



A STUDY OF BLUNT TRAUMA ABDOMEN IN PATIENTS ATTENDING THE EMERGENCY DEPARTMENT AT RIMS, RANCHI

Surgery

Dr. Chandra Sahay*

MBBS, MS General Surgery, Rajendra Institute Of Medical Sciences, Ranchi, Jharkhand, India *Corresponding Author

Dr. Priyanka

MBBS, Rajendra Institute Of Medical Sciences, Ranchi, Jharkhand, India, India

ABSTRACT

Background: Blunt injury abdomen is the leading cause of morbidity and mortality in all age groups. Blunt trauma differs from penetrating trauma as different organs are characteristically injured by compression from blunt straining. Focused assessment with sonography for trauma (FAST) and computed tomography (CT) abdomen are very beneficial to detect those patients with minimal and clinically undetectable signs of abdominal injury. **Aims:** To evaluate the incidence of blunt injury abdomen, mode of injury, organs involved in patients. **Methods:** This study was conducted at RIMS, Ranchi for a period of 1 year on 50 patients received in emergency department with blunt abdominal trauma. **Results:** Blunt trauma abdomen was more common in males than in females (7:3), most commonly of 20-40 years of age. Most common mode of injury was road traffic accidents (72%) followed by assault (20%). Spleen (50%) was most commonly injured followed by liver (16%). **Conclusion:** In our study blunt trauma abdomen mainly affected male and the younger population. The most common mode of injury was road traffic accidents and spleen was the most common organ injured.

KEYWORDS

Blunt trauma abdomen, Road traffic accidents, Spleen

INTRODUCTION

Blunt trauma abdominal is the most common example of all blunt trauma injury and represents 75% of this injury. Abdominal injuries need surgeries in about 25% of cases. 85% of abdominal traumas are of blunt character. The majority of blunt trauma abdomen cases are related to motor vehicle collisions or automobile versus pedestrian accidents. Blunt injury to the abdomen can also occur as a result of fall from height, assault with blunt objects, sports injury and bomb blasts. Abdomen is the 3rd most common organ injured following extremities and head injury. Computed tomography (CT) scanning has increased the identification of injuries. Initial resuscitation along with focused assessment with sonography in trauma (FAST) and CT abdomen are very beneficial to detect those patients with minimal and clinically undetectable signs of abdominal injury and physical injury. Physical examination findings are sometimes unreliable for several reasons.

Unrecognized intra-abdominal injury remains distressingly frequent cause for preventable death in a patient with blunt injury abdomen. The main aim of our study was evaluate the incident of blunt injury abdomen, mode of injury and organs involved in the patients.

MATERIALS AND METHODS

This study was conducted at Rajendra Institute of Medical Sciences, Ranchi for a period from July 2019 to July 2020. This study comprises of 50 patients who sustained blunt abdominal trauma, who were admitted and managed in our hospital. All the patients were received in the casualty department by casualty medical officer and the duty general surgeons were called to attend the patient. All the cases were registered as medico-legal cases.

Inclusion criteria:

1. Patients presenting with the history of recent assault by the blunt or heavy object over the abdomen.
2. Road traffic accident with suspected blunt abdominal injury.
3. History of accidental fall from height or heavy object over the abdomen.
4. Blunt trauma abnormal in sports injury.

Exclusion criteria:

1. Patients with penetrating/ stab/ gunshot injuries.
2. Patients with pediatric age group.

After a primary survey of these patients, brief history and complete physical assessment of all the basic investigations were done. Skiagrams were taken routinely. Ultrasonogram (F.A.S.T. scan) was done for all the cases and a CT scan was done for selected cases.

Based on the clinical finding and investigations, cases were managed. On laparotomy, a systemic approach with an examination of all intraabdominal organs were made. After surgery patients were

managed with continuous vitals monitoring, nasogastric tube, IV fluids and antibiotics.

RESULTS

In our study out of 50 patients, 35 were male (70%) and 15 were female (30%) with male to female ratio 7 : 3. The incidence of abdominal injury was highest in the age group of 20 - 30 years (40%) followed by the age group 30 - 40 years (20%), both accounting for 60% of the total study population.

Most common mode of injury was road traffic accidents in 36 patients (72%) followed by assault in 10 patients (20%), both accounting for 92% of total injuries.

