



A Clinical Study on Bowel Injuries in Blunt Injury Abdomen

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ABSTRACT

BACKGROUND: In blunt injury abdomen liver injuries, splenic injuries, hemoperitoneum are easily diagnosed. But bowel injuries in blunt injury abdomen are not obvious. Hence, often missed, unless, repeatedly looked for. Isolated bowel injuries are not common, usually it is associated with multi organ injury.

MATERIALS AND METHODS: Patient admitted in TIRUNELVELI MEDICAL COLLEGE HOSPITAL, with features of BLUNT INJURY ABDOMEN, from January 2013 to August 2014. Data collected with meticulous history taking, clinical examination and Appropriate radiological, and operative findings. The collected data analyzed with respect to the presentation by the patient, age & sex incidence, etiologies, morbidity and mortality associated with the causation

and management. By analyzing the data, the common etiologies of BOWEL INJURIES IN BLUNT INJURY ABDOMEN, the most appropriate modality of investigation were studied.

RESULT: In the present study, Combined injuries were more common than isolated bowel injuries. Road traffic accidents were the major etiology in causing bowel injuries in blunt injury abdomen. Jejunum is the most commonly injured bowel in the blunt injury abdomen.

CONCLUSION: Apart from the ideal investigations like X-ray abdomen. erect & FAST, the gold standard clinical examination also plays a vital role in diagnosing the bowel injuries in blunt injury abdomen.

KEYWORDS : Blunt injury, perforation, jejunum, ileum, bowel injury

INTRODUCTION

Injury accounts for 10% of all deaths, according to world health organization(WHO) study on global burden of disease. Motor vehicle accidents accounts for 75% to 80% of blunt injury abdomen, in this alcohol intake is a predisposing factor. Blunt injury abdomen is also caused by fall from height, blow with blunt objects, industrial mishaps, sport injuries. In blunt injury abdomen liver injuries, splenic injuries, hemoperitoneum are easily diagnosed. But bowel injuries in blunt injury abdomen are not obvious. Hence, often missed, unless, repeatedly looked for. Isolated bowel injuries are not common, usually it is associated with multi organ injury. Liver injuries, splenic injuries, retroperitoneal hematoma can be managed conservatively depending upon the grade of injury. But bowel injuries cannot be managed conservatively. So prompt diagnosis of bowel injury is essential in order to prevent complication.

AIMS AND OBJECTIVES OF THE STUDY

- To evaluate the etiology and various modes of presentation of bowel injury in blunt injury abdomen
- To evaluate the impact of blunt abdominal trauma on intestine
- To evaluate various modalities of treatment

MATERIALS AND METHODS

METHODOLOGY

Source of data:

Patient admitted in TIRUNELVELI MEDICAL COLLEGE HOSPITAL, with features of BLUNT INJURY ABDOMEN, from January 2013 to August 2014

Methods of collection of data :

Data collected with meticulous history taking, clinical examination and Appropriate radiological, and operative findings. The collected data analyzed with respect to the presentation by the patient, age & sex incidence, etiologies, morbidity and mortality associated with the causation

and management.

By analyzing the data, the common etiologies of BOWEL INJURIES IN BLUNT INJURY ABDOMEN, the most appropriate modality of investigation, treatment, and complications associated with the injuries and possible ways to prevent them will be studied.

Investigations required:

Routine blood investigations like CBC, RFT, LFT, Blood grouping and Rh typing, X-ray abdomen erect, Chest radiograph, FAST, ECG & CT

INCLUSION CRITERIA:

Any pt presented with blunt injury abdomen

EXCLUSION CRITERIA:

- Pediatric patient
- Patient died before surgery

OBSERVATION

About 88 patients admitted with blunt injury abdomen were studied in our study. But only 50 of them had bowel injuries. 20 patients belong to 31-40 age group, 8 patients belong to 13-20 age group, 6 patient belong to 41- to 50 age group, 3 patients belong to 61-70 age group and 3 patients belong to 71-80 age group. In the 50 cases studied, 42 cases were males, with females accounting for only about 8 cases. Road traffic accident (cars, bicycles, motorcycles, pedestrian) was responsible for 80% of cases, fall from height is responsible for 12% of cases, blow with blunt object is responsible for 8% of cases.

In the present study abdominal pain was present in all cases. Absent bowel sounds in 45 cases, vomiting in 30 cases, abdominal distension in 27 cases, guarding & rigidity in 26 cases.

In the present study, Combined injuries were more common than isolated bowel injuries. Combined injuries were present in 32 cases, retroperitoneal haemorrhage in 13 cases, thoracic injury in 12 cases,

orthopaedic injury in 10 cases, splenic injury in 6 cases, facio maxillary injuries in 5 cases, liver injury in 4 cases, pancreatic injury in 2 cases, head injury in 2 cases, renal injury in 1 case.

In the present study Plain X ray of abdomen was done in 75 cases, out of the total 50 cases. In others, as the patient's general condition did not permit to shift the patient to the X ray room. Air under diaphragm was found in 13 cases for whom x ray abdomen erect was taken.

In the present study all patients were subjected for FAST study abdomen, out of which 36 patients had scan detected free fluid abdomen, liver injury in 6 patients, splenic injury in 4 patients, renal injury in 1 patient. Patient was taken up for surgery correlating the clinical features, FAST findings and X ray abdomen erect findings.

In the present study Jejunum is the most common bowel injured (fig 4.) about 35 cases, followed by ileum 10 cases. Duodenal injury (fig. 3) in 3 cases. Colonic injury in 2 cases.

In the present study primary closure was done in 35 cases, resection and anastomosis was done in 14 cases, primary closure with gastrojejunostomy was done for one patient.

