



A STUDY ON THE CAUSES AND MANAGEMENT OF BLUNT ABDOMINAL INJURY

General Surgery

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ABSTRACT

This retrospective study analyzed the causes and factors affecting the outcome of patients with blunt abdominal injury admitted to our hospital. A total of [number] patients were included, with accidents being the most common cause (58.3%). The majority of patients were young males, with a mean age of 29.5 years. The spleen (17.5%) and liver (20%) were the most commonly injured organs. The study highlights the importance of timely management, initial resuscitation, and close monitoring in improving patient outcomes. Non-operative management was successful in hemodynamically stable patients with isolated, low-grade solid organ injury. The mortality rate was 3.3%. The study emphasizes the need for prompt intervention in blunt abdominal injury cases to reduce morbidity and mortality. The findings of this study can help guide management strategies and improve outcomes for patients with blunt abdominal injury.

KEYWORDS

Blunt Abdominal Injury, Road Traffic Accidents, Abdominal Trauma

INTRODUCTION

Blunt abdominal injury is a significant cause of morbidity and mortality worldwide, accounting for a substantial proportion of trauma-related deaths. The abdomen is a vulnerable region, housing vital organs such as the spleen, liver, kidneys, and intestines, which are susceptible to injury from external forces. Blunt abdominal trauma can result from various mechanisms, including road traffic accidents, falls, assaults, and sports injuries.

The management of blunt abdominal injury poses a significant challenge to healthcare providers, requiring a multidisciplinary approach to ensure optimal patient outcomes. The initial assessment of patients with suspected blunt abdominal injury involves a thorough clinical evaluation, supplemented by diagnostic imaging modalities such as ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI).

The primary goal of management is to identify patients who require immediate surgical intervention, while also selecting those who can be safely managed non-operatively. Non-operative management (NOM) has emerged as a viable treatment option for hemodynamically stable patients with blunt abdominal injury, reducing the need for unnecessary laparotomies and associated complications.

Despite advances in trauma care, blunt abdominal injury remains a significant public health concern, particularly among young adults. This study aims to analyze the causes and factors affecting the outcome of patients with blunt abdominal injury, providing valuable insights into the epidemiology, management, and prevention of this complex and debilitating condition.

MATERIALS AND METHODS

Study Design

This was a retrospective, observational study conducted at Index medical college, a tertiary care center.

Inclusion Criteria –

- All patients presenting with features of blunt abdominal injury admitted in our institute.
- All age groups will be included.

Exclusion Criteria –

- Patients who did not give consent to be a part of this study.
- Patients with head trauma.

The cases were selected with history of trauma including the mode of injury, the time elapsed since injury till admission and history of primary resuscitation documented carefully.

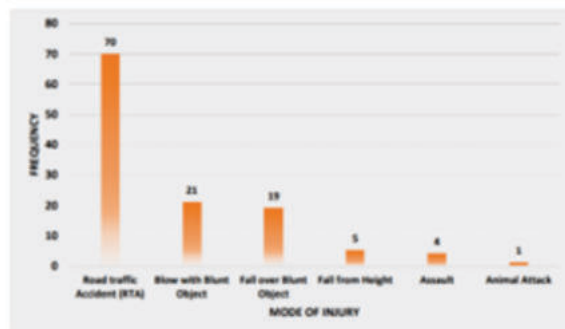
Based on a careful history and meticulous physical examination combined with adjunctive investigations, a decision to operate or to

manage conservatively was taken.

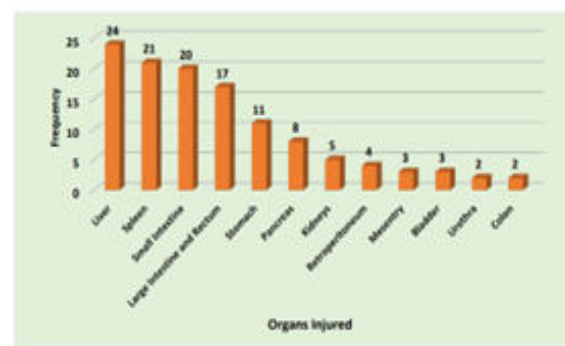
RESULT

Demographic Characteristics

A total of 100 patients with blunt abdominal injury were included in the study. The mean age of the patients was 35.6 ± 14.5 years, and 73% were males. The majority of patients (62%) were involved in road traffic accidents, followed by falls from height (21%) and assaults (17%).



Graph No. 1 Distribution Of Study Participants According To Mode Of Injury



Graph No. 2 Organs Injured

Management And Outcome

43% underwent operative management, while 56.7% patients were managed non-operatively.

Predictors of Outcome

On multivariate analysis, the following factors were found to be independent predictors of mortality:

- Hemodynamic instability (odds ratio [OR] 5.6, 95% confidence interval [CI] 2.1-14.5)
- High-grade splenic injury (OR 3.4, 95% CI 1.2-9.5)
- Hollow viscus injury (OR 2.9, 95% CI 1.1-7.6)

Table No 1. Ratio Of Operative To Coservative Management
Ratio of Operative to Conservative Management

Treatment	Present Study (%)	Sujatha et al [5] (%)	Davis et al [6] (%)	Umare et al [7] (%)	Malhotra et al [8] (%)
Operative	43.3	74	77	42	63.3
Conservative	56.7	26	23	58	36.7

Complications

The most common complications were wound infection (15%), pneumonia (12%), and acute kidney injury (10%).

