International Journal Dental and Medical Sciences Research
Volume 5, Issue 2, Mar - Apr 2023 pp 403-410 www.ijdmsrjournal.com ISSN: 2582-6018

AStudy on pattern of Blunt injury Abdomen and its Outcome in Government Villupuram medical college and Hospital

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Date of Submission: 12-03-2023 Date of Acceptance: 22-03-2023

ABSTRACT:
Introduction: Blunt abdominal trauma is one of the most common injuriescaused due to road traffic accidents.
Aim: -To Associate relation of various parameters with Hollow Viscus Perforation and Solid Organ injuries.
-To Find out Mortality and Morbidity in Blunt injury Abdomen Cases.
Method: ThisProspective Observational study was conducted on 80 Patients at Government Villupuram Medical college and Hospital, TamilNadu, India over a period of 2 years who were diagnosed with Blunt Injury Abdomen.
Results: Among 80 patientAbout 45% belonged to agerange of 21 to 40 years, 70% were males, Majority of the Abdominal injury is due to Roadtraffic accident (65%), Spleen (36%)is the most common organ injured followed by liver(26.25%), abdominal pain
Being most common symptom(83%), majority required laparotomy, statistically no significant association between Type of management and outcome and organ involved and outcome.
Conclusion: Trauma remains to be neglected disease of modern society. Blunt injury abdomen being life threatening needs early prompt diagnosis and intervention to decrease the level of morbidity and mortality
KEYWORDS: Blunt Injury Abdomen, spleen, peritonitis,laparotomy

I. INTRODUCTION

Blunt injury is one of the life threatening emergencies we encounter in our day to day life.Motor vehicle accidents are the commonest causes of blunt abdominal trauma. Motor vehicles accidents account for 75 to 80%of blunt abdominal trauma. Blunt injury of abdomen is also a result of fall from height, assault with blunt Objects, industrial mishaps, sport injuries, bomb blast.

85% of abdominal trauma are of blunt in character. The blunt abdominal trauma is the result of an impact affecting the abdominal cavity, whatever its location, without any dissolution of the continuity of the abdominal wall[13]. The spleen and liver are the most commonly injured organs as a result of blunt trauma.Liver and spleen together contribute 75% of injuries in blunt abdominal trauma.The small and large intestine are the next most frequently injured organs.Males are more prone for injuries.

Blunt abdominal trauma is usually not obvious. Hence, often missed , unless repeatedly looked for. Clinical examination alone is inadequate because patients may have altered mental status and distracting injuries. Due to the delay in diagnosis and inadequate treatment of the abdominal injuries, most of the cases are fatal. The knowledge in the management of blunt abdominal trauma has progressively increasing. In spite of the best techniques and advances in diagnostic and supportive care, the morbidity and mortality remain high. The reason for this could be due to the interval between trauma and hospitalization, delay in diagnosis, inadequate and lack of appropriate surgical treatment, lack of high dependency units and ICU care, postoperative complications and associated trauma specially to head, thorax and extremities. The multiple injuries suffered makes management of blunt trauma abdomen (BTA) challenging.

Initial resuscitation along with focused assessment with sonography in trauma (FAST) and computed tomography (CT) abdomen are ideal in patients with minimal and clinically detectable signs of abdominal injury and are part of accepted guidelines.Management can be nonoperative or operative.There has been increasing trend towards non-operative management (NOM) of blunt trauma amounting to 80% of the cases with failure rates of 2-3%. Currently conservative treatment is the gold standard for solid organ injuries in hemodynamic stable patients. The suspected or confirmed hollow

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organs injury or patients with peritonitis requires laparotomy.

II. MATERIALS AND METHODS

AProspective observational study was conducted at Government Villupuram Medical college and hospital, Tamil Nadu, India for a period of 2 years.

