

**MESENTERIC INJURY AFTER BLUNT ABDOMINAL TRAUMA - A 2 YEAR RETROSPECTIVE STUDY AT A TERTIARY CARE HOSPITAL IN GOA**

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ABSTRACT **Background-** Bowel and mesentery are injured in 1-5% of cases approximately after blunt trauma and is the third most common type of injury from blunt trauma to abdominal organs after liver and spleen. They are the most frequently missed injuries in abdominal trauma, which may lead to delayed diagnosis, which results in increased mortality and morbidity. The purpose of this study was to establish common patterns of injury in mesenteric injury and identify any factors that may lead to delayed treatment and to correlate clinical, radiological and operative findings (wherever available) after blunt abdominal trauma. **Methods-** The study was conducted as a retrospective observational study at Goa Medical College over a period of 2 years. The study included a group of 25 patients who were observed for mesenteric injuries after blunt abdominal trauma. The case records were reviewed with a view to analyze what prompted the decision to operate in cases wherever applicable. **Results-** The diagnosis was confirmed by CECT Abdomen scan in all the patients. Majority of the cases were males aged 15-30 years with Road traffic accidents the most common cause. Most common scan finding included mesenteric hematoma. Most of the cases had associated injuries with significant number at presentation (64%) being hemodynamically unstable following which all were subjected to an emergency laparotomy. Small bowel injuries were most common, particularly in the ileum. **Conclusions-** Patients with BAT can be recognized based on the clinical assessment and selective imaging at presentation.

KEYWORDS : Blunt abdominal trauma, Mesenteric injury, Small Bowel injury, CECT Abdomen, Management

INTRODUCTION

Bowel and mesentery are injured in 1-5% of cases approximately after blunt trauma and is the third most common type of injury from blunt trauma to abdominal organs after liver and spleen. They are the most frequently missed injuries in abdominal trauma, as it can be attributed to the varied anatomical configuration and length of the bowel. There are 3 basic mechanisms that usually govern injury to bowel and mesentery and may include direct crushing force, shearing force, and a sudden increase in intraluminal pressure that results in burst injuries. It is known that the seatbelt trauma from motor vehicle accidents is the most common mechanism of mesenteric injury and that the mesentery of the small bowel is injured more frequently than that of the large bowel.

These injuries may vary in severity from simple contusions to complete transection of the mesentery, which can result in ischaemia and perforation of the bowel leading to leakage of intraluminal contents followed by peritonitis and abscess or fistula formation. It may also lead to stricture of the bowel wall and late small bowel obstruction, which may appear days or even months after the injury. The failure to detect signs suggestive of bowel and mesenteric injuries may lead to delayed diagnosis, which results in increased mortality and morbidity. Furthermore, clinical assessment of some patients may be not reliable in the presence of concomitant injuries.

AIMS AND OBJECTIVES

- To establish common patterns of injury in mesenteric injury and to identify any factors that may lead to delayed treatment.
- To correlate clinical, radiological and operative findings (wherever available) after blunt abdominal trauma.

MATERIALS AND METHODS

- **Ethics:** The study was initiated after approval from the institutional ethics committee. Institutional departmental records were assessed only after appropriate permission and authorization.
- **Study Design:** Retrospective observational study.
- **Study Settings:** The study was conducted in the department of surgery of Goa Medical College, Bambolim.

SAMPLING

Sample Size- 25 cases (8% precision point and 95% confidence interval).

All individuals above the age of 18 years who had been diagnosed with mesenteric injury post blunt abdominal trauma between October 2022 to October 2024 were included in the study.

ELIGIBILITY**Inclusion Criteria:**

Patient aged 18 years and above diagnosed with mesenteric injury after blunt abdominal trauma who provide consent for the study.

Exclusion Criteria: Patients with associated solid organ injury

Data Collection

Data was collected at the time of presentation from hospital records as well as those who have been admitted, by using a structured proforma consisting of detailed clinical examination and investigations work up.

Statistical Analysis

Data Collection Tools: Hospital records and indoor patient records for admitted patients.

Statistical Analysis:

All records from case sheets and OPD case records were entered into a Microsoft excel sheet and analyzed using the latest SPSS version software.

- Descriptive data was analyzed by mean and SD, frequencies and percentages.
- Qualitative variables were used for age, sex distribution etc.

