

**Original article:**

## **Evaluation of Profile of Patients with Blunt Abdominal Trauma Admitted to the Emergency Department of a Tertiary care Hospital**

**Sanjay Sharma<sup>1</sup>, Murali C<sup>2</sup>**

<sup>1</sup>Associate Professor, <sup>2</sup>Assistant Professor, Department of Surgery, Saveetha Medical College & Hospital, Thandalam, Chennai, Tamil Nadu, India.

Corresponding Author: Dr. Sanjay Sharma, Associate Professor, Department of Surgery, Saveetha Medical College & Hospital, Thandalam, Chennai, Tamil Nadu, India.

### **ABSTRACT**

**Background:** Blunt Abdominal Trauma (BAT) is seen with increasing frequency in emergency rooms and continues to be associated with significant morbidity and mortality in spite of its improved recognition, diagnosis, and management. Hence; we planned the present study to evaluate profile of patients with blunt abdominal trauma admitted to the emergency department

**Materials & Methods:** The present study was conducted in the emergency department, Saveetha Medical College & Hospital, Thandalam, Chennai, Tamil Nadu (India) and it included evaluation of profile of patients with blunt abdominal trauma admitted to the emergency department. A total of 50 patients were analyzed during the study period. Complete demographic and clinical profile of all the patients was obtained. Diagnostic imaging was carried out when required. All the data were compiled in Microsoft excel sheet and were analyzed by SPSS software.

**Results:** Mean age of the patients of the present study was 38.5 years. 24 percent of the patients belonged to the age group of less than 30 years. Road traffic accidents were responsible for occurrence of 40 percent of the cases of BAT. Assault and fall from height were responsible for occurrence of 26 percent cases each of BAT. Spleen was involved in 70 percent of the patients. Liver and kidney were involved in 56 percent and 44 percent of the patients.

**Conclusion:** Understanding the profile of patients with BAT helps in adopting early treatment protocol and thereby helps in improving the prognosis of the patients.

**Keywords:** Blunt Abdominal Trauma, Emergency.

### **INTRODUCTION**

Concealed haemorrhage is the second most common cause of death after trauma, and missed abdominal injuries are a frequent cause of morbidity and late mortality in patients who survive the early period after injury.<sup>1,2</sup>

The management of the patient with blunt abdominal trauma remains in continuous flux. The emergency physician cannot place undue reliance on physical examination, and plain radiography of the abdomen rarely adds to patient care. Laboratory tests particularly elevated liver function tests or a large base deficit, may increase our suspicion for intraabdominal trauma. However, normal blood tests should never prevent further investigation as warranted by mechanism of injury or clinical picture.<sup>3-5</sup>

Blunt Abdominal Trauma (BAT) is seen with increasing frequency in emergency rooms and continues to be associated with significant morbidity and mortality in spite of its improved recognition, diagnosis, and management.<sup>6,7</sup>

Hence; under the light of above mentioned data, we planned the present study to evaluate profile of patients with blunt abdominal trauma admitted to the emergency department.

## MATERIALS & METHODS

The present study was conducted in the emergency department, Saveetha Medical College & Hospital, Thandalam, Chennai, Tamil Nadu (India) and it included evaluation of profile of patients with blunt abdominal trauma admitted to the emergency department. Ethical approval was obtained from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. A total of 50 patients were analyzed during the study period. Complete demographic and clinical profile of all the patients was obtained. Diagnostic imaging was carried out when required. This included ultrasound and computed tomography. Scanning of the abdomen and pelvis was done for assessing the presence or absence of fluid. Along with this, assessment of visceral organs was done for analyzing the heterogeneity. All the data were compiled in Microsoft excel sheet and were analyzed by SPSS software.

## RESULTS

In the present study, a total of 50 patients with BAT were enrolled. Mean age of the patients of the present study was 38.5 years. 24 percent of the patients belonged to the age group of less than 30 years. 40 percent of the patients belonged to the age group of 30 to 50 years. 36 percent of the patients belonged to the age group of more than 50 years. 70 percent of the patients of the present study were males while the remaining were females. Road traffic accidents were responsible for occurrence of 40 percent of the cases of BAT. Assault and fall from height were responsible for occurrence of 26 percent cases each of BAT. Spleen was involved in 70 percent of the patients. Liver and kidney were involved in 56 percent and 44 percent of the patients. Bladder involvement was seen in 36 percent of the patients while stomach involvement was seen in 30 percent of the patients.

**Table 1: Age-wise and gender-wise distribution of patients**

Parameter		Number of patients	Percentage of patients
Age group (years)	Less than 30	12	24
	30 to 50	20	40
	More than 50	18	36
Gender	Males	35	70
	Females	15	30

**Table 2: Distribution of patients with BAT according to etiology**

Etiology	Number of patients	Percentage
Road traffic accident	20	40
Assault	13	26
Fall from height	13	26
Others	4	8

**Table 3: Abdominal organs injured**

Organs	Number	Percentage of patients
Spleen	35	70
Liver	28	56
Kidney	22	44
Bladder	18	36
Stomach	15	30
Others	8	16

## DISCUSSION

Blunt trauma accounts for 80–90 % of the trauma seen in most civilian trauma centers. Significant abdominal trauma is present in 12–15 % of such patients and usually occurs in association with multisystem injury. Although laparotomy is required in only 30–40 % of patients with blunt abdominal trauma, the importance of prompt evaluation and operative therapy is underscored by the observation that the majority of preventable deaths after blunt trauma is due to either unrecognized abdominal injury, or under-appreciation of the severity of abdominal injury.<sup>7-9</sup>

