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### Common Visceral Injuries in Patients with Blunt Abdominal Trauma

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#### Abstract

##### Objective

The aim of the present study was to assess the common visceral injuries in patients with blunt abdominal trauma in tertiary care teaching hospital.

##### Methods

A prospective observational study was conducted from 21<sup>st</sup> June 2016 to 21<sup>st</sup> December 2017 among 50 abdominal blunt trauma patients attending at Casualty Block, Dhaka Medical College Hospital, Dhaka, after obtaining requisite consent from the patients attendant. Data were collected through the assessment and investigation report of abdominal blunt trauma patients in the Casualty Department. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the common visceral injuries in patients with blunt abdominal trauma.

##### Results

Most of the patients were from 21-30 years (36%) of age

group followed by 11-20 years (32%). The median age of this study population is 27 years. Of the study population, 84% (n=42) were male and 16% (n=8) were female. Male-female ratio was 84:16. Of the blunt abdominal trauma predominant mechanism of injury was road traffic accidents, accounting for 60% followed by fall from height (24%). Most of the patients presented with abdominal pain (96%) or abdominal distension (80%). Overall patients with blunt abdominal trauma most commonly injured organ was liver (32%) in this present series followed by small bowel injury (28%).

##### Conclusion

The liver is the most commonly affected (42.85%) in blunt trauma injuries, followed by the small bowel injury (28%). The appropriate authorities should consider this information when instituting public health and safety initiatives.

**Keywords:** Blunt Abdominal Trauma, Visceral Injury

#### Introduction

In the environment that human being has created exposes him to variety of injuries caused by numerous forces like vehicular accident, social conflict, crimes, terrorism, wars, industrial accident, fall from height. In this situation the incidents of blunt abdominal injuries has also been increasing with other injuries of the body. Road traffic accidents (RTA) are a major cause of blunt abdominal injuries nowadays responsible for 45% to 50% of blunt abdominal trauma (BAT) <sup>[1]</sup>. assaults, falls, automobile-pedestrian accidents and work related injuries are also common <sup>[2]</sup>. Abdominal injuries in blunt trauma result from compression, crushing, shearing, or deceleration mechanisms. In blunt abdominal trauma most commonly injured organs are liver, spleen, kidney, intestines, pancreas, stomach, urinary bladder and vessels accordingly <sup>[3]</sup>.

#### Materials & method

A prospective observational study was conducted from 21<sup>st</sup> June 2016 to 21<sup>st</sup> December 2017 among 50 abdominal blunt trauma patients attending at Casualty Block, Dhaka Medical College Hospital, Dhaka, after obtaining requisite consent from

the patients attendant. Data were collected through the assessment and investigation report of abdominal blunt trauma patients in the Casualty Department. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the common visceral injuries in patients with blunt abdominal trauma. The study was approved by the institutional ethical committee. After receiving initial treatment, patients were sent to the radiology department for an immediate evaluation of their abdominal visceral injuries by a chest X-ray (erect posteroanterior view), abdominal X-ray (erect and supine), focused abdominal sonography for trauma (FAST), and computed tomography (CT) scan. Purposive sampling was used in this study.

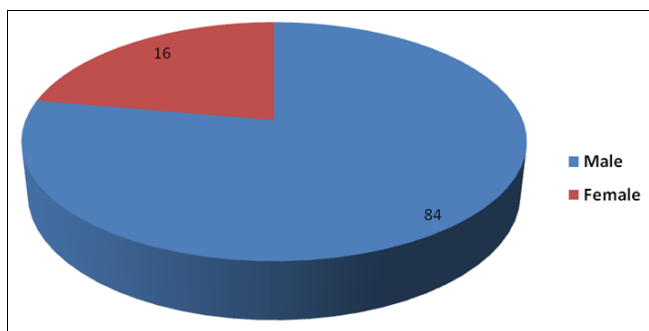
**Result**

Most of the patients were from 21-30 years (36%) of age group followed by 11-20 years (32%), 31-40 years (20%), 41-50 years (8%) and >50 years (4%) respectively. The median age of this study population is 27 years. (Table 1)

**Table 1:** Distribution of the study patients (n=50)

Age (years)	Number	percentage
11-20	16	32%
21-30	18	36%
31-40	10	20%
41-50	4	8%
≥50	2	4%

On this study predominant was male as shown in pie chart. Of the study population, 84% (n=42) were male and 16% (n=8) were female. Male-female ratio was 84:16. (Fig 1)



**Fig 1:** Pie chart showing sex distribution of the population

Of the blunt abdominal trauma predominant mechanism of injury was road traffic accidents, accounting for 60% of injuries, followed by fall from height (24%), physical assault (12%) and other work related injuries (4%). (Table 2).