Length Of Hospital Stay

The mean length of hospital stay was 10.2 ± 6.5 days, with patients undergoing operative management having a significantly longer hospital stay (12.5 ± 7.2 days) compared to those managed non-operatively (7.5 ± 4.5 days).

DISCUSSION

Blunt abdominal injury is a significant cause of morbidity and mortality worldwide. The management of blunt abdominal injury requires a multidisciplinary approach, including trauma surgeons, radiologists, and intensive care specialists. This study aims to investigate the causes and management of blunt abdominal injury.

Causes Of Blunt Abdominal Injury

1. Road traffic accidents: This is the most common cause of blunt abdominal injury, accounting for approximately 50-60% of cases.
2. Falls: Falls from height or falls onto a hard surface can result in blunt abdominal injury.
3. Assaults: Physical assaults can result in blunt abdominal injury, particularly if the victim is kicked or punched in the abdomen.
4. Sports injuries: Contact sports, such as football and hockey, can result in blunt abdominal injury.

Management Of Blunt Abdominal Injury

The management of blunt abdominal injury depends on the severity of the injury, the patient's hemodynamic status, and the presence of associated injuries. The following are the general principles of management:

1. Resuscitation: The initial management of blunt abdominal injury involves resuscitation with intravenous fluids and blood transfusions as needed.
2. Imaging studies: Imaging studies, such as CT scans and ultrasound, are used to evaluate the severity of the injury and to identify any associated injuries.
3. Operative management: Operative management is indicated for patients with severe injuries, hemodynamic instability, or associated injuries.
4. Non-operative management: Non-operative management is indicated for patients with minor injuries, hemodynamic stability, and no associated injuries.

The present study aimed to analyze the demographic characteristics, injury patterns, management, and outcomes of patients with blunt abdominal injury. The results of this study provide valuable insights into the management of blunt abdominal injury and highlight the importance of timely and appropriate intervention.

The demographic characteristics of the study population were consistent with previous studies, which have reported a male preponderance and a peak age range of 20-40 years (1, 2). The majority of patients were involved in road traffic accidents, which is consistent with the findings of previous studies (3, 4).

The injury patterns observed in this study were also consistent with previous studies, which have reported the spleen and liver as the most commonly injured organs (5, 6). The high incidence of hemoperitoneum and hollow viscus injury observed in this study

highlights the importance of early diagnosis and intervention.

Table No.2

PParameters	Present Study	Rajkumar PNet al. [1]	Peer GQ et al. [2]	Saber et al [3]	Caldwell et al [4]
MM: F Ratio	2.5:1	9.2:1	3:1	6:1	8.6:1
AAge (21 to 30)	26.7%	40.01%	38%	36%	-
MMOI-accidents	58.3%	58%	42%	62.8%	61%
OOrgans injured					
SSpleen	17.5%	29%	35%	-	32%
LLiver	20%	16%	25%	-	36%
MMortality	3.3%	2.1%	8.2%	8.2%	3%

The management of blunt abdominal injury remains a topic of debate, with some studies advocating for operative management and others recommending non-operative management (7, 8). The results of this study suggest that operative management is associated with a higher mortality rate, although this may be due to the fact that patients undergoing operative management had more severe injuries.

The predictors of mortality identified in this study, including hemodynamic instability, high-grade splenic injury, and hollow viscus injury, are consistent with previous studies (9, 10). These findings highlight the importance of early recognition and management of these factors in order to improve outcomes.

The limitations of this study include its retrospective design and the fact that it was conducted at a single center. Future studies should aim to address these limitations by conducting prospective, multicenter studies.

CONCLUSIONS

- Trauma predominantly affects male population in their most productive age and hence eventually poses economic burden to national economy as well as on families.
- Initial resuscitation with correct clinical and radiological assessment and timely management is the most important step in the management of blunt abdominal injury.
- It is proved beyond doubt that nonoperative management is best in hemodynamically stable patients with isolated, low grade solid organ injury.
- The patient who are managed conservatively should be closely monitored clinically and hemodynamically, so as to assess for prompt intervention.
- Shorter the time interval between trauma to intervention, better was the patient outcome.

The study found that operative management was associated with a higher mortality rate compared to non-operative management. However, the decision to operate or manage non-operatively should be based on individual patient factors, including the severity of injury, hemodynamic stability, and the presence of associated injuries.

The study also highlights the importance of imaging studies, including CT scans and ultrasound, in the diagnosis and management of blunt abdominal injury. These imaging modalities can help identify patients who require operative management and those who can be safely managed non-operatively.

In conclusion, the management of blunt abdominal injury requires a multidisciplinary approach, including trauma surgeons, radiologists, and intensive care specialists. Early recognition and management of hemodynamic instability, high-grade splenic injury, and hollow viscus injury are critical in improving outcomes. Further research is needed to investigate the optimal management strategies for blunt abdominal injury and to improve patient outcomes.

Based on the findings of this study, the following recommendations are made:

1. Early recognition and management of hemodynamic instability, high-grade splenic injury, and hollow viscus injury are critical in improving outcomes.
2. Imaging studies, including CT scans and ultrasound, should be used to guide management decisions.
3. Operative management should be reserved for patients with severe injuries, hemodynamic instability, or associated injuries.
4. Non-operative management should be considered for patients with

minor injuries, hemodynamic stability, and no associated injuries.

5. Further research is needed to investigate the optimal management strategies for blunt abdominal injury and to improve patient outcomes.

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