



THE STUDY OF CLINICAL PROFILE OF BLUNT ABDOMEN TRAUMA IN TRIBAL AREA HOSPITAL PARVATHIPURAM

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ABSTRACT

Introduction: Blunt abdominal trauma is a leading cause of morbidity and mortality among all age groups.

This study was conducted to evaluate cases of Blunt injury abdomen with special emphasis on study of associated epidemiological factors, clinical profile and management strategies in patients presenting BAT.

Material and Methods: This study was conducted on 100 patients of blunt abdominal trauma admitted in a area hospital PARVATHIPURAM, Including All patients with blunt abdominal trauma and Patients of all age groups.

Results: Males were predominantly affected and most cases were between the age group of 11-40 years (66%). Majority of the patients (90%) presented with the complaint of abdominal pain followed by abdominal guarding (62%). 64% patients were managed conservatively while operative interventions were required in 36% patients. Common surgeries performed in the studied cases included primary closure of perforation (10%) splenectomy 6%. Majority of the patients (78%) were discharges within 10 days of admission.

Conclusions: Blunt Abdominal Trauma is one of the important causes of morbidity and mortality in young adults. Immediate resuscitative measures, management of associated injuries and appropriate operative intervention are important parts of management of such cases.

KEYWORDS : Blunt trauma abdomen, Road traffic accident, Operative Interventions.

INTRODUCTION :

In an age of speeding, road rage and increasing traffic accidents the incidence of trauma as a whole and subsequently blunt abdominal trauma, is on the rise. It's a major cause of mortality and morbidity in the 15-44 years age group.¹

Trauma or injury has been defined as damage to the body caused by an exchange with environmental energy that is beyond the body's resilience.²

Trauma remains the most common cause of death for all individuals between the ages of 1 and 44 years and is the third most common cause of death regardless of age.^{2,3}

Globally, injury is the seventh leading cause of death, with 5.8 million deaths attributable to trauma in 2006. In the United States injuries constitute the third leading cause of death over all ages (accounting for 6 % of all deaths) and the leading cause of death among children, adolescent and adults aged 1 to 44 years.³

The abdomen is a diagnostic black box. 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

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.⁴

Abdominal injuries can be particularly dangerous, because it is often difficult to assess intra-abdominal pathology in poly-trauma victims. Delay in management of blunt abdominal trauma increases morbidity and mortality due to bleeding from solid organs or vascular injury.⁵

MATERIAL AND METHODS:

This was a prospective study of blunt abdominal injuries conducted during the period from DECEMBER 2009 to DECEMBER 2018 at AREA HOSPITAL PARVATHIPURAM, Surgery Department. All the cases visited during this period formed the sample of the study which amounted to 100.

The data was collected by direct interview with the patient or patient relatives accompanying the Patient and obtaining a detailed history.

A thorough clinical examination was done in all the patients. Relevant diagnostic investigations (X-Ray, Ultrasonography) performed over the patient. After initial resuscitation of the patients, thorough assessments for injuries were carried out in all the patients.

The decision for operative or non operative management depended on the outcome of the clinical examination, hemodynamic stability and ultrasound abdomen. Patients selected for non operative or conservative management were placed on strict bed rest and were subjected to serial clinical examination which included hourly pulse rate, blood pressure, respiratory rate and repeated examination of abdomen and other systems.

Inclusion criteria:

1. All patients presenting with history of blunt abdominal trauma.
2. Those who gave informed consent to be part of the study.

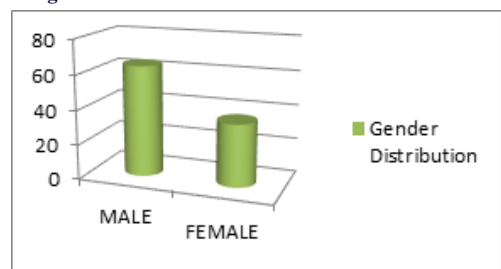
Exclusion Criteria:

1. Those who were found to have no evidence of abdominal injury on the basis of imaging.

RESULTS:

In this prospective study of 100 patients with Blunt abdominal trauma there were 64 (64%) males and 36(36%) females with a M: F ratio of 1.7:1 (figure-1).