**Table 2:** Mode of injury of study population (n=50)

Mode of injury	Number	percentage
RTA	30	60%
Fall from height	12	24%
Physical Assault	06	12%
Work related or sports or others	2	4%

None of the patients were haemodynamically unstable after initial resuscitation or had definitive signs of peritonitis. They mainly presented with abdominal pain (96%) or

abdominal distension (80%). Vomiting, haematuria and respiratory distress were less frequently present.

**Table 3:** Pattern of clinical presentation of patients with blunt abdominal Trauma (n=50)

Clinical presentation	Number	percentage
Abdominal pain	48	96%
Abdominal distension	40	80%
Vomiting	06	12%
Haematuria	06	12%
Respiratory distress	04	4%

\*There were multiple complaints in some patients

All the patients were advised some investigations like focused abdominal sonography for trauma (FAST), USG of whole abdomen, chest X-Ray, X-Ray abdomen and CT scan of whole abdomen. Overall patients with blunt abdominal trauma most commonly injured organ was liver (32%) in this present series followed by small bowel injury (28%).

**Table 3:** Pattern of clinical presentation of patients with blunt abdominal Trauma (n=50)

Pattern of Organ injury	Number	percentage
Liver injury	16	32 %
Spleen injury	4	8%
Kidney injury	2	4 %
Small Bowel injury	14	28 %
Large bowel injury	02	4%
Duodenum injury	02	4%
Retroperitoneal hematoma	04	8%
Mesenteric tear	06	12%
Bladder wall hematoma	02	4%
Extra peritoneal bladder injury	01	2%
No injury	03	6%

\*There were multiple injuries in some patients

**Discussion**

The most common affected age group of this study is 21-30 years and median age group is 27 years. Similar finding was found in several studies. VD Gohil, HD Palekar and M Ghoghari [4]. study showed the most common age group involved is 11-20 years and 21 -30 years age group respectively. The median age group of their study was 23 years. The median age group in YB Chol *et al* series [5]. was 40.9 years and in Timothy C Fabian *et al* series [6]. was 32 years. In our country, male are more work outside the home and involved in financial activities, so they are more frequently affected by physical trauma. In this study, maximum 84 % were male and 16% were female with male: Female ratio of 84:16 which is a little bit different to sex distribution ratio in VD Gohil *et al* [4] series which was 76:24. Another study by Morsi Mohamed *et al* [7]. 76.19% were male and 23.81% were female. Another study result, conducted by Muhammad Rafiq Memonet *et al* [8]. showed, out of 32 patients 29 was male and 3 were female. Out of 50 patients, 30 patients (56%) had suffered blunt trauma due to road traffic accident which is more than half of total cases and similar with the study conducted by VD Gohil *et al* [4] and Jason Smith *et al* series [8]. Another study done by KyoungHoon Lim *et al* [9]. (2015), showed among 41 patients, 30 patients (73.2%) cases were due to RTA. A prospective study conducted by Muhammad Rafiq Memonet *et al* [10]. Stated that mechanism of injury included motor vehicle collision in 15(46.8%) patients. Commonest

investigation findings of our study clearly states that liver injury is the most frequently seen in blunt abdominal trauma followed by small bowel injury which is same as in VD Gohil *et al* series which showed liver injury is common followed by spleen, kidney, small bowel and retroperitoneal respectively [4]. Our finding is at variant with other studies which reported that spleen is commonly involved [11] and another one stated that small bowel perforation was common followed by torn of mesentery, liver and spleen injury [12, 9]. Pattern of organ injury and number of patients are different due to different countries, different mode of injuries in our country as compared to western countries.

### Conclusion

For blunt trauma injuries, the liver (42.85%) is the most commonly affected followed by the small bowel injury (28%). The liver, as the largest organ, is more liable to injury. Given this information, steps must be taken by the governing bodies to decrease these incidences in the future for the safety of the population.

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### Conflict of interests

None.

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