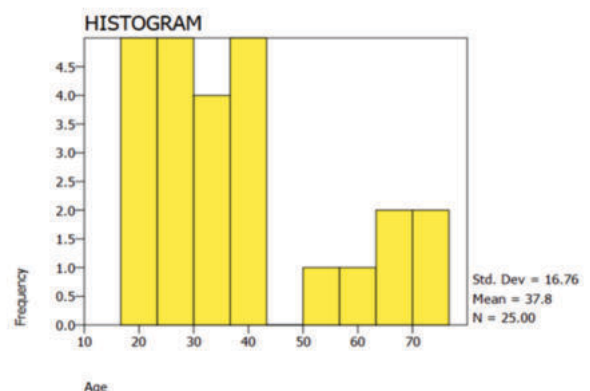
RESULTS**Descriptive Statistics of Study Parameters****AGE PROFILE**

Figure 1- Age Distribution

Table 1- Age Distribution In Study Participants

	Age (Years)
Mean	37.80
Std. Deviation	16.76
Range	55
Youngest	17
Oldest	70

The above table shows the descriptive statistics of age of patients. The 25 individuals were aged between 17 – 72 years, with a mean age of 37.80 years. Distribution of patients according to age group shows that most of the patients (40%) are 15 to 30 years of age.

Gender Profile

Distribution of patients according to gender profile shows that most of the participants are males (80%), while 20% were females.

Table 2- Gender Profile

Gender	Frequency (n)	Percentage (%)
Male	20	80.0
Female	5	20.0
Total	25	100.0

Gender Distribution

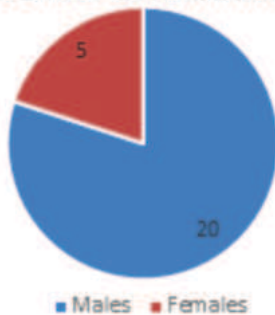


Figure 2- Gender Distribution

Mode Of Injury

Table 3- Mode Of Injury Profile

Mode of injury	Frequency (n)	Percentage (%)
Assault	3	12.0
Blunt injury	3	12.0
Fall from height (FFH)	4	16.0
Road traffic accident (RTA)	13	42.0
Self fall	2	8.0
Total	25	100.0

Distribution of patients according to mode of injury shows that road traffic accident is the most common mechanism (42%).

Bar Chart

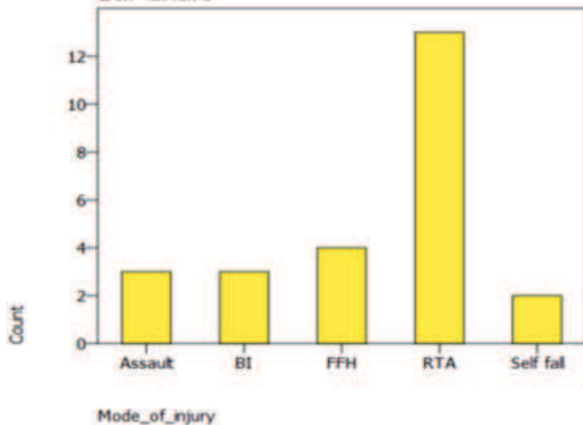


Figure 3- Mode Of Injury Profile

CECTAbdomen Findings

Table 4- CECT Abdomen Findings

CECT Abdomen findings	Frequency (n)	Percentage (%)
Mesenteric Hematoma (MH)	9	36.0
Pneumo-peritoneum (PP)	8	32.0

Solid organ injury (SOI) + MH	8	32.0
Total	25	100.0

Distribution of patients according to CECT Abdomen findings shows that Mesenteric hematoma alone was the most common finding (36%).

CECT ABDOMEN Findings

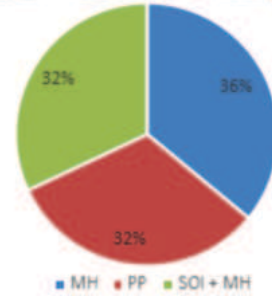


Figure 4- CECT Abdomen Findings

Other Concomitant Injuries

Table 5- Concomitant Injuries Profile

Concomitant Injuries	Frequency (n)	Percentage (%)
Blunt Chest Trauma (BCT)	3	12.0
BCT + HI	5	20.0
Head Injury (HI)	8	32.0
Nil	9	36.0
Total	25	100.0

Distribution of patients according to concomitant injuries shows that most of the patients (36%) didn't have any injuries whereas Head Injury was the most common concomitant injury (32%).

