

# Study of Clinico-demographic Profile and Management of Blunt Abdominal Trauma Cases

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## ABSTRACT

**Introduction:** Blunt abdominal trauma is the most prevalent injury seen in the trauma centers. Aim of present study is to evaluate the clinico-demographic profile of blunt abdominal trauma cases in Sultanpur district and to find out the role of effective management to increase the better outcomes following blunt abdominal trauma.

**Material and methods:** Present study was conducted on 40 patients of blunt abdominal trauma admitted in tertiary care hospital in Sultanpur district from June 2018 to May 2019. Patient having penetrating abdominal injury, brought dead cases were excluded from present study. Detailed clinical history was taken and thorough physical examination was carried out to assess hemodynamic stability. Systemic examination like examination of the abdomen, neurological examination was conducted to find out the abnormality. Routine investigations and investigations like USG, CT scan were conducted to find out the pathology. On post-operative recovery, discharge was given and follow up was advised.

**Results:** Most common age group involved was 11-20 years (27.5%) followed by age group 21-30 years (20.0%) and 1-10 years (17.5%). In present study, male outnumbered female i.e. 77.5% males were involved in comparison of 22.5% females. Abdominal tenderness (90.0%) was the most common clinical presentation followed by abdominal pain (85.0%) and abdominal guarding (77.5%). Most common injured organ was liver (35.0%) followed by small intestine & mesentery (22.5%). Most common cause of injury was road traffic accident (52.5%) followed by fall from height (27.5%).

**Conclusions:** Assessment of hemodynamic stability along with radiological investigation is required for deciding surgical or conservative management. Therefore early presentation and timely intervention can save the lives of patients.

**Keywords:** Blunt Abdominal Trauma, Road Traffic Accident, Haemodynamic Instability, Abdominal Tenderness

## INTRODUCTION

In today's world, trauma remains the third most common cause of death in both developed and developing countries.<sup>1</sup> Blunt abdominal trauma is the most prevalent injury seen in the trauma centers. Possible causes of these traumatic injuries are automobile accidents; fall from heights, industrial accidents, physical assaults etc.<sup>2</sup> Morbidity and mortality rates are higher among patients showing blunt abdominal trauma. Reason for this is lack of early diagnostic facilities and effective treatment.<sup>3</sup>

Therefore early presentation and timely intervention can save the lives of patients suffering from blunt abdominal injuries. Pre-hospital transportation, initial assessment and

correct diagnosis have importance in trauma management in blunt abdominal injury cases. The aim of present study was to throw light on the clinico-demographic profile of blunt abdominal trauma cases in Sultanpur district and to find out the role of effective management to increase the better outcomes following blunt abdominal trauma.

**Material and methods:**

Present study was conducted on 40 patients of blunt abdominal trauma admitted in tertiary care hospital in Sultanpur district from June 2018 to May 2019. Patient having penetrating abdominal injury, brought dead cases were excluded from present study. Detailed clinical history was taken and thorough physical examination was carried out to assess hemodynamic stability. Systemic examination like examination of the abdomen, neurological examination was conducted to find out the abnormality. Routine investigations and investigations like USG, CT scan were conducted to find out the pathology.

Patients were assessed and resuscitated as per Advanced Trauma Life Support (ATLS) guidelines. Vital parameters and urine output were measured and monitored. As per nature of injury and hemodynamic stability, patients were prepared for surgical interventions. Injury to abdominal organs and their extent of injury was recorded intra-operatively. Post-operatively patients were managed with IV antibiotics, IV fluids and symptomatic medicines and on recovery, discharge was given and follow up was advised.

## RESULT

Table 1 shows clinico-demographic profile of patients in present study. Most common age group involved was 11-20 years (27.5%) followed by age group 21-30 years (20.0%) and 1-10 years (17.5%). In present study, male outnumbered female i.e. 77.5% males were involved in comparison of 22.5% females. Abdominal tenderness (90.0%) was the most common clinical presentation followed by abdominal pain (85.0%) and abdominal guarding (77.5%). Other clinical symptoms were fracture (37.5%), head injury (32.5%) and abdominal distension (12.5%).

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Table 2 shows the profile of abdominal organs injury in present study. Most common injured organ was liver (35.0%) followed by small intestine & mesentery (22.5%) and vascular/muscular haematoma (27.5%). Spleen was involved in 7 cases (17.5%) while in 6 cases (15.0%), multi-organ injuries were seen.

Table 3 shows the etiology of injuries in present study. Most common cause of injury was road traffic accident (52.5%)

followed by fall from height (27.5%). Assault was the cause of injury in 10.0% cases while in 5.0% cases; injuries were seen due to hit by animal.

Table 4 shows the haemodynamic profile of patients at the time of admission. 32 patients (80.0%) were hemodynamically stable at the time of admission while 08 patients (20.0%) were hemodynamically unstable. Out of 8 hemodynamically unstable patients, 2 patients (25%) expired.

## DISCUSSION

Present study was carried out on 40 patients having blunt abdominal trauma admitted in emergency of private hospital in Sultanpur district between June 2018 to May 2019. In present study, most common age group involved was 11-20 years (27.5%) followed by age group 21-30 years (20.0%) and 1-10 years (17.5%). Similar results were observed by the studies done by various authors like Mehta SG et al.<sup>4</sup> and Davis JJ et al.<sup>5</sup> In present study, male outnumbered female i.e. 77.5% males were involved in comparison of 22.5% females. Study done by Mehta N et al.<sup>6</sup> also showed male preponderance over female which is similar to present study. Reason behind this may be that males are more involved in social and physical activities in comparison of females. Abdominal tenderness (90.0%) was the most common clinical presentation followed by abdominal pain (85.0%) and abdominal guarding (77.5%). Other clinical symptoms were fracture (37.5%), head injury (32.5%) and abdominal distension (12.5%). Study done by Mehta SG et al.<sup>4</sup> also found abdominal tenderness and abdominal pain as most common clinical symptoms in blunt trauma injury cases in their study.

