



“CLINICAL EVALUATION AND MANAGEMENT OF PATIENTS WITH BLUNT TRAUMA ABDOMEN: A HOSPITAL BASED STUDY”

Surgery

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ABSTRACT

Introduction: Blunt trauma abdomen occurs as a result of direct forces causing compression or shearing type injuries or deceleration injuries that result in damage to relatively fixed structures. The evaluation of abdomen is very challenging and can often result in missed diagnosis. **Aims & Objectives:** To study the clinical presentation, evaluation, investigations and management of different intra-abdominal organ injury in blunt trauma abdomen. **Methods:** All the patients of trauma abdomen after initial resuscitation and achieving hemodynamic stability, were subjected to careful clinical history and a thorough clinical examination. Based on the outcome of clinical and radiological evaluation, the management by operative or non-operative decision was made. **Results:** A total of fifty (50) consecutive blunt trauma abdomen patients were admitted in Gulbarga institute of medical sciences hospital, from August 2021 to August 2022. In the present study, the blunt trauma abdomen was largely seen in age group of 21-30 years with male predominance. Road traffic accidents was the leading cause for blunt trauma abdomen. And the Spleen was the most commonly injured organ. Conservative management was done in 28 patients and 22 patients were subjected to operative management. **Conclusion:** In blunt trauma abdomen, the initial hours after injury are very crucial and can be considered as the golden period of trauma which has better survival rate. The morbidity and mortality of the blunt trauma abdomen can be reduced by timely approach and appropriate management.

KEYWORDS

Blunt trauma abdomen, Road traffic accident, Spleen

INTRODUCTION

Now a days we can see quite rise in morbidity and mortality rate due to road traffic accidents and machinery dependent work. The rapid urbanization and industrialization is leading to increase in trauma and trauma related deaths. The Abdominal trauma is one of the prevailing cause of trauma-related deaths. The other causes of abdominal trauma are –Assaults, Warfare injuries, Sports accidents, Fall from Heights, Athletics, Mountaineering, Martial arts etc.¹ Nearly 25% of the abdominal injury cases require surgery. The cases of blunt abdominal trauma occurs due to the result of an impact associated in affecting the abdominal cavity, without any dissolution in the continuity of the abdominal wall.² During the Blunt abdominal trauma, solid organs like spleen (most common) and liver are majorly injured. Even though injuries to the retroperitoneal structures like kidneys, bladder, and diaphragm, bowel and mesentery, as well as pancreas, are less common, the proper evaluation should be considered.³ The Abdominal trauma can be of two types - 1) Penetrating trauma to the abdomen 2) Blunt trauma to the abdomen. The blunt trauma abdomen is most commonly encountered than penetrating one.⁴ The treatment approach for blunt trauma abdomen is completely dependent on whether the patient is hemodynamically stable or not, presence of associated injuries and complications.¹

The patients with blunt trauma abdomen requires investigative evaluation and diagnosis as the physical examination of abdomen alone is not trustworthy for conclusive management. Sometimes the blunt trauma abdomen cases comes with an altered mental state, intoxicated with alcohol or other drugs and distracting injuries. And in few cases the injury is visible only when the abdomen is opened during surgery or autopsy. Focused abdominal sonography for trauma (FAST), diagnostic peritoneal lavage (DPL), computerized tomographic (CT) scan are used as diagnostic methods.⁵

The recent guidelines suggest for conservative and non-operative management with intensive care monitoring, if the patient is hemodynamically stable. If the patient is hemodynamically unstable, explorative laparotomy is lifesaving surgery to control the hemorrhage and sepsis.⁶

OBJECTIVES OF THE STUDY

To study the clinical presentation, evaluation, investigations and management of different intra-abdominal organ injury in blunt trauma abdomen.