In the present study wound infection was present in 11 cases, intra abdominal collection in 8 cases, respiratory complication in 5 cases, wound dehiscence in 2 cases, during the post operative period.

MORTALITY:

A total of fourteen patients died in the present study. All the three duodenal injury patients died due to late presentation, delay in diagnosis, and associated injuries. Rest of the eleven cases died because of combined injuries.

DISCUSSION

The table 1 compares the incidence of blunt abdominal trauma in various age groups in the present series to that of Madhumita Mukhopadhyay study. In the present study the most common group affected is 21- 40 yrs which is different from the Mukhopadhyay et al study.

SEX INCIDENCE

From table 2, it can be seen that the males are the more common victims of Blunt abdominal trauma. When compared to other studies the incidence of males is much more than those of the females, as, in India males are the chief bread winners for the family and are involved in outdoor activities most of the times.

MODE OF INJURY

While comparing the two study RTA is the most common mode of Injury (table 3). This is due to the rapid development in technology, in all fields including automobile industry where the first priority has been given to speed rather than safety. In the present study alcohol is predisposing factor or many of the RTA cases.

ORGANWISE INJURY

SITE OF INJURY PRESENT

In both the study jejunum is the most common bowel injured due to either firmly fixed to posterior abdominal wall or short mesentery (fig 1,4). Next most common bowel injured is ileum

SIGNS AND SYMPTOMS:

In the present study abdominal pain was the most common presenting symptom, almost in all cases (fig 2). Absent bowel sounds was the most common sign accounting for 90% of cases. But the signs and symptoms in abdominal injuries are notoriously unreliable and are often masked by concomitant head injuries, chest injuries, alcohol intake. So careful and continuing observation and repeated clinical examination of individuals with blunt injury abdomen is necessary to diagnose bowel injuries.

INVESTIGATION :

X ray abdomen was taken only for 25 cases, due to hemodynamic instability of other patients at that time of admission, x-ray was not taken. Air under diaphragm was seen in 13 cases only. FAST reported liver injury, splenic injury, hemoperitoneum but inconclusive for bowel injury. In most of the patients , bowel injuries were identified intra

operatively when laparotomy was done for other injuries like liver laceration, splenic laceration, hemoperitoneum . In 20% of patients , laparotomy was done and bowel injuries were identified in accordance with clinical findings like guarding & rigidity even though x-ray & FAST scan findings were inconclusive. Hence repeated clinical examination acts as an important tool in identifying the bowel injuries in blunt injury of Abdomen.

OPERATIVE PROCEDURE:

In the present study primary closure was done for perforations in 35 cases cases in two layers. Resection and end to end anastomosis was done in 14 cases, where primary closure was not possible. Primary closure and gastro jejunostomy was done in the duodenal injury

CONCLUSION

Solid organ injury can be made accurately by USG or CT, but not bowel injuries. In some cases due to poor general condition of patient X ray abdomen erect could not be taken, so air under diaphragm could not be made out. Sometimes X ray abdomen erect shows free air under diaphragm only in later stages. Most common symptom was abdominal pain which also present in most cases of blunt injury abdomen even without bowel injury, so abdominal pain is not a indicator of bowel injuries. A high index of suspicion, mode of injury, thorough and repeated clinical examination is the key to diagnose bowel injuries. The most common injured bowel in the present study was jejunum(most commonly within 25 cm from DJ flexure) , followed by ileum (most commonly 25 cm from ileocaecal valve). Duodenal injury was difficult to diagnose due to its retroperitoneal location and due to late presentation . Mortality in duodenal injury was also high due to its late presentation and associated injuries (like pancreatic injury). Associated extra abdominal injuries like head injury, thoracic injury, faciomaaxillary, and Orthopedic Injuries were the factors responsible for mortality rather than isolated bowel injury.

Figure 1 common site of bowel injury

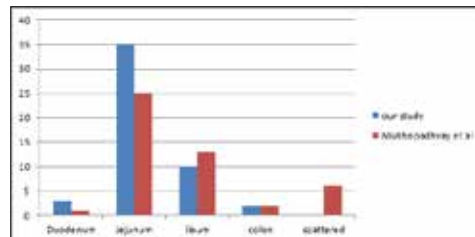


Figure 2 mode of presentation of bowel injury

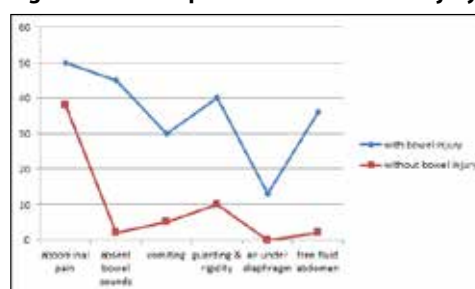


Fig.3. COMPLETE TRANSECTION OF DUODENUM INFRONT OF VERTEBRA





Fig 4. JEJUNAL PERFORATION IN ANTI MESENTRIC BORDER

Age group	13-20	21-30	31-40	41-50	51-60	61-70	71-80
Our study	8	34	24	11	7	3	3
Makhobathayaya et al	2	9	25	10	1	0	0

Table 1. Agewise presentation of blunt injury abdomen

Sex	Our study	Makhobadhay et al
Male	84%	89.36%
Female	16%	10.64%

Table 2. Sex incidence of blunt injury Abdomen

Nature of injury	Our study	Makhobadhay et al
Road traffic accident	80%	55.32%
Fall from height	12%	19.15%
Blow with blunt object	8%	25.33%

Table 3. Nature of injury in blunt injury Abdomen

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