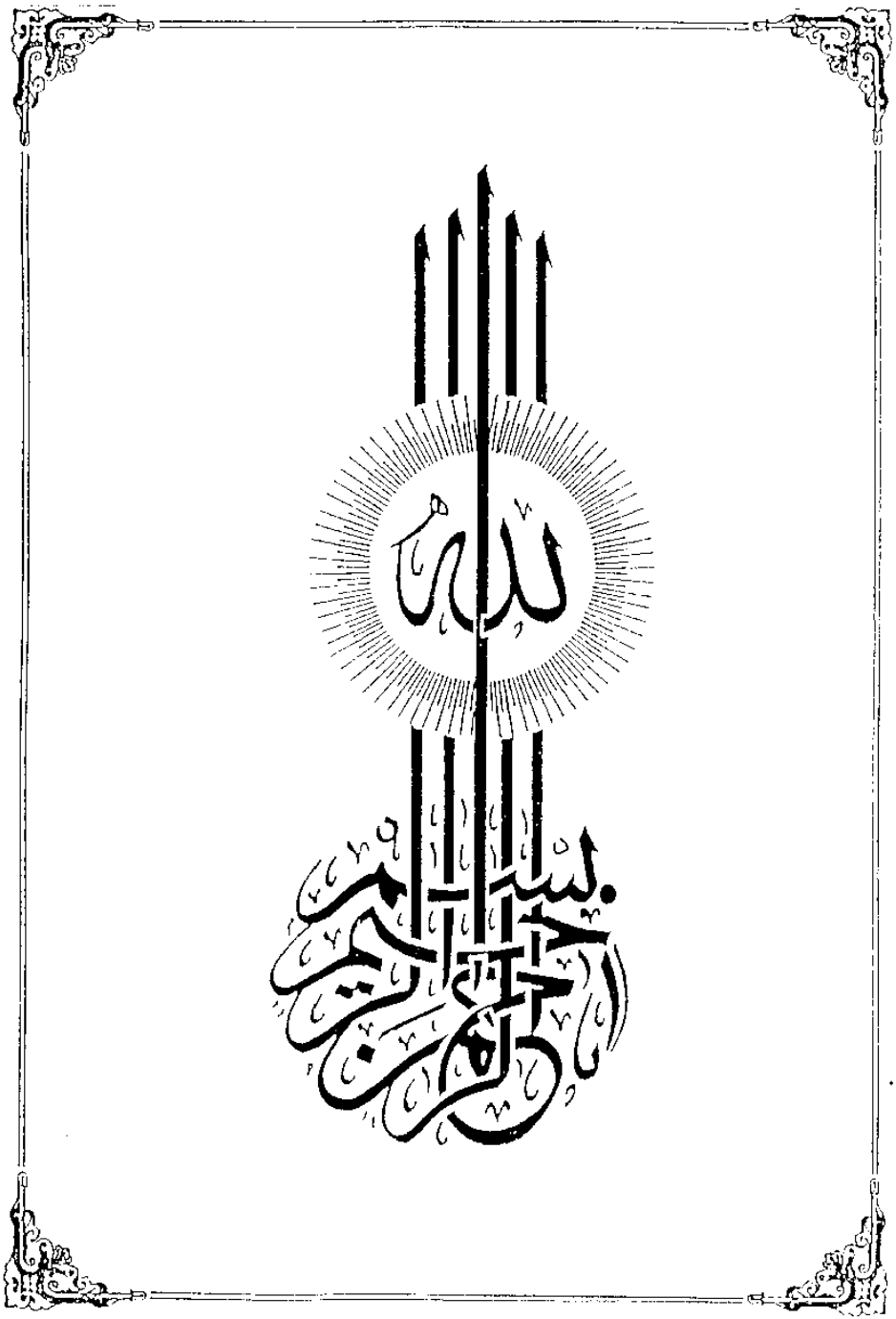

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INTRODUCTION

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ACUTE ABDOMEN

The acute abdomen is any situation in which the patient complains of acute abdominal symptoms that suggest a disease which definitely or possibly threatens life (Hobsely, 1979).

Cope (1979) has laid down a general rule declaring that the majority of severe abdominal pains which ensure in patient who have been fairly well and which last as long as six hours are caused by conditions of surgical importance.

Glass (1966) defines "acute surgical abdomen" as any complex of signs and symptoms suggesting an abdominal disease requiring prompt operation.

Acute abdomen may be caused by a non surgical disease which can best be treated medically. Some acute gastrointestinal disturbances may mimic closely intestinal obstruction or other conditions for which operation would be required. Also in many acute fevers abdominal pain and vomiting occur frequently and may at some stage be so predominant that an acute surgical condition is suspected (Shephered, 1975). For this the general surgeon may need the nelp of consultant physician.

Urologist is also consulted to help in determination whether or not the abdominal pain is caused by urological disease as many urological conditions may be associated with acute abdominal pain e.g. renal colic, injury to kidney (Maclean, 1966).

In very young patients the surgeon should not hesitate to call the Pediatrician in consultation as the differential diagnosis of acute surgical conditions from acute medical conditions of the abdomen is often difficult.

Also in any suspected acute abdomen during pregnancy the general surgeon should be ready to seak consultation with Obstetrician particularly if the pregnancy is well advanced as the diagnosis of acute abdominal conditions during pregnancy may be confused in many ways e.g. displacement of the abdominal viscera may result in loss of topographic clues, splinting of the abdominal wall by the enlarged uterus masks rigidity, tender palpable masses may be concealed by the enlarged uterus (Shepnered, 1975).