Inclusion criteria:

- Age >18years
- Hollow viscus injury and solid organ injuries
- Minor other system injuries

Exclusion criteria:

- Patient Refusal
- Age group less than 18 years
- Polytrauma with major blood loss

About 80 cases who satisfied the inclusion criteria was admitted, examined, investigated and Managed. The eligible patients would be enrolled to the study on admission after getting consent.All patients have undergone detailed examinationaccording to the Proforma approved by the institutional Ethical committee;Patients admitted with blunt injury abdomen will be assessed based on accurate history of trauma including mode of injury, time elapsed since injury till admission, physical examination,various investigations like CBC,RFT,Xray abdomen Erect and chest X ray, EFAST scan,CT/CECT scan abdomen and pelvisRelavant investigations and specialty consultations were taken for patients with associated injuries and their control was achieved..Assessed patients will be managed non operatively or operatively based on their presentation and detoriationoftheir general condition. Risk andcomplications of the condition as well as surgeryhas been explained to thepatients, written consent was taken. Preoperative antibiotics were given. After initial assessment and management of patients with blunt injury abdomen ,immediate post operative findings will be recorded and patient will be asked to follow up for suture removal and for a routine follow up.Above all findings will be assessed and recorded. Upon completion of the study period, the data would be subjected to statistical analysis and conclusions derived.

III. STATISTICAL ANALYSIS

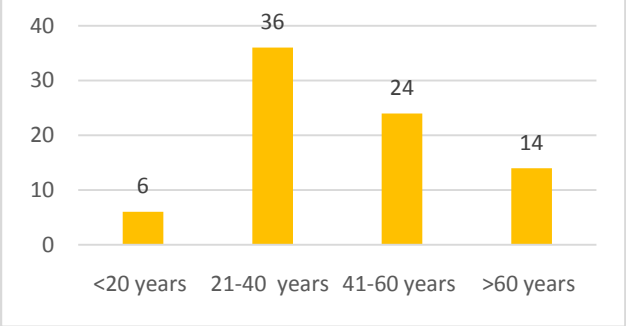
Statistical analysis was done using Statistical Package for Social Sciences (SPSS) software. Chi square test and linear regression test will be used to test the significance of difference between various parameters. P value <0.05 will be considered statistically significant.

IV. RESULTS

Table 1:Age wise distribution of study participants

Age in years	Frequency	Percentage	Mean ±S.D
<20 years	6	7.5	
21-40 yrs	36	45	
41-60 yrs	24	30	28.28±1.86
>60 years	14	17.5	
Total	80	100	

Figure1:Age wise distribution of study participants



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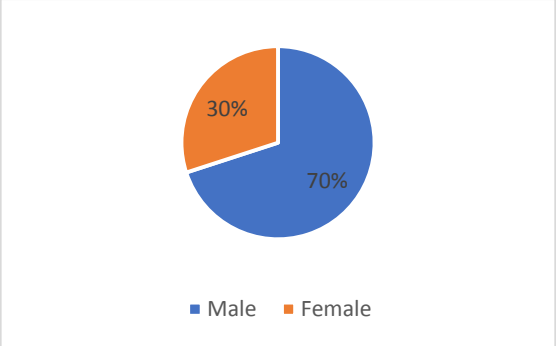
In the present study about 7.5% belonged to age less than 20 years.About 45% belonged to agerange of 21 to 40 years. About 30% belonged to age of 41 to 60 years. About 17.5% belonged to age more than 60 years.Mean age is 28.28 and standard deviation is 1.86.

Table2:Sex wise distribution of study participants

Sex	Frequency	Percentage
Male	56	70
Female	24	30
Total	80	100

Figure2:Sex wise distribution of study participants

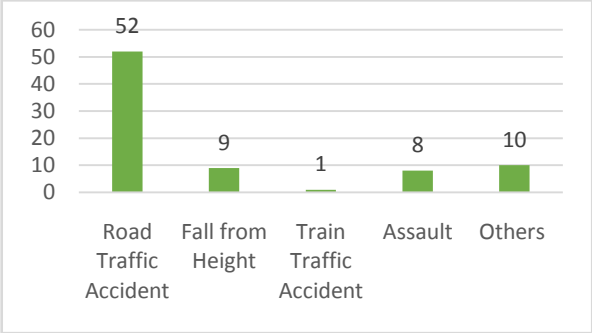


About 70% were males and 30% were females

Table 3: Distribution of mode of injury among study participants

Mode of injury	Frequency	Percentage
Road Traffic Accident	52	65
Fall from Height	9	11.25
Train Traffic Accident	1	1.25
Assault	8	10
Others	10	12.5
Total	80	100

