Research Article

Pattern of injury of blunt trauma abdomen in rural population

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ABSTRACT

Background: Blunt trauma abdomen accounts for the majorities of abdominal injuries seen in emergency department. Majorities of blunt trauma abdomen cases (75%) are related to motor vehicle collision. The present study is conducted to study different organ injuries that are encountered in blunt injury to abdomen, the clinical manifestation, diagnostic approaches, and management of different organ injuries, associated morbidity and mortality and to improve our approach in reducing morbidity and mortality.

Methods: A total of 110 patients of blunt trauma abdomen were admitted in emergency of UP Rural Institute of Medical Sciences and Research, Saifai Etawah, UP, India within 1 year. Out of these 110 patients, 100 consecutive cases having history of blunt trauma abdomen and with regard to etiologies, clinical manifestations, diagnostic modalities, management and complication were taken for study.

Results: Road traffic accidents were most common cause of blunt injury to abdomen (60%). People in 5-40 years were more prone to trauma. Males were predominantly involved. Pain abdomen was most common symptom (100%). Tenderness (95%) is most common sign. Mean duration of hospital stay for operated cases was 16 days and for non-operated cases was 8.11 days. USG was 81% sensitive and 100% specific in diagnosing solid organ injury. Operative management was done in 60% cases. Mortality was 5%.

Conclusions: Injuries to solid organs are clinically difficult to diagnose. Repeated clinical examinations and use of appropriate diagnostic modalities holds the key in management. Non-operative management for solid organ injuries in a haemodynamically stable patient is a better option as there will be less hospital stay and less complication.

Keywords: Blunt trauma abdomen, Solid organ injury, Hollow viscous injury, Non-operative group, Post-operative complications

INTRODUCTION

Trauma is the most common cause of death in young patients. The abdomen is third most common injured region with surgery required in about 25% cases.¹ The main causes of blunt trauma abdomen are road traffic accidents, fall from height or fall of object over body and assault. Majority of abdominal injuries encountered in emergency are due to blunt trauma abdomen. Majorities of blunt trauma abdomen cases (75%) are related to motor vehicle collision.²

In the present era there are so many advanced diagnostic tools. Ultrasonography is regarded as investigation of choice for early diagnostic investigations in patients with suspected blunt trauma abdomen, whereas focused assessment of trauma by sonography (FAST) is considered investigation of choice in haemodynamically unstable patients. Patients with Free fluid in peritoneum and haemodynamically unstable need emergency laparotomy. The definitive diagnosis of blunt trauma abdomen is made by computerized tomography (CT) scan. A negative FAST without confirmation by contrast enhanced CT (CECT) Scan may result in missed intra-abdominal injury.^{3,4}

Rapid resuscitation is necessary to save unstable and salvageable patient with abdominal trauma. The primary goal is to assess patient for need for surgery.

METHODS

This was a cross sectional study. Patients admitted to department of surgery in UP Rural Institute of Medical Sciences and Research during period January 2015 to December 2015 were considered for the study, considering the exclusion and inclusion criteria. An informed consent with careful history along with thorough physical and general examination was done. Out of 110 admitted patients, 100 consecutive cases having history of blunt trauma abdomen and with regard to etiologies, clinical manifestations, diagnostic modalities, management and complication were taken for study.

Statistical analysis was carried out following data entry. Categorical data of the determinants were analyzed using the chi square test.

RESULTS

Out of 110 patients, 100 cases were taken for study. The results of study are given below.

In present study maximum cases were in 21-30 year (35%). Average age was 25.1 year.

Table 1: Age wise distribution.

AGE (in year)	No. of cases	Percentage
1-10	10	10
11-20	25	25
21-30	35	35
31-40	22	22
41-50	6	6
51-60	2	2
Total	100	

In present study, 75% were male and 25% were female. Male to female ratio was 3:1.

Table 2: Sex wise distribution.

Gender	No. of cases	Percentage
Male	75	75
Female	25	25
Total	100	

In this study most common cause of blunt trauma abdomen was road traffic accident (60%).

In this study, most common symptom was pain abdomen (100%).

Table 3: Etiologies of injuries.

Nature of injury	No. of cases	Percentage
Road traffic accident	60	60
Fall from height	25	25
Hit by blunt object	8	8
Assault	7	7
Total	100	

Table 5: Signs.

