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Research Article

Pattern of abdominal injury in trauma patients

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ABSTRACT

Background: A high degree of suspicion, of intra-abdominal injuries, even in cases following minor trauma will prevent diagnostic errors. Blunt abdominal trauma generally leads to high mortality, according to various series reported.
Methods: This clinical study was carried out on patients admitted in trauma care unit government general hospital. From the above mentioned source, 120 consecutive cases were taken.
Results: In this study, most common cause of blunt trauma to abdomen was road traffic accidents 82 (68.33%), second common cause was fall from height (20%). Other causes were his by blunt objects and assaults.
Conclusions: Road traffic accidents forms the most common mode of injury, hence measures should be taken to prevent these accidents and care of the victims at the accident site.

Keywords: Blunt abdominal trauma, Clinical profile, RTA

INTRODUCTION

The incidence of abdominal trauma makes trauma as one of the leading causes of acute abdomen in the day to day surgical practice. It accounts for the majority (80%) of abdominal injuries seen in emergency department, and is responsible for substantial morbidity and mortality.[1]

Motor vehicle accidents and urban violence respectively, are the leading causes of blunt and penetrating trauma to this area of the body. A high degree of suspicion, of intra-abdominal injuries, even in cases following minor trauma will prevent diagnostic errors. Blunt abdominal trauma generally leads to high mortality, according to various series reported. The diagnosis of intra-abdominal injuries in non-penetrating, in a shocked and unconscious state with multiple associated injuries like head injury, skeletal injury, thoracic injury, require high degree of suspicion.[2]

Rapid resuscitation is necessary to save the unstable but salvageable patient with abdominal trauma. Accurate diagnosis and avoidance of needless surgery is all important.

As the surgeon directs these activities he must seek the answers to two questions. First, done the patient need an abdominal operation? Second, will the patient tolerate the time required for diagnostic manoeuvres before surgery is performed? However most avoidable deaths results from failure to resuscitate and operate on surgically correctable injuries.[3]

The diagnosis and decision for surgery depends mainly on careful and repeated clinical examination with the basic investigations. The management must be individualized. A systemic approach to preoperative diagnosis and preparation, intra operative inspection, decision, post-operative care and observation for complications is essential for the successful management of individual cases.

METHODS

Source of data

This clinical study was carried out on patients admitted in trauma care unit government general hospital. From the

above mentioned source, 120 consecutive cases were taken.

Inclusion criteria

- Patients admitted with history of blunt trauma abdomen due to road traffic accidents, accidental falls, trauma by blunt objects and assault.

Exclusion criteria

- Associated orthopaedic injuries
- Associated with severe head injury
- Associated with severe chest injury
- Pregnancy

The patients were selected as per above mentioned inclusion and exclusion criteria, an informed consent was taken careful history was taken along with thorough physical and general examination.

The relevant investigations were done to arrive at correct diagnosis. The patients were operated on emergency basis (or) wait and watch policy, operative findings were noted. Follow up study done and complications noted. For patients undergoing conservative line of treatment, ryles tube aspiration, pulse and blood pressure monitoring, urine output measurement done, analgesics and antibiotics given and the patient was put on observation. In cases of death, the cause of the death was noted.

RESULTS

There were a total of 6213 cases admitted in poly trauma care unit of our general hospital, during a study period of two years. Out of these 5420 were male and remaining were female.

Out of 142 cases admitted with blunt trauma to abdomen, this study includes 120 consecutive cases.

Table 1: Age wise distribution.

Age (in years)	No. of cases	Percentage
1-10	10	9.3%
11-20	30	25%
21-30	34	29.3%
31-40	30	25%
41-50	10	9.3%
51-60	6	5%
Total	120	100

Table 2: Sex wise distribution.

Gender	Number of cases	Percentage
Male	96	80%
Female	24	20%
Total	120	100%

In the present study, maximum of cases were in 21-30 age group (29.3%) followed by 11-20 and 31-40. Average age was 25.1 years. Range was from 5 to 60 years (Table 1).

In the present studies, 96 (80%) patients were male 24 (20%) were female. Male to female ration was 4:1.

Table 3: Aetiology of injuries.

Nature of injury	Number of cases	Percentage
Road traffic accidents	82	68.33%
Fall from height	20	16.66%
Hit by blunt objects	14	11.6%
Assault	4	3.3%
Total	120	100%

In this study, most common cause of blunt trauma to abdomen was road traffic accidents 82 (68.33%), second common cause was fall from height (20%). Other causes were his by blunt objects and assaults (Table 3).

Table 4: Symptoms.

Symptoms	Number of cases	Percentage
Pain abdomen	116	96.6%
Abdominal distension	60	50%
Vomiting	24	20%
Haematuria	8	6.6%

In the present study, the most common symptom was pain abdomen (96.6%). Next symptom was followed by distension of abdomen (50%), vomiting (20%) and haematuria (6.6%) (Table 4).

Table 5: Signs.

Sings	Number of cases	Percentage
Tenderness	102	85%
Guarding	48	40%
Rigidity	48	40%
Bowel sounds	36	30%
Shock	36	30%

Table 6: Investigations.

