



A CLINICAL STUDY OF BLUNT INJURY ABDOMEN

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ABSTRACT

Blunt injury as done is the leading four of morbidity and mortality in all age groups. A total of 120 cases of blunt abdominal trauma were studied in the present study in our institute for period of 2 years. In this study commonest cause for blunt abdominal trauma was road traffic accidents. The maximum incidence was noted in the 20-30years of age group. 80% 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. Septicemia was the commonest cause of death in this study.

KEYWORDS

Road Traffic accidents, Haemoperitoneum, FAST, Non operative management.

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 department¹, and is responsible for substantial morbidity and mortality.

Motor vehicle accidents and urban violence respectively, are the leading causes of blunt and penetrating trauma to this area of the body.

Blunt abdominal trauma generally leads to high mortality, according to various series reported. Rapid resuscitation is necessary to save the unstable but salvageable patient with abdominal trauma. Accurate diagnosis and avoidance of needless surgery is all important.

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.

This study is based on mechanisms and pathological basis of abdominal trauma by blunt injury, its diagnosis and management were briefly discussed. A detailed study and analysis of 120 cases of abdominal trauma those admitted in this hospital over a period of 2 years was undertaken with the review of the medical literature.

METHODOLOGY:

Source of Data: This clinical study was carried out on 120 patients admitted in our hospital with Blunt trauma.

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

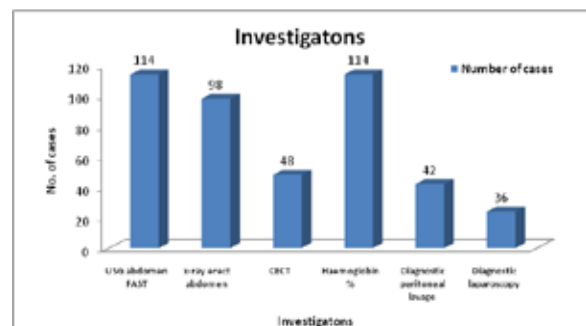
The patients were selected as per above mentioned inclusion and exclusion criteria, an informed consent was taken careful history was taken along with thorough physical and general examination.

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. 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 case 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, Kurnool. 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.



Out of 120 cases 82 (68.33%) were managed surgically and 38 (31.66%) managed conservatively.

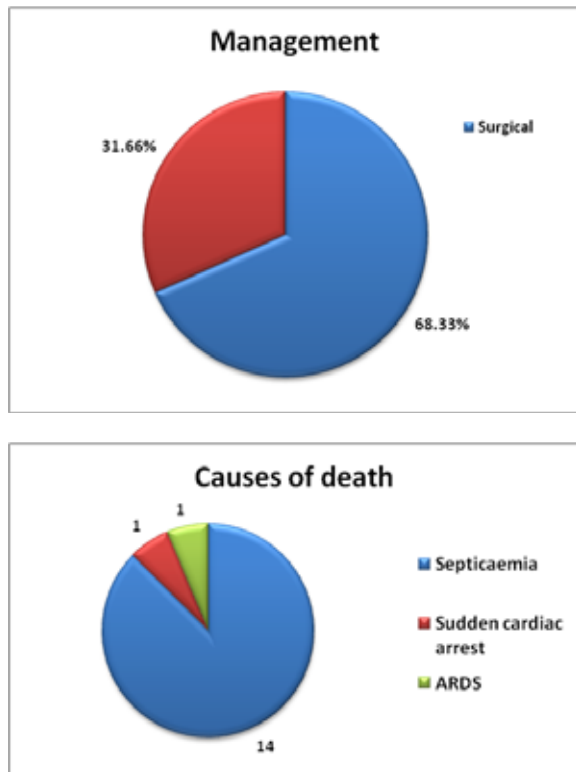


Figure 1-HEMOPERITONEUM IN LIVER LACERATION



Figure 2 - ILEAL PERFORATION



DISCUSSION :

Blunt abdominal trauma is the leading cause of morbidity and mortality in all age groups. 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%). 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.

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 yrs (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.

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

Sex wise distribution:

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

Male to female ratio was same compared to other studies like Mohammed et al, Lone et al and Tripathi et al (1991) reported a ratio of 4.4:1 and Davis et al reported 70% males are affected.

This study is comparable to the study done by Musau et al at Kenyatta National Hospital in which the male to female ratio was 12.3:1.37. Aetiological factors: The most common cause of blunt injury abdomen is road traffic accidents (68.8%) which are comparable to most other studies. Mohapatra et al also reported 62% cases of blunt injury abdomen were due to RTA. 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%.

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 Tripathi et al also reported pain abdomen in 91% of their patients.

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, 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 sounds were absent in 30% of cases.

Injury and Admission interval

In present study, maximum number of patients (40%) were brought to the hospital within 5-10 hour after injury. Delay in hospital admission was also reported by Indian authors (Tripathi et al).

Admission and surgery interval

In present study, out of 120 cases, 82 cases were managed surgically. Only 6 cases were operated within 3 hours after admission. Maximum number of cases (50%) were operated between 6-12 hours.

