

Laparoscopy for abdominal injuries and its management

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Abstract

The current research work focuses on use of laparoscopy for abdominal injuries. Laparoscopy permits full visual assessment of the abdominal cavity. It is observed that sometimes it is difficult to diagnose the injuries due to suspicion. Hence, abdominal CT scans are widely used for the purpose of diagnosis.

Laparoscopy is the best option for the diagnosis of injuries in a child and its treatment. The level of accuracy in Laparoscopy is found to be excellent. Diagnostic dilemmas can be easily solved by using Laparoscopy.

Keywords: Laparoscopy, Injury, Diagnosis

Introduction

There are some principles set to manage abdominal injuries in adult patients and in child patients. In adult patients, careful observation is needed. It is observed that blunt injuries can be in undiagnosed form to an extent period of 18 hours before its symptoms are noticed.

The outflow of intestinal stuffing ensuing in exasperation may not be apparent at preliminary examination. Abdominal radiographs are also untrustworthy; less than one-third may have pneumoperitoneum confirming injury. CT scan is currently the preferred investigation.

Pancreatic injuries in children are rare. Most of the patients having a typical record of being injured directly in the epigastric region, usually with bicycle handlebars. CT scan with IV contrast is the favored imaging technique. Pancreatic contusions are managed non-operatively with bowel rest.

The following figure suggests that first of all haemo dynamics is observed. If it is found to be stable then Diagnostic Laparoscopy is used. If any injury is found then observation is taken. On the other hand, if any injury is observed then Therapeutic Laparoscopy or Exploratory Laparotomy is performed. If haemo-dynamics is found to be unstable then directly exploratory laparotomy procedure is used.

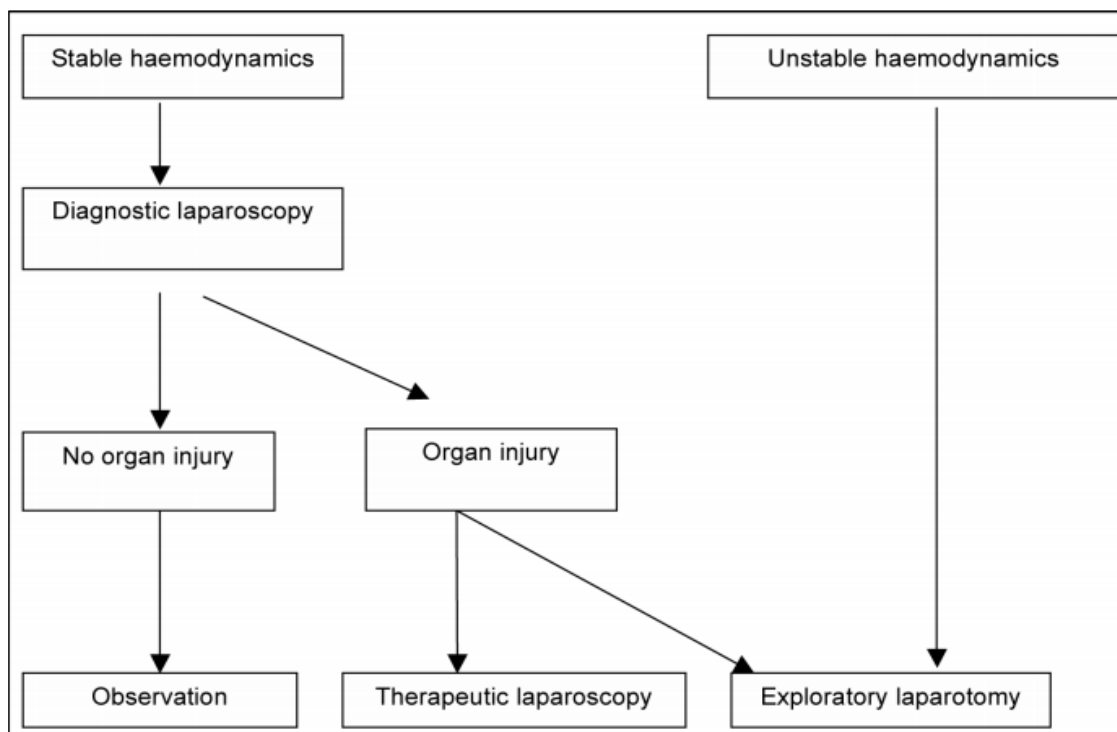


Fig 1: Algorithm for laparoscopy in abdominal injury

The use of laparoscopy in the management of patients with injuries is quite confined. Laparoscopy is considered to be much effective in determining the level of cavity by heavy wounds. It is considered to be much better diagnostic test as compared to others.

Review of related literature

Stone *et al.* (2014) [2] studied that the probability of injury is found more in children as compared to the young or old patients. In any case, Laparoscopy gives accurate measuring to proceed in services.

Villavicencio *et al.* (2012) [3] described that laparoscopy has certainly changed the level of diagnostic tests with the accuracy it provides.

Joseph *et al.* (2013) [4] studied that therapeutic laparoscopy proved to be an effective tool for the diagnosis of patients selected for the research work. He concluded that 48.8% of patients were found positive in injuries and most of the data provided was almost accurate.

Phillips *et al.* (2013) [5] conducted a study to evaluate single incision laparoscopy. This technique was used for trauma patients. It was concluded that a good port site for one operation may not be optimal for another operation. Usually in trauma patients the injuries are unknown prior to entering the abdomen.

Mobbs *et al.* (2012) [6] described that the combined application of CT imaging with laparoscopic procedures provides new options for managing select retroperitoneal injuries.

