



## Surgery

## DESCRIPTIVE STUDY OF ISOLATED BOWEL INJURY FOLLOWING BLUNT TRAUMA ABDOMEN

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**ABSTRACT** **Background:** Bowe injury following Blunt trauma abdomen is one of the most common causes of mortality following blunt trauma abdomen.

**Methods:** Total 42 patients with isolated bowel injury following blunt trauma abdomen were included in this study. It was conducted to evaluate mode and type of injury, common organs injured, treatment, complications and outcome of isolated bowel injury following blunt trauma abdomen.

**Results:** Total number of patients with bowel injury following blunt trauma abdomen were 17.07%. And 85.71% were males and remaining were females. The mean age of patients was 33.36±10.19 years. Road traffic accident was the most common cause of injury, seen in 64% of patients. Jejunum was most common site of perforation (38.10%). Postoperative complications were seen in 16.66% of patients.

**Conclusions:** Bowel injury following blunt trauma abdomen commonly seen in younger age group and involves small bowel.

**KEYWORDS :** Blunt trauma abdomen, Bowel injury, Anastomosis, Laparotomy.

## INTRODUCTION

Trauma is recognized as serious public health problem. The importance of modern epidemic of road traffic accidents to the global epidemic of violent injury cannot be overstated. In fact it is a leading cause of death and disability in first four decades of life.<sup>1</sup>

Blunt trauma abdomen is one of the most common causes among injuries caused by road traffic accidents. Bowel injury following blunt abdominal trauma is an infrequent diagnosis. Expedient diagnosis and treatment of bowel injuries are essential to avoid preventable morbidity and death and delay in initiation of treatment or surgical intervention can be catastrophic.<sup>2</sup>

Intestinal disruptions can be due to variety of blunt trauma, with automobile injury being the most common etiological agent.<sup>3</sup> Geill in 1899 reported 11% incidence of major intestinal injury among the study patients sustaining blunt abdominal injury. This is consistent with 5-15% reported in other series making intestine third most commonly injured organ in blunt trauma.<sup>4</sup>

This study observes the pattern of bowel injuries due to blunt abdominal trauma in tertiary care hospital in Nagpur, Maharashtra, India.

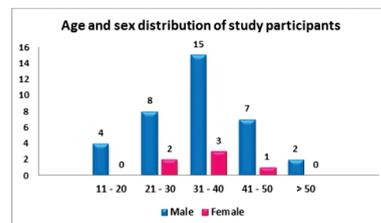
## METHODOLOGY

A retrospective record based study was conducted in the department of surgery. Over the period of 2 years total 210 patients were admitted with the blunt trauma abdomen of which 42 patients, diagnosed to have isolated bowel injury (pre-operative and intra-operative diagnosis) were included in the study. The patients presenting with associated major injuries and with penetrating trauma were excluded. Analysis was done with respect to age, sex, mode of injury, anatomical site of injury, treatment, complications and outcome. Descriptive analysis was done using mean and proportions.

## RESULTS

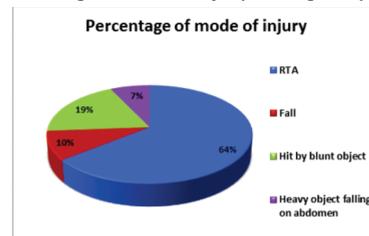
Total 246 patients with blunt trauma abdomen were admitted during study period of which 42 having isolated bowel injury were included in study. Mean age was 33.36±10.19 years with youngest being 12 years and oldest patient with 55 years of age. There were 36(85.71%) male and 6(14.29%) female patients. Figure 1 shows age and sex distribution of study participants

**Figure 1: Age and sex distribution of study participants**



Most common mode of injury was road traffic accident i.e. 27(64%). Figure 2 shows percentage of mode of injury among study participants.

**Figure 2: Percentage of mode of injury among study participants**



All the patients i.e. 42(100%) presented with the h/o pain. Second most common symptom were abdominal tenderness in 28(66.67%) followed by abdominal wall bruising in 23(54.76%), abdominal distention in 14(33.33%), vomiting in 12(28.57%) and fever in 8(19.05%) patients.

All the patients underwent exploratory laparotomy, jejunum being the most common site of perforation followed by ileum, colon and duodenum. **Table 1** shows distribution of anatomical site of injury.

**Table 1 Distribution of anatomical site of injury**

Anatomical site of injury	Number	Percentage
Duodenum	1	2.38
Close to DJ junction	8	19.05
Jejunum	16	38.10
Ileum	11	26.19
close to ileocecal junction	4	9.52
Transverse colon	1	2.38
Sigmoid colon	1	2.38
<b>Total</b>	<b>42</b>	<b>100.00</b>

Among 42, one duodenal perforation was found in found in D1 which was closed primarily with live omentopexy. In perforations closed to DJ junction 2 patients had circumferential disruption which was repaired by end to end anastomosis with placement of naso-jejunal tube across the anastomosis. All the multiple perforations required resection and anastomosis. Perforations of transverse colon, sigmoid colon and 3 patients of terminal ileal injury required stoma with reversal done later on.

Among 42 patients 7 developed post-operative complications. Anastomotic leak in 3 treated by laparotomy with exteriorization, intra-abdominal abscess in 2 treated by laparotomy with drainage. Two patients developed burst abdomen requiring re-suturing.

## DISCUSSION

Incidence of bowel and mesenteric injury ranges between 5-15% of blunt trauma abdomen making intestine the third most commonly injured organ in blunt trauma. In our study it was 17.07% which is consistent with the findings reported by several other studies.<sup>2-9</sup>

Mean age of patient in this study was 33.36±10.19 years with youngest being 12 years and oldest patient with 55 years of age with male predominance of the condition. This finding was similar to the findings by others.<sup>2,7</sup>

Similar to the other studies most of the patients in our study presented with the chief complaints of abdominal pain, distention and tenderness and most common mode of injury was road traffic accident.<sup>2,6</sup>

In this study small bowel was injured more frequently than large bowel. Jejunum being the most common site of perforation followed by ileum, colon and duodenum.<sup>3,4,9,11-14</sup>

Regarding treatment, exploratory laparotomy, drainage of septic peritoneal fluid and wound saline lavage are very important. Prophylactic antibiotics are required. Simple closure is usually adequate for single perforation of the small intestine, but more extensive injuries such as multiple perforations and gangrene from mesenteric injuries usually require resection and anastomosis. Large bowel injuries particularly in the left colon may require creation of stoma.<sup>4,15,16</sup>

In our study post-operative complication was observed in 16.66% of patients. Most common complications were Anastomotic leak, intra-abdominal abscess and burst abdomen. This finding was in line with those reported by others.<sup>3,4</sup>

## CONCLUSION

Hollow viscous injury following blunt trauma abdomen require high level of suspicion, careful clinical examination and imaging. Early diagnosis and treatment are of utmost importance. Small bowel is most commonly injured than large bowel. Type of repair depends upon various local and generalized factors.

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