In present study, most common injured organ was liver (35.0%) followed by small intestine & mesentery (22.5%) and vascular/muscular haematoma (27.5%). Spleen was involved in 7 cases (17.5%) while in 6 cases (15.0%), multi-organ injuries were seen. Studies done by various authors (Memon MR et al,<sup>7</sup> Kumawat JL et al,<sup>8</sup> Smith J et al<sup>9</sup> and Aziz A et al<sup>10</sup>) observed that liver was the most common injured organ in blunt trauma abdomen which is in accordance with the result of present study while studies done by authors like Davis JJ et al,<sup>5</sup> Panchal HA et al<sup>11</sup> and Mehta N et al<sup>6</sup> observed the spleen as most common injured organ in blunt abdominal trauma cases which is different from the result of present study.

In present study, most common cause of injury was road traffic accident (52.5%) followed by fall from height (27.5%). Assault was the cause of injury in 10.0% cases while in 5.0% cases; injuries were seen due to hit by animal. Study done by Memom MR et al<sup>7</sup> and Smith J et al<sup>9</sup> coincides with the results of present study.

Splenectomy was performed for greater grade like grade 4 and 5 lesions of spleen while hemodynamically stable patients were managed conservatively with strict monitoring of vital parameters like BP, heart rate etc. In present study, renal injuries are most commonly associated with fracture of pelvis and in most cases; they were managed conservatively (from grade I to grade IV). Suprapubic cystostomy was

| S.No. | Variables            | No. of cases | % of cases |
|-------|----------------------|--------------|------------|
| 1     | Age group in years   |              |            |
|       | 1-10 years           | 07           | 17.5%      |
|       | 11-20 years          | 11           | 27.5%      |
|       | 21-30 years          | 08           | 20.0%      |
|       | 31-40 years          | 06           | 15.0%      |
|       | 41-50 years          | 05           | 12.5%      |
|       | >50 years            | 03           | 7.5%       |
| 2     | Gender               |              |            |
|       | Male                 | 31           | 77.5%      |
|       | Female               | 09           | 22.5%      |
| 3     | Clinical features    |              |            |
|       | Abdominal pain       | 34           | 85.0%      |
|       | Tenderness           | 36           | 90.0%      |
|       | Abdominal guarding   | 31           | 77.5%      |
|       | Fracture             | 15           | 37.5%      |
|       | Head injury          | 13           | 32.5%      |
|       | Abdominal distension | 5            | 12.5%      |

**Table-1:** Clinico-demographic Profile of Cases in Present Study

| Abdominal organs            | Cases |            |
|-----------------------------|-------|------------|
|                             | No.   | Percentage |
| Liver                       | 14    | 35.0%      |
| Spleen                      | 07    | 17.5%      |
| Kidney                      | 02    | 5.0%       |
| Small intestine & mesentery | 09    | 22.5%      |
| Multi-organ injury          | 06    | 15.0%      |
| Vascular/Muscular haematoma | 11    | 27.5%      |

**Table-2:** Profile of abdominal organs injury in present study

| Etiology              | Cases |            |
|-----------------------|-------|------------|
|                       | No.   | Percentage |
| Road traffic accident | 21    | 52.5%      |
| Fall from height      | 11    | 27.5%      |
| Assault               | 4     | 10.0%      |
| Hit by animal         | 2     | 5.0%       |
| Others                | 2     | 5.0%       |
| Total                 | 40    | 100.0%     |

**Table-3:** Etiology of injury in present study

| Class                    | Total cases | Survival cases | Mortality cases |
|--------------------------|-------------|----------------|-----------------|
| Hemodynamically Stable   | 32          | 32 (100%)      | 0 (0.0%)        |
| Hemodynamically unstable | 08          | 06 (75.0%)     | 02 (25.0%)      |
| Total                    | 40          | 38 (95.0%)     | 02 (5.0%)       |

**Table-4:** Haemodynamic profile of patients at the time of admission

performed in urethral injury cases while small bowel perforations were managed with primary suturing.

In present study, abdominal injuries were associated with various extra-abdominal injuries like fracture in 37.5% cases and head injury in 32.5% cases. These results are in accordance with the study done by Mehta SG et al.<sup>4</sup>

In present study, 32 patients (80.0%) were hemodynamically stable at the time of admission while 08 patients (20.0%) were hemodynamically unstable. Out of 8 hemodynamically unstable patients, 2 patients (25%) expired. The reasons for mortality in present study were poor general condition of patient and delayed presentation. Therefore early presentation and timely intervention can save the lives of patients.

## CONCLUSION

In developing countries like India, Blunt abdominal trauma is frequently encounter injury after orthopedic injuries and head injuries. Solid organ injuries like injury to liver, spleen etc are commonly seen in blunt trauma of abdomen. Early presentation of patient and timely prompt intervention are the key factors in the treatment of blunt abdominal trauma victims. Assessment of hemodynamic stability along with radiological investigation is required for deciding surgical or conservative management. Therefore early presentation and timely intervention can save the lives of patients.

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