

## Evaluation of Profile of Patients Admitted to Surgery Department with Blunt Abdominal Trauma: A Hospital Based Study

Anil Gupta

Principal Specialist (M.S., General Surgery), R.B.M. Hospital, Bharatpur, Rajasthan, India.

### ABSTRACT

**Background:** Blunt abdominal trauma (BAT) is a frequent emergency and is associated with significant morbidity and mortality in spite of improved recognition, diagnosis and management. Hence; present study was planned to assess the profile of patients admitted to surgery department with blunt abdominal trauma.

**Materials & Methods:** A total of 50 patients with blunt abdominal trauma were included in the present study. Detailed demographic data of all the patients was record. Clinical signs and symptoms of all the patients were also recorded. A pre-framed Performa was made and type of procedure carried out in all the patients was recorded. All the results were analyzed by SPSS software.

**Results:** Road traffic accident (RTA) turned out to be the leading cause of BAT forming a large percentage of 78% of the total. Abdominal pain was found to be the most common presenting symptom of the patients present in 100% of the subjects. Hepatorrphy was performed procedure in 4% of the subjects.

**Conclusion:** Abdominal injuries are one of the routine findings encountered in the emergency department. Therefore; surgeons must be aware of clinical signs and symptom occurring due to injuries of the abdominal organs so that prompt treatment could be started.

**Key words:** Blunt Abdominal, Emergency, Trauma.

### \*Correspondence to:

**Dr. Anil Gupta,**  
Principal Specialist (M.S., General Surgery),  
R.B.M. Hospital, Bharatpur, Rajasthan, India.

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### INTRODUCTION

Abdomen is the third most frequently injured body region and about 25% of all abdominal trauma cases require abdominal exploration. Usually, abdominal injuries occur either due to blunt or penetrating trauma, and around 7-10% of all trauma-related deaths occurred due to these injuries. An earlier study on major blunt abdominal trauma reported an overall mortality of 42%, and massive intra-abdominal hemorrhage was identified as the frequent cause of early mortality following multiple trauma.<sup>1-3</sup>

Blunt abdominal trauma (BAT) is a frequent emergency and is associated with significant morbidity and mortality in spite of improved recognition, diagnosis and management. Trauma is the second largest cause of disease accounting for 16% of global burden.<sup>4,6</sup>

The spleen and liver are the most commonly injured organs as a result of blunt trauma. Clinical examination alone is inadequate because patients may have altered mental status and distracting injuries. With the advent of large clinical trials in our own country they should play a growing role in the diagnosis and management of abdominal trauma in the coming decade.<sup>7,8</sup> Hence; present study was planned to assess the profile of patients admitted to surgery department with blunt abdominal trauma.

### MATERIALS & METHODS

The present study was carried out in the Department of Surgery, R.B.M. Hospital, Bharatpur, Rajasthan (India) and it included assessment of profile of patients admitted to surgery department with blunt abdominal trauma. Written consent was obtained after explaining in detail the entire research protocol. A total of 50 patients with blunt abdominal trauma were included in the present study. Detailed demographic data of all the patients was record. Clinical signs and symptoms of all the patients were also recorded. A pre-framed Performa was made and type of procedure carried out in all the patients was recorded. All the results were analyzed by SPSS software.

### RESULTS

In the present study the patients most commonly afflicted were young adults in the age group of 21-40 years, forming almost 70% of total sample size. The mean age of distribution was 37.5 years. Distribution of the subjects according to the gender showed that 80% of those affected were male as compared to 20% female which shows clear predilection for male population. In the frequency distribution of the aetiology, road traffic accident (RTA)

turned out to be the leading cause of t forming a large percentage of 78% of the total. Other causes were fall from height being the second major cause with 20% and alleged assault contributing 4% of the total aetiology.

**Table 1: Distribution of subjects according to age**

Age group (years)	Frequency
<20	5
21-40	34
41- 60	8
>60	3
<b>Total</b>	<b>50</b>

**Table 2: Distribution of subjects according to gender**

Gender	Frequency
Male	40
Female	10
<b>Total</b>	<b>50</b>

**Table 3: Distribution of subjects according to aetiology**

Gender	Frequency
RTA	36
FFH	10
Alleged assault	4
<b>Total</b>	<b>50</b>

**Table 4: Distribution of subjects according to clinical signs and symptoms**

Sign/ Symptom	Frequency
Abdominal distension	37
Abdominal tenderness	41
Pain abdomen	50
Guarding	15
Haematemesis	5
Haematuria	4
Pallor	27
Obliteration of liver dullness	16
Shifting dullness	4
Hematoma/ Bruise/ Abrasion	3

**Table 5: Distribution of subjects according to operative procedure performed.**

Operative finding	Frequency
Peroration repair	3
Mesentery repair	2
Hepatorraphy	2
Splenectomy	2
Splenorrhaphy	2
Resection Anastomosis	2
Nephrectomy	1

In the present study abdominal pain was found to be the most common presenting symptom of the patients present in 100% of the subjects. Second most commonly observed complaint was abdominal tenderness found to be present in 82% of the patients followed by abdominal distension present in 74% of the subjects. Guarding was another major symptom observed to be present in the 30% of the subjects. It was seen that obliteration of liver dullness was present in about 32% of the subjects suggesting the presence of free fluid. Also shifting dullness was found to be present in 8% of the total subjects. In the present study out of 50 subjects, 14 required operative intervention. Hepatorraphy was performed procedure in 4% of the subjects.

