

Original Research

Assessment of profile of patients with blunt abdominal trauma: An observational study

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ABSTRACT:

Background: Trauma is still the most frequent cause of death in the first four decades of life, and it remains a major public health problem in every country, regardless of the level of socioeconomic development. Hence; the present study was conducted with the aim of assessing the profile of patients with blunt abdominal trauma. **Materials & methods:** The present study was conducted on 100 patients admitted in the surgical ward, with blunt trauma abdomen (BAT). On presentation, an assessment of the vital functions was done. Primary survey was focus on the ABC of resuscitation i.e. restoration of airway, breathing and circulation. Simultaneously recording detailed history including demographic profile, mode of presentation, time of presentation, clinical profile and haematological investigations was done. All the results were analysed by SPSS software. **Results:** The patients most commonly afflicted were young adults in the age group of 21-40 years, forming almost 64% of total sample size. The mean age of distribution was 36.56 years. 88 percent of the patients were males. The frequency distribution of the road traffic accident (RTA) as the aetiology of the blunt trauma abdomen showed that, it was the leading cause of the patients suffering forming a large percentage of 80% of the total. Abdominal distension was seen in 78 percent of the patients while abdominal tenderness was seen in 96 percent of the patients. Hematemesis and hematuria were seen in 8 percent and 12 percent of the patients respectively. Pallor and obliteration of liver dullness was seen in 42 percent and 56 percent of the patients respectively. **Conclusion:** Blunt trauma accounts for large majority of civilian trauma. Prompt evaluation of the abdomen is necessary to minimize preventable morbidity and mortality.

Key word: Blunt abdominal trauma

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INTRODUCTION

Trauma is still the most frequent cause of death in the first four decades of life, and it remains a major public health problem in every country, regardless of the level of socioeconomic development.¹

Abdominal trauma can be either blunt or penetrating type. Blunt trauma is more common in areas with heavy traffic while penetrating injuries, resulting from gunshot and stab wounds, or rarely from road side accidents, are common in military and violence prone areas. Blunt abdominal trauma is defined as any traumatic lesion of blunt nature to intra-abdominal

organs e.g. spleen, liver, kidneys, pancreas, mesentry, and hollow viscus e.g. gastrointestinal tract, biliary system, urinary bladder, major vessels of retroperitoneum. Blunt abdominal trauma (BAT) resulting from a traffic accident, fall, assault, or occupational accident is common in the emergency room. The prevalence of intra-abdominal injury after BAT has been reported to high at 12-15%. There is of a difficulty in arriving at a correct diagnosis in patients with blunt abdominal trauma, particularly with equivocal physical signs and hence performing urgent laparotomy. Accurate diagnosis and avoidance

of needless surgery are an important goal of evaluation in these cases. Most avoidable deaths result from failure to resuscitate and operate on surgically correctable injuries.²⁻⁵ Hence; the present study was conducted with the aim of assessing the profile of patients with blunt abdominal trauma.

MATERIALS & METHODS

The present study was conducted with the aim of assessing the profile of patients with blunt abdominal trauma. The present study was conducted on 100 patients admitted in the surgical ward, with blunt trauma abdomen (BAT).

Exclusion criteria:

- Patients with penetrating trauma abdomen.
- Patients with orthopaedic injury.
- Patients with head injury.

On presentation, an assessment of the vital functions was done. Primary survey was focus on the ABC of resuscitation i.e. restoration of airway, breathing and circulation. Simultaneously recording detailed history including demographic profile, mode of presentation, time of presentation, clinical profile and haematological investigations like Hb, BT,CT, TLC ,DLC, RBS, Blood Urea, serum creatinine, serum electrolytes, serum amylase was done. Secondary survey included a detailed assessment of the overall condition of the patient and identification of the life threatening injuries. All the results were analysed by SPSS software. Chi- square test and One Way ANOVA were used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

Patients were divided into four age groups which included patients with age less than 20 years, second group 21-40 years, group three 41-60 years and the last group with patients aged above 60 years. The patients most commonly afflicted were young adults in the age group of 21-40 years, forming almost 64% of total sample size.

The mean age of distribution was 36.56 years. 88 percent of the patients were males. The frequency distribution of the road traffic accident (RTA) as the aetiology of the blunt trauma abdomen showed that, it was the leading cause of the patients suffering forming a large percentage of 80% of the total. Other causes were fall from height being the second major cause with percentage of 16 and alleged assault contributing 4% of the total aetiology. Abdominal distension was seen in 78 percent of the patients while abdominal tenderness was seen in 96 percent of the patients.

Hematemesis and hematuria were seen in 8 percent and 12 percent of the patients respectively. Pallor and obliteration of liver dullness was seen in 42 percent and 56 percent of the patients respectively.

