

A Retrospective Study of Blunt Trauma Abdomen at Tertiary Care Hospital, Rims, Ranchi

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Abstract: Abdominal trauma as a result of blunt and penetrating injuries to patients from a tertiary centre has an appreciable mortality rate from hemorrhagic shock and organ trauma and sepsis. This study was undertaken to know the demographic profile, cause of injury, management and outcome of blunt trauma cases in RIMS, Ranchi from March 2017 till March 2018. There were 60 No. of cases with blunt abdominal trauma. Most common age group was 20-30 years (21 No.) Male and female ratio was 4.5:1. Most common mode of injury was road traffic accident (43 No. of cases). Associated injuries were present in 17 cases. Diagnosis in all cases was done by FAST scan or CT scan abdomen. Bowel was the commonest organ injured with hemoperitoneum due to mesenteric tear, next was spleen. 45% cases underwent conservative management with a failure rate of 1.6% and 55% had operative (exploratory laparotomy). Mortality rate was 6.6%. Non-operative treatment was successful in most cases. Definitive indications for exploratory laparotomy were hemodynamic instability and peritonitis. FAST Scan abdomen in hemodynamically unstable patients and CECT in stable patients were investigation of choice. Associated injuries influence morbidity and mortality.

Keywords: Blunt trauma Abdomen (BTA), FAST Scan, CECT Abdomen, Exploratory Laparotomy, RTA (Road Traffic Accidents).

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I. Introduction

Blunt trauma is an emergency and is associated with significant morbidity and mortality in spite of early diagnosis and treatment. Trauma is the leading cause of death and disability in developing countries like India and most common cause of death under age 45 years. Globally blunt trauma abdomen (BTA) is the 7th cause of mortality and abdomen is 3rd most common injured region.¹ 85% of blunt traumas are of blunt character. Liver, spleen, small bowel and urogenital organs are the most commonly injured as a result of BTA. Initial resuscitation, FAST Scan in unstable patients and CECT abdomen in stable patients help in proper diagnosis. Conservative management is standard protocol for stable patients and exploratory laparotomy was performed in patients with bleeding, (hemoperitoneum) and signs of peritonitis. Pre-hospital transportation, initial resuscitation, primary survey, correct diagnosis and timely intervention (operative) are of importance for better trauma management and its outcome.

Aims and Objectives

This study was undertaken to know the demographic profile, cause of injury, management and outcome of blunt trauma cases in RIMS, Ranchi from March 2017 till March 2018.

II. Material & Methods

This was an observational study of patients admitted through Central Emergency of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India between March 2017 to March 2018. After approval from Institutional Ethics Committee of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India, 60 patients of blunt abdominal trauma were included in the study. Informed written consent was obtained from the patients. Patients with shock were given initial resuscitation with Haemaccel I.V. fluids. Then clinical history, primary survey, Lab. tests and X-rays were done. FAST Scan was done for diagnosis of unstable patients. CT scan was done later on stable patients. Patients were shifted to trauma centre later. Each patient was closely monitored and decision was taken either to go for conservative treatment or to undertake immediate exploratory laparotomy based on signs- symptoms and diagnostic tests finding. Inferences were made for age, sex, cause of blunt trauma abdomen, time of presentation, procedures done, associated extra abdominal injuries, postoperative complication and mortality.

Inclusion criteria: All cases of BTA with extra abdominal injuries like chest and rib Injury, mild head injury with Glasgow Coma Scale 12- 15, long bone fracture were included.

Exclusion criteria: All cases below 7 years of age.

III. Results

Table 1 : Sex incidence

Sex	No. of patients	%
Male	49	82
Female	11	18
Total	60	

Male: Female ratio = 4.5:1.

We included all 60 cases of BTA, 49 were males and 11 were females. Mean age was 20-30 years.

Table 2 : Age incidence

Age group (years)	No. of patients
0-10	1
10-20	17
20-30	21
30-40	13
40-50	6
50-60	2

Most common age group 10-30 years i.e. 38 patients.

Table 3 : Mode of injury

Mode of injury	No. of patients	%
Road Traffic Accident (RTA)	43	72
Assault	6	10
Fall from height	11	18
Bullgore	0	0

Road Traffic Accidents account for majority of injuries-72 %

Table 4 : Time of presentation

Time of presentation (hours)	No. of patients
0-6	12
6-12	13
12-24	18
24-48	9
> 48	8

12 patients presented within 6 hours, 13 patients within 6-12 hours, 18 patients within 12-24 hours, 9 patients within 24-48 hours and 8 patients reported after 48 hours of injury in RIMS Emergency.

