



“A CLINICAL STUDY OF BLUNT INJURY ABDOMEN IN TERTIARY CARE HOSPITAL”

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ABSTRACT

BACKGROUND : Blunt abdominal trauma is the 3rd most common form of injury in road traffic accidents after orthopaedic injuries and head injuries and the victims mostly are young, productive adults and hence it has got enormous socio-economic impact.⁸

METHOD : A prospective detailed study and analysis of 125 cases of abdominal trauma those admitted in this tertiary care centre over a period of 2 years from 2017 -2019 was undertaken with the review of the medical literature.

RESULTS : Blunt injury abdomen is a major cause of morbidity and mortality in young age patients with Road traffic accident being the most common cause. Males are affected more than females. In our study, Liver is most commonly involved organ than spleen which is contrast to literature.

CONCLUSION : Early diagnosis reduces the mortality rates and safety measures in roads prevent the injuries, both play a major role in good outcome.

KEYWORDS : Blunt injury abdomen, organ injury scale, AAST

INTRODUCTION:

According to WHO by the year 2020 trauma will become the first or second leading cause of “loss of productive years of life” for both developed and developing countries.¹ Abdominal injury is a significant cause of morbidity and mortality; expedient diagnosis and treatment of intra-abdominal injuries are essential to prevent morbidity and death.² Blunt injuries are thought to result from a combination of crushing, deforming, stretching and shearing forces. The magnitude of these forces directly relate to the rate of their acceleration and deceleration as well as the relative direction of impact.³

AIMS AND OBJECTIVES

- This study was designed to determine the incidence and pattern of abdominal injury in trauma patients.
- To study nature of blunt abdominal trauma
- To study clinical presentation of different organ injuries
- To study management : non-operative and operative
- To study organs affected in blunt abdominal trauma and management of different organ injuries on laparotomy
- To study post-operative complications
- To study morbidity & mortality

METHODS :

This study was conducted 125 patients of blunt abdominal trauma admitted in trauma care unit tertiary care centre Kurnool.

Table-1: Age wise distribution

Age (in years)	Number of cases	Percentage	DAVIS ET AL	MALHOTRA ET AL	PANCHAL HA ET AL
13-20	26	20.8%	19%	26.6%	18%
21-30	43	34.4%	24%	36.6%	36%
31-40	34	27.2%	15%	10%	24%
41-50	15	12%	13%	13.3%	10%
51-60	7	5.6%	6%	6.6%	6%
Total	125	100			

Mean age : 30years Range : 13-58years

In the present study, maximum of cases were in 21-30 age group (34.4%) followed by 31-40 and 13-20. Average age was 30 years. The panchal HA et al, malhotra et al and davis et al were compared with present study and 21-30 years is the most commonly affected with 36%, 36.6% and 24% respectively.

Table-2 : Sex wise distribution

Gender	Number of cases	Percentage	DAVIS ET AL	MALHOTRA ET AL	PANCHAL HA ET AL
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INCLUSION CRITERIA

- All Patients with blunt abdominal trauma
- Patients of age groups 13-60 years.

EXCLUSION CRITERIA

- Associated Orthopaedic Injuries
- Associated With Severe Head Injury
- Associated With Severe Chest Injury
- Pregnant females
- Penetrating injury abdomen
- All deaths on arrival

CLINICAL FEATURES OF DIFFERENT BLUNT ABDOMINAL INJURIES

Symptoms: Abdominal pain, Abdominal distension, Vomiting, Haematuria, Urinary retention. **Signs:** Tenderness, guarding, rigidity, Hypotension, Tachycardia, Rebound tenderness, Free fluid in abdomen

OBSERVATION AND RESULTS

There were a total of 7314 cases admitted in poly trauma care unit of our general hospital, Kurnool during a period of two years from June 2016 to September 2018. Out of these, 151 cases admitted with blunt trauma to abdomen, this study includes 125 cases and 26 cases were excluded according to exclusion criteria.

Male	105	84%	70%	86.6%	88%
Female	20	16%	30%	13.3%	12%
Total	125	100%			

In the present studies, 105 (84%) patients were male 20 (16%) were female.. Davis et al, malhotra et al and panchal HA et al were compared with present study and males are commonly affected in all studies.

Table-3 : Aetiology of Injuries

Nature of Injury	Number of cases	Percentage	DAVIS ET AL	MALHOTRA ET AL	PANCHAL HA ET AL
Road traffic accidents	75	60%	70%	44.5%	50%
Fall from height	29	23.2%	6%	43.3%	32%
Assault	17	13.6%	17%	6.6%	18%
others	04	3.2%	-	3.3%	
Total	125	100%			

In this study, most common cause of blunt trauma to abdomen was road traffic accidents 75 (60%), second common cause was fall from height 29 (23.2%). Other causes were hit by blunt objects and assaults. Davis et al, malhotra et al and panchal HA et al are similar to present study and RTA (road traffic accidents) being the most common etiological factor and is of 70%, 44.5% and 50% respectively.

Table-4 : Symptoms

Symptoms	Number of cases	Percentage	MALHOTRA ET AL	PANCHAL HA ET AL
Pain abdomen	120	96%	93.3%	98%
Abdominal distension	75	60%	46.6%	50%
Vomiting	27	22%	16.6%	12%
Hematuria	6	4.8%	-	10%

In the present study, the most common symptom was pain abdomen (96%). Next symptom was followed by distension of abdomen (60%), vomiting (22%) and Haematuria (4.8%). Present study compared with malhotra et al and panchal HA et al showed pain abdomen being the most common symptom with 93.3% and 98% respectively.