Smith *et al.* (2011) [7] described that particular queries are related with the supervision of individual injuries. The threat depends on the intricacy of the injury. Fixing and repairing of injuries to the peritoneal wall and diaphragm are the least convoluted and most widespread injuries.

Choi *et al.* (2010) [8] described that disclosure and stitch of hemorrhage mesenteric lacerations found to be difficult and prone when near the root in close proximity to major vascular structures. Harsh bleeding can result as well as disruption to the blood supply to the bowel when sutures are placed near the root of the mesentery.

Robert *et al.* (2010) described that solid organ injuries are first treated non-operatively except when the bleeding is severe enough to pose an immediately life-threatening condition, in which case an emergency laparotomy is required.

Research work

For the current research work, 118 patients were examined. Laparoscopy was used for screening, diagnostic and therapeutic purposes. It was used to detect injuries in patients. The level of injury was recorded.

To examine the small bowel, grasping forceps are used to grasp and elevate 4 inches to 8 inches of small bowel. The next portion is then grasped with a second trocar forceps and “handed off” to the first forceps to elevate and evaluate that segment of bowel. This process is repeated until the entire small bowel and its mesentery have been examined. It is very important that complete examination of the bowel is accomplished to avoid a missed injury.

Analysis

43.95% patients were found positive for injury. 13.8% of patients having injury were given a therapeutic laparoscopy. In

total 33.8 % were converted to laparotomy, 16 % of which were non-therapeutic and 11.5 % of them were negative.

Table 1: Mean Scores, S.D and t- ratio of level of injuries in selected patients.

Subjects	Mean	S.D.	M.D.	S.E.	t-ratio
N=118	36.13	3.10	3.11	1.090	2.95*
N=118	31.56	2.77	3.05	0.898	3.40*
N=118	23.45	1.96	0.94	0.646	1.45*
N=118	15.18	0.67	0.53	0.451	0.94*

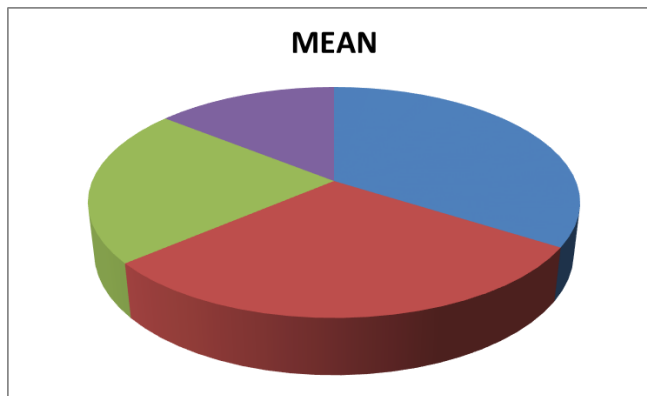


Fig 1: Mean Scores of level of injuries in the selected patients.

Table 2: Mean Scores, S.D and t- ratio of patients given therapeutic laparoscopy.

Subjects	Mean	S.D.	M.D.	S.E.	t-ratio
N=118	32.13	2.06	2.52	0.516	3.45*
N=118	33.16	2.73	2.41	0.694	2.80*
N=118	34.45	2.92	2.37	0.842	2.45*
N=118	35.18	3.10	2.15	0.947	1.94*

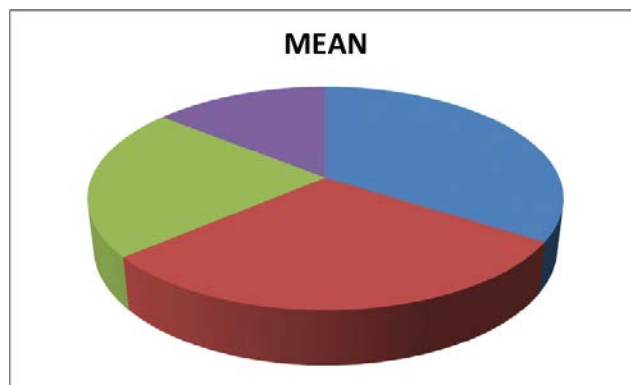


Fig 2: Mean Scores of patients given therapeutic laparoscopy

The mean score of patients with injuries was found to be 32.13, S.D. 2.06 and 't' ratio 3.45 was found significant in favor of high performing group.

In the case of therapeutic laparoscopy, the mean score of was found to be 33.16, S.D. 2.73 and 't' ratio 2.80 was found significant.

Conclusion

The most established role for laparoscopy in trauma is for the diagnosis of abdominal injuries. It may be the best diagnostic test available to assess peritoneal penetration from questionable knife or gunshot wounds. Laparoscopy is the

most reliable diagnostic technique to identify, and in many cases repair, diaphragmatic injuries. Specific injuries to solid organs and viscera can be accurately identified to determine the need of actual repair. Laparoscopic screening and diagnosis allows for more accurate use of open laparotomy when significant injuries are identified, thus avoiding the morbidity associated with nontherapeutic laparotomy. Therapeutic applications continue to be limited to repair of minor injuries to the visceral structures and solid organs. Watch for the emergence of SIL into the management of trauma patients. It is not only more cosmetic, but more importantly may have the advantage of better access to all areas of the abdominal compartment over standard laparoscopic techniques. Complex injuries occasionally may be undertaken in the stable patient with the application of hand-assisted laparoscopy, minilaparotomy, or angiographic embolization.

It is important to emphasize the unpredictable and potentially unstable nature of traumatic injuries. The surgeon must always be prepared to rapidly open the abdomen to gain control of hemorrhage. The patient should always be in a supine position, and all instruments needed for an open laparotomy should be in the room and open, available for immediate use.

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