MATERIALS AND METHODS

Our study is an observational study of 50 patients presented to Department of General Surgery, Gulbarga institute of medical sciences presented with blunt trauma abdomen history and filtered through the inclusion and exclusion criteria. Informed consent was obtained from all the patients participated in study. Ethical approval for the study was obtained from the Institutional Ethical Committee, GIMS, Kalaburgi. The study was conducted over a period of one year from August 2021 to August 2022. Irrespective of the age, all the patients who are admitted with the history of blunt trauma abdomen and with clinical findings like guarding, rigidity, abdominal distension were included in the study.

The patients presented with blunt trauma abdomen were first stabilized hemodynamically by resuscitation, then the clinical history and examination was carried out. Demographic factors, clinical history, clinical symptoms such as pain abdomen, abdominal distension and signs like tenderness, guarding, rigidity, absent bowel sounds were evaluated.

Routine blood investigations and urine tests were done. Depending on the clinical findings, hemodynamic stability decision for further investigations as X-ray erect view abdomen and abdominal ultrasound and CECT abdomen were taken.

Computed tomography of abdomen and pelvis was done only in hemodynamically stable patients of blunt abdominal trauma whenever indicated.

The decision to operative or non-operative management was made depending on the outcome of clinical examination and results of investigations.

Patients who are selected for non-operative or conservative management were placed on strict bed rest minimal mobilization, subjected to serial clinical examination, which included hourly vital i.e. pulse rate, blood pressure, respiratory rate and repeated examination of abdomen and other systems. Appropriate diagnostic tests, were repeated as and when required.

Laparotomy was undertaken, if indicated, after a written valid and informed consent. Initial resuscitation at casualty was as per the standard protocol of Basic life support (BLS) and Advanced Trauma

Life Support (ATLS). Evaluation of patient was done to identify life threatening injuries at earliest for emergency surgery.

RESULTS:

A total of 50 patients were observed and about one-third of the cases were in age group of 21-30 yrs (40%), followed by 26% in 31-40yrs, 18% cases were more than 40yrs and 16% cases in age less than 20yrs. The mean age of patient was 33.31 $\pm$ 12.66years. (Table1)

Age	Number of cases	% of cases
<20 yrs	8	16%
21-30 yrs	25	40%
31-40 yrs	12	26%
>40 yrs	05	18%
TOTAL	50	100%

Figure 1: Gender Distribution of the patients

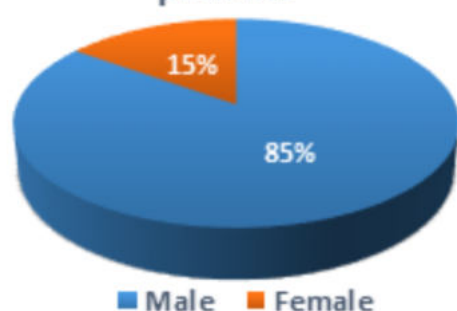


Figure 1 shows gender distribution of patients which shows the majority of the patients were male (85%).

Figure 2: Causes of blunt trauma abdomen

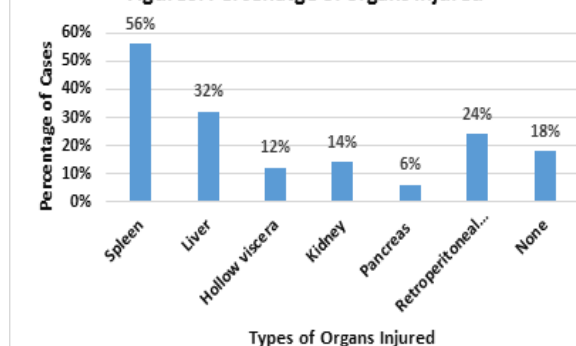


Road traffic accident was found to be most common mode of injury occurring in 58% patients observed, followed by assault in 24% cases and rest 18% cases had history of fall from height. (Figure 2)

Table 2: Mode of intervention.