Investigations	Number of cases
USG abdomen FAST	114
X-ray erect abdomen	98
CECT	48
Hemoglobin %	114
Diagnostic peritoneal lavage	42
Diagnostic laparoscopy	36

In the present study 102 (85%) patients had tenderness of abdomen at time of admission. Another common sign

was guarding and rigidity was present in 40% cases. Bowel sound absent in 30% cases (Table 5).

In present study, ultra sound abdomen was done is 114 cases. Only in 15 cases negative findings were found on ultrasound. X-ray erect abdomen was done in 98 cases. In that, 37 cases had pneumoperitoneum suggestive of hollow viscus injury. DPL was done for 42 patients, in those 32 cases shown positive results (Table 6).

DISCUSSION

Blunt abdominal trauma is the leading cause of morbidity and mortality in all age groups. Identification of serious intra-abdominal pathology is often challenging. Many injuries may not manifest during the initial assessment and treatment period.

Age wise distribution

Young males, most of those aged 20-30 years have been reported to be the most frequent victims.

In the present study, the maximum number of cases was in the second decade of life (30%). Most of the cases were in first four decades of life. This indicates trauma is more common in young people. Range was from 5 years to 60 years. There were only 16 cases beyond 40 years of age. Average age was 25.1 years. The present study, comparable to study of Davis et al, reveals that majority of patients belonged to 21-30 years.[4]

Another study Mousami et al showed the age of the victims in this study varies from 1-70 years. In that, peak incidence was 20-30 years (38.18%), it was also observed that 29.9% belonged to the age group of 30-39 years. So the highest number of cases due to blunt injuries to the abdomen occurred in 2nd and 4th decade of life. Another study by Richard curie which showed maximum number of cases in second decade (35%) ranging from 3-60 years with mean age of 28 years.[5]

Similar observations were also made by Allen et al which showed 28% of cases between 20-29 years of age and Williams and Zollinger showed 66% cases between 10-30 years of age.[6,7]

Table 7: Comparison of age wise distribution.

Study	Percentage (20-30 years age group)
Mousami et al[9]	38.18%
Davis et al[4]	30%
Allen et al[6]	28%
Richard curie[5]	35%
In present study	30%

Mohammed et al reported that young patients in majority were victims in their study.[8]

Most of the younger patients were affected by the blunt trauma abdomen based on present study.

Sex wise distribution

In the present study, 80 (80%) were males and 20 (20%) were females.

In this study male to female ratio was 4:1. Male to female ratio was same compared to other studies like Mohammed et al, Tripathi et al reported a ratio of 4.4:1 and Davis et al reported 70% males are affected.[4,8,10]

In Mohammed et al study 87% males and 13% females were affected. The large proportion of male involvement is attributed to occupational hazards and other socio-economical activities predisposing them to injuries.[8] They are more likely to have reasons for moving from one place to another.

Table 8: Comparison of sex wise distribution.

Study	Percentage	
	Male	Female
Mousami et al study[9]	78.18%	21.82%
Mohammed et al study[8]	87%	13%
Davis et al study[4]	70%	30%
In present study	80%	20%

Aetiological factors

The most common cause of blunt injury abdomen is road traffic accidents (68.8%) which are comparable to most other studies. Mohammed A et al study showed 62.8% of motor vehicle accidents were the cause of blunt trauma abdomen,[8] Mousami et al study showed 70.9% of RTAs and 5% fall from height.[9] Another study by Curie et al also reported 58.6% cases of blunt injury to abdomen were due to RTAs.[5] Fall from height was found to be the second most common cause (16.6%) other important causes were hit by blunt objects in 11% and assault 3.3%.

Table 9: Comparison of aetiological factors.

Study	RTA	Accidental fall	Assault
Mousami et al[9]	70.9%	5%	2%
Mohammed et al[8]	62.8%	12%	1%
Curie et al[5]	58.6%	16.6%	3.3%
Present study	68.33%	16.66%	3.3%

Symptoms

In the present study the most common symptom was pain abdomen (96.6%). Abdominal distension was the second most common symptom (50%) followed by vomiting and Haematuria. Another study by Tripati et al also reported pain abdomen in 91% of their patients.[10]

Table 10: Comparison of pain abdomen.

Study	Pain abdomen
Tripati et al[10]	91%
Present study	96.6%

In present study pain abdomen was the predominant symptom of blunt trauma patients as compared to Tripati et al study.

Signs

Out of 120 cases in present study 85% had abdominal tenderness at the time of admission, local (or) generalized guarding was present in 48% cases, out of 48% of cases 30% were operated indicating guarding as an important sign. Rigidity was present in 48% cases. Out of these 48 cases, all have undergone laparotomy. Systolic BP of less than 90 mm Hg on admission was considered shock. In present study, 20 patients presented with shock out of which 12 patients had splenic injuries, 4 had liver injuries and two had small bowel and large bowel perforation each. Bowel sound were absent in 30% of cases.

Present study in comparable to study by Tripati et al which reported tenderness as most common sign in 80% of their patients and shock in 37.2% of their patients.[10]

CONCLUSION

A thorough and repeated clinical examination and appropriate diagnostic investigation lead to successful treatment in these patients.

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Ethical approval: The study was approved by the institutional ethics committee

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