Investigations

In present study, x-ray erect abdomen was done in 98 cases. It

detected 37 cases of hollow viscous perforation with an accuracy of 100%.

Another study (Mohapatra et al) reported accuracy of x-ray erect abdomen to be 100% in detecting hollow viscous injuries. In present study, USG abdomen was done in 114 cases.

Present study FAST was major advantage for unstable patients. In recent years, Focused abdominal sonography for trauma (FAST) has emerged as a useful diagnostic test in the evaluation of blunt abdominal trauma. In addition, the technology is portable and may be easily repeated if necessary.^{2,3,4,5} In most cases, FAST may be completed within 3 or 4 minutes^{6,7,8}.

The minimum threshold for detecting haemoperitoneum is unknown and remains a subject of interest. Kawaguchi and colleagues found that 70 ml of blood could be detected⁹, whereas tiling et al found that 30 ml is the minimum requirement for detecting with ultrasonography¹⁰.

In present study FAST detected 100 ml of free fluid which was slightly higher compared to other studies.

FAST diagnostic accuracy generally is equal to that of DPL. Sensitivity and specificity of these FAST range from 85% to 95%^{11,12,13,14,15}.

Rozycki et al studied 1540 patients and reported that ultrasonography was the most sensitive and specific modality for the evaluation of hypotensive patients with blunt abdominal trauma (sensitivity and specificity ,100%).

But in present study FAST was major advantage for unstable patients.

Duration of Hospital stay

In present study, duration of stay varied from 6-34 days, out of which 13 operated patients expired and others had minimal collection in the peritoneal cavity (or) admitted for observation.

Organs Involved

The most frequently injured organs in blunt trauma abdomen are spleen (40-55%), liver (35-45%) and retroperitoneum(5%)

In present study, liver was the commonest organ injured. Out of these 32 cases, 12 were managed conservatively and 20 were operated.

Present study is comparable to study of MOUSAMI ET AL showed liver was the commonest organ involved (62.27%) and spleen 30.91% ,small intestine 18.8% and kidney 18.8% cases. Another study Davis et al which showed 16.47% of liver injuries,out of which 14% underwent laparotomy and suturing was done in all cases.

Another study by R.Curie et al showed 20.6% of liver injuries. This study by Robert Ratledge et al found spleen to be most commonly injured organ than liver.

Spleen was the next most commonly involved solid organ in 20 cases. Out of which 8 were operated and 12 managed conservatively. This study is comparable to study done by Davis et al which reported 24.7% of cases had splenic injuries, out of which 10.7% were operated and 14% were managed conservatively. Another study by R.Curie et al reported 27.5% of cases had splenic injuries, out of which 15% were operated and splenorraphy was done in all cases.

Mesentery was the third most common injured organ in present study. Small bowel was next most commonly injured organ (16 cases) in present study. Jejunum was injured in 12 cases.

This study is comparable to a study done by Davis et al which

showed 3.4% cases of mesenteric tear. Large bowel injury was observed in 4% cases, which were operated. Present study is comparable to a study by R.Curie et al which showed 3.44% of their patients with injury to large bowel. In Mousami et al study. Gall bladder was found injured in 7.27% cases and pancreas was found injured in 3.45% cases.

The incidence of gall bladder & pancreatic injury reported by Tonge et al¹⁶ was 1.7%; Present study is comparable to a study done by Allen and Curie which showed 1.8% of pancreatic injuries.

Present study is comparable to a study done by R.Curie which showed 1.3% of retroperitoneal haematoma. In Mousami et al urinary bladder was found injured in 5% cases. All cases were injured due to RTAs. Incidence of urinary Bladder injury reported by Tonge et al was 4.9%.

Another study Michael Nance et al showed 9% liver injuries and 7.9% spleen injuries which was low compared to present study.

Management

Out of 120 cases in present study 68.33% were managed surgically and 31.6% were managed conservatively. This study is comparable to Mohapatra et al who reported 39% laparotomy rates in their series. Non operative management consisted of Nasogastric aspiration, urine output measurement, I.V fluids, analgesics and antibiotics.

Post operative complications

In present study, wound infection was the most common complication in 24 cases after undergoing surgery followed by pneumonia, pelvic abscess and intestinal obstruction. Present study is comparable to a study by Jolly et al¹⁷ which showed wound infection in 14% of the cases. Another study by Davis et al showed wound infection as a complication in 15% of the cases.

Mortality

In present study, out of 120 cases, 16 cases ended in mortality, septicaemia was the most common cause of death (14 cases). Sudden cardiac arrest was cause of death in one case and ARDS was cause of death in another case.

This study was compared to another study by Jolly et al¹⁷ which showed 10% mortality in their study with septicaemic shock the most common cause of death. Another study by Davis et al showed 15% mortality with septicaemia the most common cause of death.

CONCLUSION

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.

A Thorough And Repeated Clinical Examination And Appropriate Diagnostic Investigations Lead To Successful Treatment In These Patients.

Early Transportation, Rigorous Measures Of Resuscitation ,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 Present Study We Concluded That Operative Procedure Was The Best Method Of Treatment Option If Patient Is Unstable And Early Laparotomy Decreases The Mortality In Blunt Trauma Patients.

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