Intervention	Number Of Cases	Percentage Of Cases
Operative management	22	44%
Non-operative management	28	56%

Figure3: Percentatge of organs injured



When abdominal organ injuries were evaluated, spleen was found to be most commonly injured organ (56%) followed by liver (32%). Few patients found to have retroperitoneal hematoma (24%), kidney injury (14%), and Hollow viscera (12%). Pancreatic injury (6%) was involved in few cases. Rest of the patients did not show any organ involvement. (Figure 3)

Intervention with laparotomy was carried out in 22 patients accounting to 44% of the cases who are hemodynamically unstable and with pneumoperitoneum. The remaining patients (28 patients) who are hemodynamically stable and with minor organ injuries were managed conservatively. (Table 2)

DISCUSSION:

Blunt abdominal trauma is a frequent emergency condition encountered and is associated with significant morbidity and mortality despite improved diagnosis and management. Trauma is the second largest cause of disease accounting for 16% of global burden.⁷

Unnoticed abdominal injury is one of the leading causes of trauma related death which is preventable.⁸ Clinical signs may be subtle or masked by polytrauma or patients under the influence intoxicants like alcohol or any other substance. Successful care of patients with blunt abdominal trauma depends on precise and rapid recognition of those patients requiring operative intervention for intra-abdominal organ injuries.⁹

A total of 50 patients were observed in this study. About one third of the patients were 20-30years of age (40%), followed by 31-40 yrs (26%), >40yrs (18%) & <20yrs old (16%). The mean age of patients was 33.31 $\pm$ 12.66 yrs. In the study conducted by Rehman s et al showed similar finding where the commonest age group was 21 to 30 years (39%).⁵

In a study done by Ahmed et al, greater number of patients were male (86%) and only 14 % were female. Finding of the above study were similar to our study in which 85% of patients were male and 15% were female.¹⁰

In the present study, road traffic accident was found to be very common mode of injury occurring in 58% patients, followed by assault in 24% cases and rest 18% cases had history of fall from height. In a study done by Yogendra Singh Wadiwa et al, most common mode of injury was road traffic accidents (56.2%), fall from height (25%) and assault or injury with blunt object (18.8%). it is observed that the findings of both the studies were nearly similar.¹¹

In a study carried out by Rahman S et al, spleen was the most common organ involved in 44% cases, followed by Liver (24%), Small bowel (22%), mesenteric injury (3%), stomach (1%), urinary bladder (2%), retroperitoneal organs (2%), and pancreas (1%).⁵ The other studies also showed that, spleen was greatly involved (39.6%), followed by liver (37.5%), kidney (12.5%), pancreas (4.16%), mesentery (4.1%) and bladder (2%).¹¹ The findings of the both studies were comparable with the present study in which the spleen was majorly injured organ (56%) followed by liver (32%), retroperitoneal hematoma (24%), kidney injury (14%), Hollow viscera (12%) and pancreatic injury (6%).

In the current study 56% of cases were managed conservatively with ICU admission. If the important parameters like blood pressure, urine output, abdominal girth and investigations are normal they were also managed conservatively. The recent standard guidelines for the management of blunt trauma abdomen suggested the conservative management as it reduces the duration of hospital stay and morbidity compared to the patient who undergoes surgery. In 44% of cases we have done the explorative laparotomy with primary closure. The splenectomy and resection anastomosis was also done in required cases. The modest findings were observed in a study carried out by Sisodiya S et al, where 67.7% of cases were managed conservatively and 32.2% of cases were operated.¹²

CONCLUSION:

It was observed that road traffic accidents was the most common cause of blunt trauma abdomen in the present study, involving age group between 30-40yrs majorly. The Spleen is quite commonly injured organ followed by liver being the second common injured organ in blunt trauma abdomen patients. Conservative approach is preferred

over surgical management as it is safe and effective. Early diagnosis, aggressive resuscitation and timely surgical intervention may improve the outcome in trauma patients.

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