Table 1: Distribution of subjects according to age

Age group (years)	Frequency	Percentage
<20	4	8
21-40	32	64
41- 60	10	20
>60	4	8
Total	50	100

Table 2: Distribution of subjects according to gender

Gender	Frequency	Percentage
Male	44	88
Female	6	12
Total	50	100

Table 3: Distribution of subjects according to aetiology

Gender	Frequency	Percentage
Road traffic accident	40	80
Fall from height	8	16
Alleged assault	2	4
Total	50	100

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

Sign/ Symptom	Number of patients	Percentage
Abdominal distension	39	78
Abdominal tenderness	48	96
Guarding	18	36
Hematemesis	4	8
Hematuria	6	12
Pallor	12	24
Obliteration of liver dullness	28	56
Shifting dullness	9	18
Hematoma/ Bruise/Abrasion	10	20

DISCUSSION

Unlike penetrating abdominal trauma, where management is largely determined clinically, the diagnosis of blunt abdominal injury by clinical examination is unreliable, particularly in patients with a decreased level of consciousness. Confirmation of the presence or absence of injury therefore relies largely on the use of diagnostic adjuncts. Late diagnosis and missed injuries are associated with poor outcome. Approach to trauma should be systemic and prioritized. About 10% of patients have persistent hypovolemic shock as a result of continuous blood loss in spite of aggressive fluid resuscitation and require an urgent laparotomy.^{6- 8} Abdominal ultrasound can be used to look for organ injury and free intra-abdominal fluid, which after trauma is assumed to be blood or gastrointestinal content, and

provides indirect evidence of injury.^{7, 8} Hence; the present study was conducted with the aim of assessing the profile of patients with blunt abdominal trauma.

In the present study, patients were divided into four age groups which included patients with age less than 20 years, second group 21-40 years, group three 41-60 years and the last group with patients aged above 60 years. The patients most commonly afflicted were young adults in the age group of 21-40 years, forming almost 64% of total sample size. The mean age of distribution was 36.56 years. 88 percent of the patients were males. Karki OB (2015) determined the validity of CT scan as an accurate diagnostic tool and its role in management of patients with blunt abdominal trauma. Demographic data, mechanism of trauma, management and outcomes were studied. Organ injuries were graded using the Organ Injury Scale guidelines. Most of the patients in our study were in the age group of 21-40 years with an M: F ratio of 2.3:1. Road traffic accident (47.5%) was the most common mechanism of injury. Spleen (27.5%) was the commonest organ injured. CT scan was superior to FAST scan and had sensitivity of 97.3% specificity 75% positive predictive value 98.6%. FAST scan had sensitivity of 78.9%, specificity 50%, positive predictive value 96% with p- value of 0.0034. 81% of patients were conservatively managed. In conjunction with close clinical monitoring, CT scan is reliable in the evaluation and management of blunt abdominal trauma patients.¹⁰

In the present study, the frequency distribution of the road traffic accident (RTA) as the aetiology of the blunt trauma abdomen showed that, it was the leading cause of the patients suffering forming a large percentage of 80% of the total. Other causes were fall from height being the second major cause with percentage of 16 and alleged assault contributing 4% of the total aetiology. Abdominal distension was seen in 78 percent of the patients while abdominal tenderness was seen in 96 percent of the patients. Hematemesis and hematuria were seen in 8 percent and 12 percent of the patients respectively. Pallor and obliteration of liver dullness was seen in 42 percent and 56 percent of the patients respectively. Doklestić K et al determined the options for surgical management of severe liver trauma as well as the outcome. In this retrospective study 70 polytraumatic patients with severe (American Association for the Surgery of Trauma [AAST] grade III-V) blunt liver injuries were operated on at the Clinic for Emergency Surgery. Mean age of patients was 48.26±16.80 years; 82.8% of patients were male. Road traffic accident was the leading cause of trauma, seen in 63 patients (90.0%). Primary repair was performed in 36 patients (51.4%), while damage control with perihepatic packing was done in 34 (48.6%). Complications related to the liver occurred in 14 patients (20.0%). Liver related mortality was 17.1%. Non-survivors had

a significantly higher AAST grade (p=0.0001), higher aspartate aminotransferase level (p=0.01), lower hemoglobin level (p=0.0001), associated brain injury (p=0.0001), perioperative complications (p=0.001) and higher transfusion score (p=0.0001). The most common cause of mortality in the "early period" was uncontrolled bleeding, in the "late period" mortality was caused by sepsis and acute respiratory distress syndrome. Patients with high-grade liver trauma who present with hemorrhagic shock and associated severe injury should be managed operatively.¹¹ Panchal HA et al studied the cases of abdominal trauma in context of: age/sex distribution, mode of injury (accidents, fall, assault etc.). The study of 50 cases of abdominal trauma, including blunt as well as penetrating trauma was conducted prospectively. In their study, the abdominal trauma was more common in age group 21-40 years (n = 30,60%) with male predominance (M:F: 7.3:1), blunt injury abdomen (n = 37, 74%) is more common than penetrating injury (n = 13, 26%) with RTA (n = 24, 48%) being the most common cause followed by fall (n = 16, 32%) and stab injury (n = 09, 18%), Abdominal pain (n = 49, 98%), tachycardia (n = 40, 80%) and abdominal distension (n = 25, 50%) are the most common clinical features in all abdominal trauma patients. In our study pattern of injury are: liver (n = 16, 32%), spleen (n = 15, 30%) and small bowel (n = 9, 24.32%). In polytrauma patients abdominal trauma is more commonly associated with thoracic injuries (n = 19, 38%) and orthopedic injuries (n = 7, 34%). The authors concluded that abdominal trauma can present differently and may injure organ depending upon pattern of injury and require clinical assessment, expedite investigations to set goal for prompt primary resuscitation and timely definitive treatment.¹²

CONCLUSION

Blunt trauma accounts for large majority of civilian trauma. Prompt evaluation of the abdomen is necessary to minimize preventable morbidity and mortality.

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