The general surgeon encounters a variety of acute abdominal conditions involving the female pelvic viscera ·

and the management initiated in such cases prior to a thorough pelvic examiantion (including speculum as well as bimanual vaginal and rectal examination) may well prove inappropriate (Anderson, 1966). In femal patient when acute pain is occurring in the pelvis, the pre-operative diangosis is clear cut and, if opportunity arises management is transferred to the Gynaecologist better qualified to deal with problems such as conservation of tubes and ovaries. Also a proportion of acute gynaecological conditions may simulate in their signs and symptoms other common intra-abdominal diseases and the differential diagnosis is difficult that the surgeon may be called.

The genral surgeon should not hesitate to employ additional means of examination in doubtful cases as radiology, elaborate laboratory tests and others (Shephered, 1975).

From the above discussion it is revealed that a team of specialists must work together to reach to a correct and rapid diagnosis of acute abdomen.

Early and accurate diagnosis of acute abdominal conditions is the basis of proper and correct management

which from a large part of the routine duties of the general surgeon.

The aim of this Essay is to stress on the main important points in the diagnosis of the most common acute conditions of the abdomen and the general outlines of management of acute abdomen.

ABDOMINAL PAIN

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Keele (1971) defined pain as unpleasent sensory experience. It can be elicited by noxious stimuli and may be an outstanding symptom in many diseases. Pain may be accompanied by measurable physiological changes as heart rate, sweating, breathing.

The pain in its acute symptomatic form, has an important biologic function, it warns the individual of a disease or injury and prompts the patient to seek medical help, and it also serves as a useful diagnostic aid to the physician (Bonica, 1977).

The parietal peritoneum is sensitive to physical and chemical stimuli while the visceral peritoneum is insensitive. The liver, spleen and kidney are not sensitive to incisions, pressure or cauterization. Also the alimentary tract is insensitive to previous stimuli but is sensitive to distension. The inflammed organ is sensitive to pressure and distension. The traction on mesentry is claimed to be painful the significance of this is not clear.

Types and localisation of pain:(Ganong, 1978)

Visceral, deep somatic and superficial pain

The visceral and deep somatic are sometimes felt at the site of lry stimualtion and may or may not be associated with referred pain.

Referred pain is produced by irritation of a viscus and is felt in some somatic structures that are developed from the same embryonic segment or derivative, e.g.: pain in the tests due to irritation of the urter, also pain at the tip of the shoulder due to irritation of the diaphragm. The pain of abdominal disease is frequently referred to the surgical scars. However unusual sites of reference may occur for instance, heart pain may be purely abdominal.

Visceral pain:

The pain from visceral structures is poorly localised, unpleasant, associated with nusea and autonomic symptoms pathway:

Pain impulses from abdominal viscera are almost conducted tnrough the sympathetic nervous system into the dorsal root of the 1st thoracic to 2nd lumbar spinal

nerves. However pain impulses from the deep structures in the pelvis are transmitted via the sacral parasympathetic nerves.

The visceral pain initiates reflex contraction of the nearby skeletal muscles of the abdominal wall, this reflex spasm is called "rigidity" and is most marked when the inflammatory process involve the peritoneum.

Pathway of somatic pain:

Pain impulses are mediated along the neurons which synapse in the dorsal horns of the spinal cord, then they cross the middleline to ascend in the contralateral quadrant of the spinal cord, associated with lateral spinothalamic tract. They form the anterolateral system in the mesencephalic reticular formation in the post-central gyrus of the brain.

Mechanisms of pain:

There are five peripheral mechanisms:

1. Chemical irritation, including the products of bacteria ex: release of bacteria into peritoneal cavity, the exact chemical mediation is unknown, possibly release

of prostaglandines is involved.

2. Ischaemia, propably rise in hydrogen ion concentration.

3. Inappropriate smooth muscle contraction often called spasm probably this pain is also ischaemic.

4. Tension and distension: tension in relation to smooth muscle (e.g. gall bladder) and distension in solid organs (e.g. rapid distension of liver capsule).

5. Direct effects on peripheral nerves: by direct stimulation or by infiltration of nerve axons by malignant disease.

Other mechanisms of pain are central:

1. From the aberrant function of any pain conducting pathway or reception station (e.g. thalamus) in the central nervous system.

2. From the malfunction of the psyche in which the patient perceive pain though there is not an organic cause.

Abdominal pain: may be:

1. As a result of extra-abdominal cause: because segmental pain originating in the spine is referred along the line of the dermatome into the abdomen as in tabes dorsalis,

myocardial infarction, ..., ..

2. Due to generalised disease: the mechanism by which they produce pain in the abdomen is unknown, but it is postulated that they produce disordered bowel contraction (lead poisoning) or cause peptic ulceration (hyperparathyroidism),..,..

3. As a result of the consequence of periotneal irritation: e.g. rupture opf hollow viscus leading to peritonitis and rupture of a solid organ to leading to blood in the peritoneal cavity.

4. Due to hollow tube obstruction e.g. intestinal obstruction.

5. From expanding lesions within a semirigid organ e.g. infarction of spleen.

6. Due to retro-peritoneal cause e.g. pancreatitis.

7. Due to abdominal wall disorder:
   The pain here is usually segmental, well localised and accompanied by local signs e.g. rupture of rectus abdomenis muscle (Dudley & Waxman, 1984).