PERITONEAL LAVAGE — ITS ROLE IN IMPROVING DIAGNOSTIC ACCURACY OF INTRA-ABDOMINAL TRAUMA

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SUMMARY:

Out of forty cases admitted with abdominal injuries eleven were subjected to diagnostic peritoneal lavage due to inconclusive clinical findings, ten out of eleven cases gave true positive or negative findings giving high index of reliability, no untoward effects of the procedure were recorded.

INTRODUCTION:

Abdominal trauma takes a sizeable portion of all trauma cases admitted to general surgical units. A significant intra-abdominal injury leading to solid visceral damage, bleeding vessels and gastro intestinal tear may lead to grave morbidity and mortality. Diagnosis of significant intra-abdominal trauma requiring laparotomy, in many cases, is a dilemma. Specially so, when the patient is unconscious, although the general principle to proceed with laparotomy in doubtful eases holds good, however, an attempt to achieve more accuracy in prediction iscertainly desired.[1] Too much trust cannot be placed on routine diagnostic radiography as in majority of cases it is negative.[2] Even C.T. Scan (a facility not readily available, specially, in our country) is considered complimentary to peritoneal lavage.' Four quadrant peritoneal lap practiced since long time now, is of limited value because of both false negative and false positive results[2] in addition to hazards of damage to viscera. Diagnostic peritoneal lavage has replaced the peritoneal tap in all the developed countries. In some American clinics it is used as routine in all abdominal trauma eases.[2] However, most authorities advocate ii in patients with equivocal clinical findings or in unconscious patients with multiple injuries[4-7]

Inspite of its being a recognised diagnostic procedure medical institutes of many of the under developed countries including Pakistan still do not practice it in routine. There has not been any available published data on this subject in Pakistani medical literature to date. One of the reasons of avoiding this practice is apprehension of introducing outside infection into peritoneal cavity or iatrogenic trauma to intra-abdominal structures. Following study was conducted to establish the reliability of diagnostic peritoneal lavage in blunt abdominal trauma in addition to assessment of any complications (e.g. peritonitis, trauma etc.) consequent upon the procedure.

MATERIAL AND PROCEDURE:

40 patients were admitted in surgical C unit. D.H.Q. Abbottabad between Oct. 1992 — Feb. 1993 with abdominal trauma. They fell into three groups.

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Group-1: Included 13 patients and had definite signs and symptoms of abdominal trauma. So they underwent laparotomy straight away. The signs which were regarded as definite indication for surgery were (a) Gas under diaphragm, (b) Visible viscera lying outside, (c) Generalized tenderness, (d) Generalized tenderness with silent abdomen.

Group-II: - Comprised of 16 patients who had abdominal trauma but had none of the above signs arousing suspicion, so they were treated conservatively.

Group-Ill: comprised of all patients with equivocal signs e.g. localized rigidity etc. or unconscious patient with multiple injuries who were hemodynamically unstable without any abdominal tenderness or where the other organ injury could not be blamed for significant blood loss. All patients in this group had diagnostic peritoneal lavage done.

As peritoneal dialysis catheter is not available freely so Normal saline drip set was used instead. However, basic technique did not differ from the one described in standard texts.[6] Patient's abdomen was shaved, urinary catheter was put in and after injecting local anaesthetic over linca alba a little below umbilicus, amid line small incision was made upto peritoneum. The tip of drip set taken in between medium sized artery forces and thrust through the incision of the peritoneum. One litre of normal saline let to run inside the peritoneal cavity and then the bag was left on the floor to let the fluid run back. The criteria upon which a peritoneal lavage was declared positive were (a) Grossly blood stained or turgid fluid (b) Bile or feces in the fluid, (c) Hb more than IG/lit.(d) WBC count >500/mm.[3] (c) Not be able to read through the fluid returned from peritoneal cavity.

Although many more diagnostic criteria are being used in this respect[9] but we limited ourselves to above l ive because of easy interpretation and ready availability of tests.

RESULTS & DISCUSSION:

Table-I indicates the split of 40 eases according to types of abdominal injury.

Table 1: DISTRIBUTION OF ABDOMINAL INJURIES.

Types of injury	No. of Cases	%age
Blunt trauma	20	50
Fire arm	18	45
Slab	2	5

The occurrence of blunt trauma and penetrating in juries are equally poised.

11 out of 40 cases which had equivocal clinical signs were subjected to diagnostic peritoneal lavage and were put in group-111, mean age of patients was 23.82 years ranging from 4 to 76 years. Male to female ratio was 4.5: 1 The split of the eases in this group according to the cause of injury is given in the table-II

Table-11 DISTRIBUTION OF CASKS ACCORDING TO CAUSE OF INJURY IN PERITONEAL LAVAGE GROUP.

Causes of injury	No. of Cases	% age
Road traffic accidents	7	64
Assaults	2	18
Falls	2	18

Out of these 11 patients 8 had positive lavage while 3 were lavage negative. All 8 positive eases underwent laparotomy. 7 out of these revealed significant organ damage intraperitonealy, as shown per table-III.

TABLE – III DISTRIBUTION OF POSITIVE CASES ACCORDING TO INTERNATIONAL ORGAN DAMAGE

Organ damage	No. of Cases	%age
1. Solid organs		
Spleen	3	37.5
Liver	1	12.5
2. Only gut perforation	2	25.0
3. Gut perforation and Mesenteric vessels Damage	1	12.5
4. No organ damage	1	12.5

One out of these 8 eases showed no organ damage and was considered as false positive. This incidence of false positive tallies with the reports of other workers.[5,10]

There were no false negatives. All the negative eases had uneventful recovery from the point of view of abdominal injury. One ease died because of other organ injuries later on. There was no evidence of intraperitoneal sepsis or organ trauma due to lavage in any of the eases. The reliability of the procedure using binomial distribution method proved to be significant ($p < 0.05$). This reliability of false negative is also in accordance with previous work done on the subject.".

CONCLUSION:

Peritonea] lavage has a significant role in enhancing the preoperative diagnostic accuracy while making decisions of laparotomy for cases of abdominal trauma. Its practice under sterile conditions docs not add any risks of intraperitoneal infection or organ trauma. Its routine use in doubtful cases or unconscious patient may help in avoiding unnecessary laparotomies.

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CORRIGENDUM

The address of Mr. Jaffar Khan, Co-author in the article "Pathogenic Organism in the environment of a Teaching Hospital". JAMC Vol. 5, No. 1, Jan-June, 1992 was incorrectly given, it should read:

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