Signs	No. of cases	Percentage
Tenderness	95	95
Guarding	50	50
Rigidity	15	15
Bowel sound absent	20	20
Shock	20	20

In this study USG was performed in 90%, x-ray in about 95%, while hemoglobin in nearly all patients.

Table 6: Investigations.

Investigations	No. of cases
USG abdomen	90
X- RAY erect abdomen	95
Hb%	100
CECT abdomen	65

In present study, duration of stay ranged from 2-4 days. Mean duration of stay was 12 days. Mean duration of stay for operated cases was 16 days and for non- operated was 8.11 days.

Table 7: Duration of hospital stay (Including death).

Duration of stay (days)	No. of cases	Percentage
1-5	15	15
6-10	30	30
11-15	25	25
16-20	26	26
>20	12	12

In this study, 60% cases were managed surgically and 40% were conservatively.

In this study, spleen was most common involved in 28%, liver was second most common organ injured.

Table 8: Management.

Treatment	No. of cases	Percentage
Surgical	60	60
Conservative	40	40
Total	100	

Table 9: Organs involved.

Organ	No. of cases	Percentage	Operative	Conservative
Spleen	28	28	12	16
Liver	18	18	10	8
Small bowel	16	16	16	-
Mesentry	4	4	4	-
Large bowel	4	4	4	-
Stomach	4	4	4	-
Pancreas	2	2	2	-
Urinary bladder	2	2	2	-
Retroperitoneal hematoma	2	2	2	-

DISCUSSION

The most common cause of blunt injury abdomen is road traffic accidents (60%) which are comparable to most other studies. Study by Curie et al⁵ also reported 58.6% cases of blunt injury to abdomen were due to RTA. Fall from height was found to be the second most common cause (25%), other important causes were assault (7%) and hit by object (8%).

Maximum no. of cases were in 3rd decade of life. This indicates trauma is more in young people. Average was 25.1 year. This study is comparable to Richard Curie.⁵ Which showed maximum no. of cases in 2nd decade (35%).

Male to female ratio was 3:1. Most common symptom was pain abdomen (100%), vomiting in 40% followed by abdominal distension (20%), urinary retention (5%), and hematuria (2%). 95% patients had abdominal tenderness at time of admission, local or generalized guarding was present in 50% cases, rigidity was present in 15% cases. This is comparable to study by Tripathi et al.⁶ Which reported tenderness as most common sign (30%).

USG abdomen was done in 90% cases. USG was 81% sensitive and 100% specific.

Mean duration of hospital stay was 12.6 days. Mean duration for operated case was 16 days and that for non-operated cases was 8.11 days. Maximum duration of hospital stay was 33 days for a patient who had burst abdomen. Spleen was most common injured (28%), out of 28, 16 were managed conservatively and 12 were operated. Splenectomy done in 6 cases and splenorrhaphy in 6 cases. R. Curie also reported 27.5% of cases had splenic injuries. Liver is second most common injured solid organ, out of which 10 were operated and 8 were managed conservatively. Small bowel involved in 16% cases.

Out of 100% cases, 60 were managed conservatively and 40 conservatively. Wound infection was most common complication in 8 cases followed by 2 cases of pelvic abscess, pneumonia, anastomotic leakage and intestinal

obstruction. This is comparable to a study by Jolly et al.⁷ Which shows wound infection in 14% of cases.

5% cases were ended in mortality. Septicemia was most common cause of death. Sudden cardiac arrest was seen in 1 patient.

CONCLUSION

Blunt trauma to abdomen is on rise due to excessive use of motor vehicles. It poses a therapeutic and diagnostic dilemma for the attending surgeon due to wide range of clinical manifestations ranging from no early physical finding to progression to shock. So, the Trauma Surgeon should rely on his physical findings in association with use of modalities like x-ray abdomen, USG abdomen, and CECT abdomen. Hollow viscous perforations are relatively easy to pick on x-ray. But solid organ injuries are sometimes difficult to diagnose due to restricted use of modern amenities like CT scan in India. From our study we conclude that in a haemodynamically stable patients with solid organ injury conservative management can be tried and non-operative management is associated with less complication and morbidity.

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