Table no. 01: Age incidence

Age in years	No. of patients	Percentage
< 20	8	16%
20 - 30	20	40%
30 - 40	10	20%
40 - 50	5	10%
50 - 60	7	14%
> 60	1	2%
Total	50	100%

Table no. 02: Mode of injury

Mode of injury	No. of patients	Percentage
Road traffic accident	36	72%
Assault	10	20%
Fall from height	3	6%
Fall of weight	1	2%

Table no. 03: Specific organ injury

Organs injured	No. of patients	Percentage
Splenic injury	25	50%
Liver injury	8	16%
Ileal perforation	6	12%
Others/combined	4	8%
Mesentery	2	4%
Renal injury	2	4%
Pancreas	1	2%
Bladder injury	1	2%
Jejunal perforation	1	2%

Among the organs injured spleen was most commonly injured in 25 patients (50%) followed by liver in 8 patients (16%). 4 cases (8%) had multiple abdominal injury. 6 cases (12%) had ileal perforation. 20 cases (40%) had Grade III splenic injury. 12 cases (24%) had laceration of the parenchyma (>3 cm depth) and 7 cases (14%) had subcapsular hematoma (>50%), 2 cases (4%) had Grade II (laceration

<3cm), 2cases (4%) had Grade IV injury with hilar vessel laceration and 1case (2%) had Grade V injury with shattered spleen. In all the cases with severe injuries laparotomy was done followed by splenectomy.

DISCUSSION

Blunt abdominal trauma is a challenge even to the best of surgeons. Injuries which causes single to multi organ trauma may be produced by blunt abdominal trauma. Abdominal findings are mostly absent in 40% with hemoperitonium. Sometimes, clinical evaluation of blunt abdominal injuries maybe masked by other more obvious external injuries. Non therapeutic laparotomies have been significantly reduced with proper and timely applications of imaging methods in blunt abdominal trauma patients along with physical examination. Unrecognized abdominal injury is a frequent cause of preventable death after trauma. The patients who have undergone blunt abdominal trauma may have suffered injury simultaneously to other systems and so it is mandatory to examine other systems like head, thorax and extremities for injuries. In blunt trauma surgeon's main concern is to control hemorrhage and bleeding. It can be best done safely depending upon the grades, sites and severity of the injury.

In our study, spleen was most commonly injured in 25 cases (50%) followed by liver in 8 cases (16%). 20 cases (40%) had Grade III splenic injury, 12 cases (24%) had laceration of parenchyma (> 3cm depth) and 8 cases (16%) had subcapsular hematoma (>50%). 2 cases (4%) had Grade II injury (laceration < 3cm), 2 cases (4%) had Grade-IV injury with hilar vessel laceration and 1 (2%) case had Grade-5 injury with shattered spleen. All the cases with severe injuries laparotomy was done followed by splenectomy.

7 cases (14%) had liver injury of which 5 cases (10%) had Grade II injuries followed by Grade III injuries 2 cases (4%). All Grade II injuries involving either a small subcapsular hematoma or capsular tear with laceration <1cm depth in the parenchyma were managed conservatively and patients did well. Both the cases of Grade-III injury, were managed conservatively.

6 cases (12%) had ileal perforation. In 5 cases (10%) the defect was large involving more than two - thirds of the wall and 1 case (2%) was associated with mesenteric tear and hence resection of the segment with primary anastomosis was done by two layer method. 1 case (2%) of jejunal perforation with large defect underwent resection and anastomosis using two layer closure.

Solid organs are injured by a direct violence or deceleration injury because of their protected position and ligaments attachments. Injury to the kidney and pancreas is usually by direct trauma. 1 case (2%) had pancreatic trauma required no surgery. 2 cases (4%) had renal injury, 1 case (2%) had Grade-I injury with a non - expanding subcapsular hematoma and 1 case (2%) had Grade 3 injury. Both these cases were managed conservatively. 2 cases (4%) had mesenteric injury with associated small bowel injuries. In 1 case (2%) primary suturing using 2-0 vicryl was done and in 1 case (2%) was proceeded with resection and anastomosis for the associated small bowel injury. There was no associated intra-abdominal injury or urethral injury.

There is an increase in the trend towards conservative management if the patient is hemodynamically stable. The grade of injury was assessed by USG and CECT and was most of the time managed conservatively. Minor lacerations and capsular tears which are difficult to diagnose clinically can be easily demonstrated in USG and CECT scan and were selected for non-operative management. However, the disadvantage of non - operative management is missed injuries resulting in increased morbidity and mortality. Operative intervention is needed in hemodynamically unstable patients who are not responding to aggressive fluid resuscitation and those with significant organ injuries. The common surgeries performed in our patients includes splenectomy, primary closure of perforation and resection and anastomosis.

CONCLUSION

It was observed that road traffic accidents was the most common cause of blunt abdominal trauma in our study, involving younger age group between 20-40 years most commonly. Males sustaining blunt abdominal trauma out numbered the females. Diagnostic investigations like FAST, X-ray erect abdomen and CT scan form an important tool in the management of these trauma patients. Among the

solid organs, spleen and liver were the most commonly injured organs. Conservative approach is preferred over surgical approach as it is safe and effective if followed judiciously. Delayed presentation, involvement of more than one intra-abdominal organ, presence of extra-abdominal injuries and associated co-morbid diseases increases the morbidity and mortality in these patients. Early diagnosis, aggressive resuscitation and timely surgical intervention may improve the outcome in trauma patients.

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