Table 5 : Abdominal injuries (n=40)

Site	No. of patients	%
Liver	7	17.5
Spleen	9	25
Bowel	18	45.5
Kidney	2	5
Bladder urethra	4	11
Hemoperitoneum	25	60.2
Mesenteric tear	5	12.5

X-ray, FAST Scan, CT Scan Abdomen and Pelvis were done and multiple injuries revealed among which Hemoperitoneum (60.2%) and bowel injury was commonest i.e. 45.5%.

Table 6 : Extra-abdominal injuries

Site	No. of patients
Chest & Rib	3
Head injury	2
Bone fracture	12

Associated injuries are found commonly as in our case 17 patients.

Chest & Rib fracture – 3 patients.

Head injury– 2 patients.

Long bone fracture– 12 patients.

Most of the injuries were referred to respective departments for consultation and better management. Hemothorax and Pneumothorax were treated with intercostals drainage.

Table 7: Management

Type	No. of patients	%
Conservative	27	45
Operative (Exploratory Laparotomy)	33	55

27 patients (45%) were treated conservatively with failure rate of 1.6 and 33 patients by Exploratory Laparotomy (55%).

Table 8: Operative procedures

Organ injured	Operative procedures	No. of patients	Conservative
Spleen	Splenectomy /splenic repair	6+2	1
Bowel	Bowel resection + Anastomosis/Repair	17	1
Kidney	Nephrectomy	1	1
Bladder/urethra	Bladder urethra repair	3	1
Liver	Laparotomy for Liver injury	4	3

Morbidity & mortality – 4 patients.

Mortality scale was 6.6 % cases in our study. Commonest cause was polytrauma with Hemorrhagic shock followed by Sepsis/ARF.

IV. Discussion

Blunt trauma is a tedious task for traumatologist/ surgeons. Abdominal injuries may be missed if blunt trauma victims are evaluated with FAST only.² Presence of more than trace amount of free fluid without solid organ injury with blunt trauma abdomen is strong indication for exploratory laparotomy. Trace amount may be managed conservatively.³

One of the study in which isolated patients with intraperitoneal fluid on CT scan were underwent laparotomy, shows that 94% patient had therapeutic exploratory laparotomy.⁴

Sometimes clinical evaluation of blunt abdomen trauma may be masked by other more obvious external injuries.⁵ Unrecognized abdominal injury is a frequent cause of preventable death after trauma.⁶ Patients with blunt trauma abdomen may have other poly trauma to head, thorax, extremities therefore it is important to do a secondary survey.

Liver injury was managed conservatively. The grade of hepatic injury as diagnosis by CT Scan does not predict the need for surgery.^{7,8} Patients with class 1,2,3 splenic injury can be managed conservatively if patient is stable, no associated abdominal and extra abdominal injury.^{9,8}

Patient with major chest injury, hypotension and pelvic fracture having high risk of intra abdominal injury. Early diagnostic peritoneal lavage, CT should be considered.¹⁰ Peritoneal lavage is single best test for intra abdominal injury.¹¹ Any intra abdominal injury without GCS <14, costal margin tenderness, abdominal tenderness, femur fracture, haematuria level >25 RBC/HPF, haematocrit level <30% and abnormal chest radiograph, hypotension requiring acute intervention and are likely to benefit from abdominal CT scanning.¹² Presence of abdominal pain and tenderness was associated with a significantly higher incidence of intra abdominal injury, lack of these did not preclude intra abdominal injury.¹³ Multidisciplinary approach to the management of severe grade of injuries appears to improve survival in highly lethal injuries.¹⁴ In this study male are more prone to blunt trauma abdomen. Most common age group was 10–30 years of age. RTA is the most common mode of injury. Most common intra abdominal injury occurs to bowel. Out of 60 patients, 27 were managed conservatively and in 33 patients exploratory laparotomy done. Out of 33 cases, bowel was resected and repaired in 17 No. of cases. Nephrectomy was done in 1 patient. Bladder repair was done in 3 cases. Splenectomy done in 6 cases and in 4 cases with only hepatic laceration peritoneal wash with hemostatic solution was done. Non-recognizable injury like hemothorax may contribute to patients death whereas a simple procedure like Intercostal drainage may have saved the patient life. Early diagnosis can decrease mortality by 50%.¹⁵ Mortality is mainly related to delayed presentation, diagnosis, associated injuries and delayed surgical intervention.

V. Conclusion

Conservative management was successful and safe in hemodynamically stable patients and without associated extra abdominal injury. Indication for definitive exploratory laparotomy was hemodynamic instability, peritonitis and Hemoperitoneum. Hemorrhagic shock was associated with high risk for conservative management Failure. FAST scan in hemodynamically unstable and CECT scan in stable patients were investigation of choice. Associated Injuries influence mortality and morbidity.

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