Evaluating patients who have sustained blunt abdominal trauma (BAT) remains one of the most challenging and resource-intensive aspects of acute trauma care. Missed intra-abdominal injuries continue to cause preventable deaths. Physical examination findings are notoriously unreliable for several reasons; a few examples are the presence of distracting injuries, an altered mental state, and drug and alcohol intoxication in the patient.<sup>10</sup>

In the present study, a total of 50 patients with BAT were enrolled. Mean age of the patients of the present study was 38.5 years. 24 percent of the patients belonged to the age group of less than 30 years. 40 percent of the patients belonged to the age group of 30 to 50 years. 36 percent of the patients belonged to the age group of more than 50 years. 70 percent of the patients of the present study were males while the remaining were females. Hamidi MI et al determined the utility of the computed tomography (CT) scan in blunt abdominal trauma and to compare it with operative findings or clinical outcomes. A retrospective analysis based on existing, diagnostic CT scan reports taken during a 5 year period from 245 consecutive patients with blunt abdominal trauma. Percentages and types of trauma identified were based on CT scan findings. Recorded data included age, sex, type of injuries and scan results. The CT findings were compared and correlated with the operative findings, or clinical follow-up in conservatively managed cases. Of the total of 245 patients, 113 (46%) underwent surgery. One hundred and thirty two (54%) patients were conservatively managed. There were 12 (4.9%) deaths. Hemoperitoneum were detected in 170 patients. All 52 patients with small hemoperitoneum on CT scan were conservatively managed and all 22 patients with large hemoperitoneum required surgical exploration. There were 95 splenic, 63 renal, 48 hepatic and 13 pancreatic injuries. In conjunction with close clinical monitoring, CT was reliable in the evaluation of blunt abdominal trauma in a selected group of patients, with overall sensitivity of 97% and specificity of about 95%.<sup>9</sup>

In the present study, road traffic accidents were responsible for occurrence of 40 percent of the cases of BAT. Assault and fall from height were responsible for occurrence of 26 percent cases each of BAT. Spleen was involved in 70 percent of the patients. Liver and kidney were involved in 56 percent and 44 percent of the

patients. Bladder involvement was seen in 36 percent of the patients while stomach involvement was seen in 30 percent of the patients. Peitzman AB et al reviewed the significance of nonoperative management of blunt abdominal trauma. Most blunt hepatic and splenic injuries are managed nonoperatively. Management of blunt splenic injury with observation and organ preservation will avoid the lifelong risk of overwhelming postsplenectomy infection. However, what are the risks? Does nonoperative management simply delay laparotomy? The answer is no. The pendulum has swung too far toward observation. Most patients with blunt hepatic injury, irrespective of the grade, are hemodynamically stable and can be observed. On the other hand, high-grade injury (IV and V) often necessitates operation or management of complications by interventional radiology or gastroenterology procedures. When hepatic injury necessitates laparotomy because of hemodynamic instability, the operation is technically challenging, with a significant risk of death. As shown by large studies, the risk of failure of nonoperative management of blunt splenic injury includes preventable deaths. Factors in such deaths include inappropriate clinical decision-making, false-negative diagnostic studies, and initial misreading of computed tomography scans. Safe nonoperative management requires adherence to cardinal surgical principles, examination and re-examination of the patient, and fastidious clinical judgment.<sup>10</sup>

### CONCLUSION

Under the light of above obtained data, the authors conclude that understanding the profile of patients with BAT helps in adopting early treatment protocol and thereby helps in improving the prognosis of the patients.

### REFERENCES

1. Webster V. Abdominal trauma: Pre-operative assessment and postoperative problems in intensive care. *Anaesth Intensive Care*. 1985;13:258–262.
2. Lang E. Intra-abdominal and retroperitoneal organ injuries diagnosed on dynamic computed tomograms obtained for assessment of renal trauma. *J Trauma*. 1990;30:1161–1168.
3. Matsubara T, Fong H, Burns C. Computed tomography of abdomen (CTA) in management of blunt abdominal trauma. *J Trauma*. 1990;30:410–414.
4. Haan JM, Bocchicchio GV, Kramer N, Scalea TM. Nonoperative management of blunt splenic injury: a 5-year experience. *J Trauma* 2005;58:492-8.
5. Velmahos GC, Toutouzas KG, Radin R, Chan L, Demetriades D. Nonoperative management of blunt injury to solid abdominal organs: a prospective study. *Arch Surg* 2003;138:844-51.
6. Gilroy D. Deaths from blunt trauma, after arrival at hospital: plus ça change, plus c'est la même chose. *Injury* 2005;36:47-50.
7. Livingston D, Lavery R, Passannante M, et al. Admission or observation is not necessary after a negative abdominal computed tomographic scan in patients with suspected blunt abdominal trauma: Results of a prospective, multi-institutional trial. *J Trauma*. 1998;44:272–282.
8. Stein DM, Scalea TM. Nonoperative management of spleen and liver injuries. *J Intensive Care Med* 2006;21:296-304.
9. Hamidi MI, Aldaoud KM, Qtaish I. The role of computed tomography in blunt abdominal trauma. *Sultan Qaboos Univ Med J*. 2007;7(1):41–46.
10. Peitzman AB1, Ferrada P, Puyana JC. Nonoperative management of blunt abdominal trauma: have we gone too far? *Surg Infect (Larchmt)*. 2009 Oct;10(5):427-33. doi: 10.1089/sur.2009.021.