Figure3: Distribution of mode of injury among study participants



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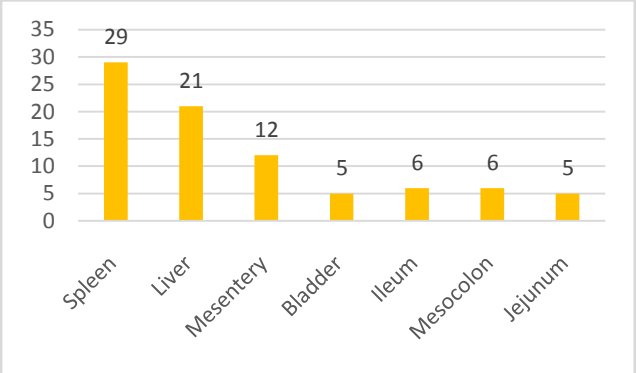
Majority of the Abdominal injury is due to Roadtraffic accident (65%).About 11.25% were due to fall from height .About 1.25% was due to train traffic accident.About 10% of injury is due to assault .

Table 4: Type of organ injured among study participants

Organ	Frequency	Percentage
Spleen	29	36.25
Liver	21	26.25
Mesentery	12	15
Bladder	5	6.25
Ileum	6	7.5
Mesocolon	6	7.5
Jejunum	5	6.25

Figure 4:Type of organ injured among study participants



Spleen (36%)is the most common organ injured followed by liver(26.25%).About 15% was mesenteric injury.About 6.25% was bladder injury.About 7.5% was ileum injury . About 7.5% was mesocolon injury.About 6.25% was jejunal injury.

Table 5: Distribution of clinical signs and symptoms among study participants

Clinical Signs and Symptoms	Frequency	Percentage
Abdominal pain	66	82.5
Abdominal distension	12	15
Guarding	6	7.5
Shock	14	17.5
No finding	21	26.5

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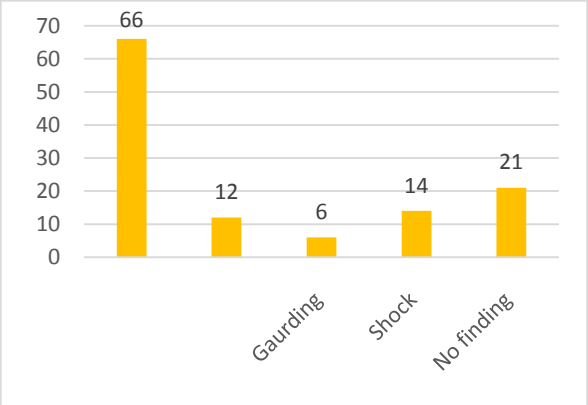
Figure 5: Distribution of clinical signs and symptoms among study participants

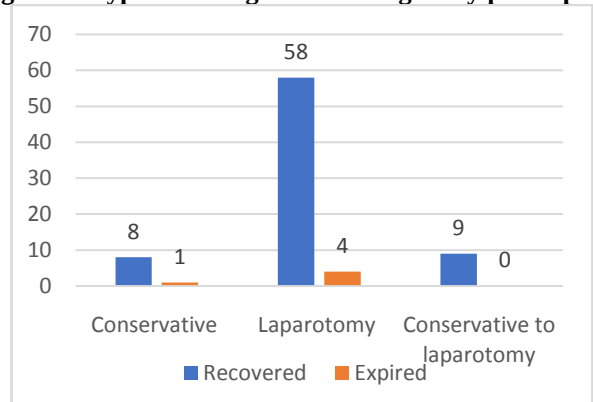


Most common symptom is abdominal pain(83%) followed by abdominal distension (15%).Most common sign is shock (17.5%).

Table 6:Type of management among study participants

Management	Frequency	Recovered	Expired
Conservative	9	8	1
Laparotomy	62	58	4
Conservative to laparotomy	9	9	0

Figure 6 :Type of management among study participants



Among the procedure 8 out of 9 recovered in conservative management.About 58 out of 62 recovered in laparotomy .

Table 7:Association between Type of management and outcome

Management	Recovered	Expired	Total	CHI square	P value
Conservative	8	1	9	4.12	0.62
Laparotomy	58	4	62		

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Conservative to laparotomy	9	0	9		

There is statistically no significant association between Type of management and outcome(P >0.05)

Table 8 : Association between type of organ involvement and outcome

Type of organ	Recovered	Expired	Total	Chi square	P value
Solid	47	3	50	0.01	0.90
Hollow	28	2	30		
Total	75	5	80		

There is statistically no significant association between type of organ involvement and outcome(P>0.05)

V. DISCUSSION

In the present study about 7.5% belonged to age less than 20 years.About 45% belonged to age range of 21 to 40 years. About 30% belonged to age of 41 to 60 years. About 17.5% belonged to age more than 60 years.Mean age is 28.28 and standard deviation is 1.86.