Bar Chart

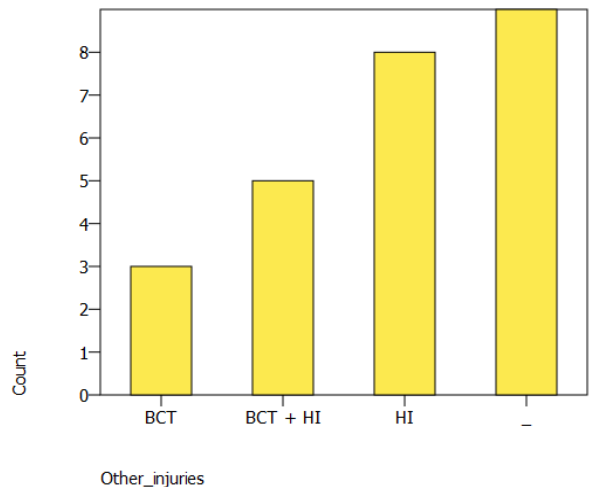


Figure 5- Concomitant Injuries

Condition At Presentation

Table 6- Condition At Presentation

Condition at presentation	Frequency (n)	Percentage (%)
Haemodynamically stable	9	36.0
Haemodynamically unstable	16	64.0
Total	25	100.0

Distribution of patients according to condition at presentation shows that most of the patients (64%) were hemodynamically stable whereas the rest were unstable.

Condition at Presentation

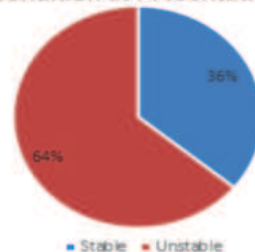
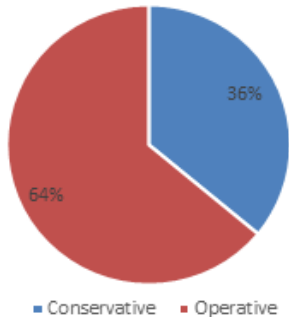


Figure 6- Condition At Presentation

Mode Of Management**Table 7- Mode Of Management**

Mode of management	Frequency (n)	Percentage (%)
Conservative	9	36.0
Operative	16	64.0
Total	25	100.0

Distribution of patients according to management shows that most of the patients (64%) were operated whereas the rest were managed conservatively.

Mode of Management**Figure 7- Mode Of Management****DISCUSSION**

Our study reported that most of the patients (40%) are in the age group of 15-30 years (37.8 ± 16.8 years). Sengar et al reported that the most common age group was 20-30 years. This is because young people are more frequently involved in outdoor activities and are hence more susceptible to trauma. It was also reported in our study that road traffic accidents (RTA) was the most common mode of injury which was also suggested by the study conducted by Sengar et al.

Our study reported that majority of the patients (64%) had other concomitant injuries like Blunt chest trauma, head injury etc. Xeropotamos et al also reported that most patients had associated extra abdominal injuries (81%).

It was seen in our study that most of the patients had small bowel injuries (44%). The studies conducted by Polat et al and Sengar et al have also reported similar findings. It was reported in these studies including our study that Ileum is the most common site of small bowel injury (42%). Mesenteric lesions often may coexist with other injuries which make the patient's condition more serious and send them to the operating room without delay. This could increase the possibility of detecting associating lesions while overlooking injuries of the bowel and the mesentery.

Our study reported a mortality rate of 4% of the patients. In the study conducted by Sengar et al mortality rate was 6.8% which is similar to that quoted by Madhumita as 6.38%. Delay in diagnosis is usually not related to increased mortality and morbidity in patients receiving extensive supportive care. If the supportive care is suboptimal then patient with delay in definitive management can have a worse outcome and may succumb because of peritonitis and sepsis.

CONCLUSIONS

This was a retrospective study conducted at Goa Medical College and Hospital. The following conclusions were made from the study-

- Most of the patients were males in the age group of 15 to 30 years.
- Road traffic accidents (RTA) was the most common mode of injury.
- Mesenteric Haematoma (MH) in isolation is the most reported finding on CECT abdomen scan.
- Majority of the patients had associated extra abdominal injuries.
- Most of the patients were haemodynamically unstable all of whom were managed operatively.
- Small bowel injuries were the most common injuries with Ileum being the most injured site.

Source of Conflict- Nil

Funding- Nil

Acknowledgement

This study, entitled " MESENTERIC INJURY AFTER BLUNT

ABDOMINAL TRAUMA - A 2 YEAR RETROSPECTIVE STUDY AT A TERTIARY CARE HOSPITAL IN GOA" marks a significant achievement in my academic and professional journey. This work would not have been possible without the guidance, support, and encouragement of many individuals, to whom I am deeply grateful.

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