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LAPAROSCOPY IN BLUNT
ABDOMINAL TRAUMA

(ESSAY)

SUBMITTED FOR THE PARTIAL FULFILLMENT
OF MASTER DEGREE IN GENERAL SURGERY

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TO MY WIFE AND FAMILY

AIM OF THE WORK

The aim of this work is to evaluate the role of Laparoscopy as a diagnostic and therapeutic method in cases of blunt abdominal trauma in comparison to the other conventional diagnostic methods as Ultrasonography , C.T. and Diagnostic Peritoneal Lavage .

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INTRODUCTION

INTRODUCTION

Trauma is a serious public health problem . it is the leading cause of mortality and disability during the first four decades of life and is the third most common cause of death over all . (1)

Abdominal trauma may be broadly classified into blunt and penetrating . motor-vehicle accidents account 75% of cases of blunt abdominal trauma .

The severity of mechanism is relatively related to the force and duration of impact as well as the mass of the patient contact area . (2)

The main goal in the early management of abdominal trauma is to reach the decision whether to explore the abdomen surgically or not . In a good number of cases this decision can be made on basis of physical examination of the abdomen . In some situations , several diagnostic modalities have been introduced to help reaching decision .

The standard investigations for the diagnosis of intra-abdominal injuries , when physical examination is not conclusive or difficult , are diagnostic aspiration , peritoneal lavage , abdominal ultrasonography and CT-scan .

Diagnostic peritoneal lavage minimizes unnecessary laparotomy (3) . However DPL shows simply whether there is blood in the general peritoneal cavity or not . In most cases , this reflects a serious injuries which require surgical repair do not produce bleeding up to the level detectable by DPL . This results in missed injuries . Examples include : retro-peritoneal visceral injuries (the duodenum , pancreas , colon , urinary organs) and the diaphragm . Peritoneal lavage is not a reliable diagnostic test for diaphragmatic rupture . Even in the presence of associated injuries (splenic , gastric or hepatic) , the lavage may be falsely negative due to herniation of these structures through the diaphragm to the chest with tamponading of the bleeding by the edge of the tear or bleeding is entrapped in the thoracic cavity and mistakably attributed to chest injury . (4)

On other occasions a trivial injury may produce bleeding which then ceases spontaneously but blood in the peritoneal cavity is detected by DPL . This results in unnecessary laparotomy . The incidence of non-therapeutic celiotomies for insignificant injuries that gave positive DPL has been reported to range from 5-14% in blunt trauma (5) . Other drawbacks of DPL include unidentified type of injury and complications due to its invasive nature . Sometimes , informations about certain organ injuries which are not associated with bleeding may be required in the early stage before complications occur . Examples include subcapsular , intraparenchymal and other contained solid organ injuries.

The indications for abdominal ultrasonography (AUS) in abdominal trauma are the same as those for DPL . The results of AUS , in terms of sensitivity and specificity , are comparable to DPL . It is non-invasive , the thorax and retroperitoneum can be examined as well . It is also more rapid . The disadvantages of US include frequent missing of splenic and hepatic injuries (20 - 25 %) and the need for relatively large volume of blood to diagnose intraperitoneal fluid . Detection of blood in the

intraperitoneal cavity by AUS, as mentioned by DPL, does not necessarily indicate surgical intervention.

Computed tomography has several advantages over the other methods. It is non-invasive. It shows the injured organ, quantitates the amount of fluid in the peritoneal cavity and gives a good assessment of retroperitoneal organs. The main disadvantages of CT-scan are the need for specialized personnel and equipment, the time required to real the study, failure to detect GIT injuries in some cases, and the cost (6). False negative studies are also frequent and some injuries are more often missed, e.g. diaphragm, hollow viscera and mesentric injuries (3).

Diagnostic laparoscopy (DLS) has been recently introduced in the diagnosis of abdominal trauma. Some investigators combined DLS and DPL to compare the two methods (3). Laparoscopy is found to be of great value in the evaluation of intrathoracic herniation of abdominal organs after injuries to upper abdomen and lower chest (7). Diaphragmatic injuries in these cases are so difficult to detect that some investigators have suggested mandatory exploration in all cases. Certain