**DISCUSSION**

The patients most commonly afflicted were young adults in the age group of 21-40 years, forming almost 70% of total sample size. The mean age of distribution was 37.5 years. Distribution of the subjects according to the gender showed that 80% of those affected were male as compared to 20% female which shows clear predilection for male population. Davis JJ et al assessed the records of 437 patients with blunt abdominal trauma admitted to Charity Hospital, New Orleans. There was an 80% increase in the incidence of blunt abdominal trauma when compared with the preceding 15-year experience. Forty-three per cent of all the patients presented with no specific complaint or sign of injury. Blunt abdominal injury was usually diagnosed preoperatively using conventional methods including history, physical examination, and routine laboratory tests and x-rays. Abdominal paracentesis via a Potter needle had an 86% accuracy. The incidence and management of specific organ injuries with associated morbidity and mortality have been discussed. Mortality and morbidity continue to be significant in blunt abdominal trauma. Isolated abdominal injuries rarely (5%) resulted in death, even though abdominal injuries accounted for 41% of all deaths. Associated injuries, especially head injury, greatly increased the risk. The insidious nature of blunt abdominal injury is borne out by the fact that more than one-third of the "asymptomatic" patients had an abdominal organ injured. A high index of suspicion and an adequate observation period therefore are mandatory for proper care of patients subjected to blunt trauma.<sup>9</sup>

In the present study, in the frequency distribution of the aetiology, road traffic accident (RTA) turned out to be the leading cause of the BAT forming a large percentage of 78% of the total. Other causes were fall from height being the second major cause with 20% and alleged assault contributing 4% of the total aetiology. In the present study abdominal pain was found to be the most common presenting symptom of the patients present in 100% of the subjects. Second most commonly observed complaint was abdominal tenderness found to be present in 82% of the patients followed by abdominal distension present in 74% of the subjects. Miller PR et al were examined the incidence and risk of missed injury, patterns of associated intra-abdominal injury in all patients with blunt liver and spleen injuries, and missed injuries were reviewed in patients undergoing non-operative management (NOM). Patients were identified from the registry of a Level I trauma center over a 3-year period. Records were reviewed for demographics, injury characteristics, and associated injuries. Indications for primary operation were hemodynamic instability or significant associated intra-abdominal injury. Eight hundred three

patients (338 in the L group, 345 in the S group, and 120 in the liver (L) + spleen (S) group) were treated between December 1995 and December 1998. Rates of planned NOM were 89% (L group), 78% (S group), and 75% (L + S group). On examination of all patients with blunt liver or spleen injuries, the incidence of associated intra-abdominal injury was higher in the L group at 5% as compared with 1.7% in the S group ( $p = 0.02$ ). The associated intra-abdominal injury rate in the L + S group was similar to the L group at 4.2%. Although in the L and S groups, rates of diaphragm (0.5% vs. 1%,  $p = 0.45$ ) and intra-abdominal bladder injury (0.3% vs. 0.3%,  $p = 0.99$ ) were similar, bowel injury was more common in the L group (11% vs. 0%,  $p = 0.0004$ ), as was pancreatic injury (7% vs. 0%,  $p = 0.007$ ). In NOM patients, missed injury occurred in seven (2.3%) L patients versus zero S patients ( $p = 0.012$ ). No L + S patient had unexpected injuries. Missed injuries included two small bowel, three diaphragm, one pancreas, and one mesenteric tear. Damage to the pancreas and bowel is significantly associated with liver as opposed to spleen injuries.<sup>10</sup> In the present study, guarding was another major symptom observed to be present in the 30% of the subjects. It was seen that obliteration of liver dullness was present in about 32% of the subjects suggesting the presence of free fluid. Also shifting dullness was found to be present in 8% of the total subjects. In the present study out of 50 subjects, 14 required operative intervention. Hepatorrhaphy was performed procedure in 4% of the subjects. Brown MA et al evaluated the accuracy of screening abdominal ultrasonography (US) in patients with blunt abdominal trauma. The abdomen and pelvis were scanned for free fluid, the visceral organs were assessed for heterogeneity, and duplex US was performed if necessary. Empty bladders were filled with 200-300 mL of sterile saline through a Foley catheter. US findings were considered positive if free fluid was present or if parenchymal abnormalities that could be consistent with trauma were detected. Screening US results were compared with findings of diagnostic peritoneal lavage, repeat US, computed tomography (CT), cystography, surgery, and/or autopsy and/or the clinical course. No patient with false-negative findings died. Specificity of US was 96% (2,429 of 2,521 patients), and overall accuracy was 96% (2,574 of 2,693 patients). Positive predictive value was 61% (145 of 237 patients), and negative predictive value was 99% (2,429 of 2,456 patients). Abdominal US is useful in screening for injury in patients with blunt abdominal trauma, and its use represents a notable change in institutional practice.<sup>11</sup>

## CONCLUSION

Under the light of above obtained data, it can be concluded that abdominal injuries are one of the routine findings encountered in the emergency department. Therefore; surgeons must be aware of clinical signs and symptom occurring due to injuries of the abdominal organs so that prompt treatment could be started.

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