About 70% were males and 30% were females Majority of the abdominal injury is due to Road traffic accident (65%).About 11.25% were due to fall from height.About1.25% was due to train traffic accident.About 10% of injury is due to assault . Among the organs spleen (36%)is the most common organ injured followed by liver(26.25%).About 15% wasmesenteric injury.About 6.25% was bladder injury.About 7.5% was ileum injury.About 7.5% was mesocolon injury.About 6.25% was jejunal injury Majority of the injuries are single injuries(84%)

Most common symptom is abdominal pain(83%) followed by abdominal distension (15%).Most common sign is shock (17.5%). Among the procedure 8 out of 9 recovered in conservative management.About 58 out of 62 recovered in laparotomy. About 94% had positive outcome

There is statistically no significant association between Type of management and outcome(P >0.05) There is statistically no significant association between type of organ involvement and outcome(P>0.05)

In a study conducted by JIN et al conducted a study in total, 53 cases of blunt liver trauma that underwent laparotomy.Liver lacerations were always located close to the attachment sites of the ligaments which bore the majority of the shearing stress. The characteristics of the blunt force play a key role in the different patterns of blunt liver trauma.A thorough understanding of the mechanisms of blunt liver trauma may aid doctors in the management of patients with this condition

In a study conducted by Ravikanth et al,among 65 patients with abdominal trauma. Most common age group involved was 32±5years. Male and Female ratio 15:1. Most common mode of injury was RTA 43(66%). Associated injuries present in 48(74%) cases. Liver (26%) was the commonest organ injured next spleen (20%). 81% (53 patients) of cases underwent successful conservative treatment

In a study conducted by Jitendra et al[42] Males were (84%) and females were (16%), among study group, age group (21-40) years, were commonly involved,the(88%) patients presented with abdominal pain and (72%)presented with rigidity. X ray chest and abdomen and sonography forms important initial investigations Most common injured organ were Spleen (38%), liver (30%), bowel (18%), kidney (6%), mesentry (4%) gall bladder (2%).

In a study conducted by Kulkarni et al[43] noted that blunt trauma to the abdomen is common in the 3rd decade of life, in males, farmers and due to road traffic accidents. The small bowel, spleen and mesentery commonly injured and mortality maximum within 1st h of admission due to hemorrhagic shock.

In a study conducted by Kumawat et al[44] on 273 cases of blunt trauma abdomen and noted that liver is most commonly involved organ

followed by spleen, kidney & pancreas respectively. Initially solid organ injuries cases were treated by surgery, but than non-operative management are tried in haemostatically stable patients. Hollow visceral injuries were always managed by laparotomy & repair or resection as and when needed. Mortality occurred in 35 patients out 273 patients because of delay to reach hospital or septicemia, renal failure and shock due to multi organ failure.

In a study conducted by Abri B et al[45], conducted a study among 332 patients with blunt abdominal trauma and noted that the mean age of the participants was 34.15 ± 1.6 years and 63.9% of them were men. In 290 cases (83.3%) there was not any damage to any organ. The most common injured organs were spleen and liver, equally 10 cases (3.0%). Kidney (2.4%) bladder (1.8%) and intestine (1.2%) were also involved. In this study, the most common cause of blunt abdominal trauma was a car crash. About 79.5% of all patients with blunt abdominal trauma were discharged without complication and morbidity.

VI. CONCLUSION

Despite of the advances in healthcare, trauma remains to be neglected disease of modern society. Trauma is the leading cause of death and disability in developing countries and the most common cause of death under 45 years of age. World over injury is the 7th cause of mortality and abdomen is the third most common injured organ. Abdominal injuries require surgery in 25% cases. 85% of abdominal trauma are of blunt in character. The blunt abdominal trauma is the result of an impact affecting the abdominal cavity, whatever its location, without any dissolution of the continuity of the abdominal wall.More studies to be conducted in future to understand the magnitude.

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