Table-5 : Signs

Signs	Number of cases	Percentage	DAVIS ET AL	MALHOTRA ET AL
Tenderness	103	82.4%	75%	93.3%
Guarding	63	50.4%	28%	93.3%
Rigidity	57	45.6%	28%	50%
Bowel sounds absent	32	25.6%		20%
Tachycardia	63	50.4%		53.3%

In the present study 103 (82.4%) patients had tenderness of abdomen at time of admission. Another common sign was guarding (50.4%) and rigidity (45.6%) was present. Bowel sounds absent in 25.6% cases. Present study compared with davis et al and malhotra et al which showed abdomen tenderness as most common sign with 75% and 93.3% respectively.

Table-6 : Investigations

Investigations	Number of cases	DAVIS ET AL	MALHOTRA ET AL
Pneumoperitoneum	34%	6%	26.6%
Multiple air fluid levels	10%	6%	-
Hemoperitoneum (4 Quadrant aspiration)	78.3%	86%	72%
Ground glass appearance	10%	4%	-

Present study showed that hemoperitoneum on aspiration being the most common finding with 78.3% and this is compared with davis et al and malhotra et al which showed 86% and 72% respectively.

Table-7 : Organ involved

Organ	No. of cases	%	DAVIS ET AL	MALHOTRA ET AL	PANCHAL HA ET AL	Operated	Operated %	MALHOTRA ET AL
Spleen	24	19.2%	62%	40%	40.5%	15	12%	23.3%
Liver	36	28.8%	51%	40%	35.1%	20	16%	23.3%
Small Bowel	18	14.4%	44%	16.6%	24.3%	18	14.4%	16.6%
Mesentery	13	10.4%	53%	6.6%		8	6.4%	
Large bowel	12	9.6%	70%	10%	0%	12	9.6%	10%
Pancreas	2	1.6%	25%		5.4%	0	0%	
Urinary bladder	2	1.6%	71%	3.3%	2.7%	2	1.6%	
Retro peritoneal Haematoma	3	2.4%		10%	29.7%	2	1.6%	
combined	15	12%		-		10	8%	

In this study, liver was the most common organ involved in 36 (28.8%) of cases, Spleen was the second most common organ injured in 24(19.2%) of cases. Small bowel was injured in 18 cases. Mesentery was injured in 17 cases. Combined injuries in 15 cases.

Present study was compared with davis et al, malhotra et al and panchal HA et al and spleen was the most commonly injured organ showing 62%, 40% and 40.5% respectively in contrast to present study.

Table-8 : Management

Treatment	Number of cases	Percentage	DAVIS ET AL	MALHOTRA ET AL
Surgical	89	71.2%	61.5%	63.3%
Conservative	36	28.8%	38.4%	36.6%
Total	125	100		

Out of 125 cases 82 (71.2%) were managed surgically and 36 (28.8%) managed conservatively. And the davis et al , malhotra et al showed 61.5% and 63.3% underwent surgical management.

Table-9 : Post operative complications

Complications	Number of cases	Percentage
Wound infection	32	25.6%
Wound dehiscence	2	1.6%
Pneumonia	21	16.8%
Pelvic abscess	2	1.6%
Anastomotic leakage	1	0.8%
Intestinal obstruction	2	1.6%

In the present study, wound infection was the most common complication after surgery seen in 32 (25.6%) cases. Pneumonia developed in 21 (16.8%).

Table-10 : Mortality

	Number of cases	DAVIS ET AL	MALHOTRA ET AL
Total	18 (14.4%)	13.3%	13.3%

Mortality showed to be 14.4% and compared with davis et al, malhotra et al which showed 13.3% and 13.3% respectively.

SUMMARY

- A total of 125 cases of blunt abdominal trauma were studied in the present study done at tertiary care center, Kurnool during a period of 2 years.
- In this study commonest cause for blunt abdominal trauma was road traffic accidents
- The maximum incidence was noted in the 21-30years of age group.
- 84% male patients were injured due to blunt trauma.
- The commonest presenting complaint was pain abdomen. Tenderness was the commonest sign
- Liver was the common organ involved in this study
- Ultra sound was the best investigation in this study. FAST was more useful in blunt trauma patients who are unstable.
- X ray revealed 100% advantage in hollow viscus perforation in blunt trauma patients in this study.
- Common mode of treatment opted was surgery.
- Wound infection was the common complication after surgery for blunt trauma patients

CONCLUSION

- Now trauma is most common cause of mortality in younger age group. Safety measures in roads may prevent road traffic accidents as it is the most common aetiological factor in blunt injury abdomen.
- No abdomen organ is safe from injury, with injuries of solid organs being more in blunt abdominal trauma. Prompt primary resuscitation and timely definitive treatment are the goals of the surgeon for trading blunt abdominal trauma victims with important being the initiation of management within the golden hour. CT-Scanning along with assessment of hemodynamic stability is required to decide surgical intervention or non-operative management.
- Early Transportation, Rigorous Measures Of Resuscitation, A combined evaluation comprising of physical examination, imaging techniques hemodynamic assessment and monitoring the patient have decreased the number of non-therapeutic laparotomies and have increased the non-operative management solid organ injuries.
- Early Diagnosis And Decision For Surgery, Good Trauma Centers, Good Radiological And Blood Bank Facilities, Careful Exploration And Perfect Technique Of Surgery And Meticulous Post-Operative Follow Up Will All Aid In Reducing The Mortality.
- In short, morbidity and mortality can be prevented by timely initial resuscitation and correct diagnosis as well as management (Operative and non-Operative) which depends on patients hemodynamic stability and findings of imaging studies.
- In present study we concluded that operative procedure was the best method of treatment option if patient is unstable and early laparotomy decrease the mortality in blunt trauma patients.

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