Figure 1: gender distribution



Amongst the studied cases most common age group involved by 31-40 years (24%). 1-10 years 12%, 11 – 20 years 22%, 21-30 years 20%, 41-50 years 14%, 51-60 years 07%, 61-70 years 01%,

In 52 (52%) cases road traffic accident was the mode of injury followed by history of assault in 26 patients (26%). History of hit by an animal 12 (12%), history of fall from height 10 (10%).

Commonest clinical presentation abdominal pain in 90 (90%) cases, followed by abdominal guarding and Rigidity in 62%. Least patients presented with hematuria accounting for 8% patients. The study of the associated injuries showed that they were present along with abdominal injury in 45 cases. The common extra abdominal injury was thoracic in the form of fractured ribs and hemothorax 22% followed by head injury 10%, extremities fracture 10% and pelvic injury 3%

In Table 1 present study we observed, that liver was the most common (38%) organ injured in cases of blunt abdominal trauma.

The next most common organ injured was spleen (18%). Intestinal and mesenteric injuries were observed in 14% of the cases.

Most of the cases 64% we are managed conservatively , 34 % cases needed operative procedures.

Various treatment procedures were employed as per nature and severity of organ injury. Splenectomy was performed in 6 patients found to be hemodynamically unstable and in hypovolemic shock. Small intestinal perforation due to blunt abdominal trauma is managed by exploratory laparotomy and primary suturing of perforation (10 cases). Patient with liver injury and hemodynamically unstable is treated with primary suturing and repair of injury (5 cases) .

Supra pubic cystostomy done in 8 cases, Primary closure of wound done in 7 cases.

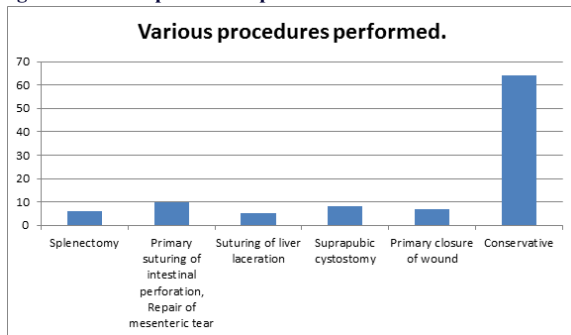
64 Patients having liver, kidney and splenic injuries and hemodynamically stable patients are treated conservatively. Shown in (figure 2)

Majority of the patients (78%) were discharged within 10 days of admission. 22 (22%) needed to be in hospital beyond 10 days and were discharged before 20 days of admission. There was no patient who had to remain in hospital beyond the period of 20 days .

Table 1 : Relation between mode of injury and specific organ involved.

| Organ injury | Total No. of patients | RTA | ASSAULT | HIT BY ANIMAL | FALL |
|-------------------------------|-----------------------|-----|---------|---------------|------|
| Liver | 38 | 28 | 5 | 5 | |
| Spleen | 18 | 10 | 4 | 2 | 2 |
| Kidney | 4 | 4 | | | |
| Small intestine and mesentery | 14 | 3 | 3 | 5 | 3 |
| Colon | 2 | | 1 | 1 | |
| Urethra and urinary bladder | 14 | 6 | 8 | | |
| Muscular hematoma | 10 | 2 | 8 | | |
| Stomach and duodenum | 0 | | | | |

Figure 2: Various procedures performed



DISCUSSION:

Majority of cases were males (64%), mean age being 32 years. This is in conformity with most other studies as in that by Maurice *et al.* were mean age was 27 years⁶. It is known that men being more susceptible to road traffic accidents and forceful assault, are more commonly involved in trauma of any form. The most common age group involved in our study was 31- 40 (24%) years and 21-30 years (20%). More than 50% in our study belonged to age group of 15-40 years. As the age advances there is less chances of individuals getting assaulted and use of motor vehicle also decreases and the incidence of Blunt abdominal trauma is found to be decreasing with the increasing age. Only 1% patients in our study were found to be above 60 years of age. Similar findings were reported by Davis *et al* who reported that 39% patients with BAT belonged to age group of 21-40 years.⁷

The analysis of mode of injury revealed that Road traffic accidents

were the most common mode of injury (52%) .Similar Findings were reported by Khanna *et al* who found that t most common mode of injury in cases of BAT was Road Traffic accidents (57%).⁸

USG abdomen was done in all cases. Therefore USG abdomen is more reliable in detecting organ injury and free fluid in the abdomen. In our study USG could show Hepatic, splenic and renal injuries in 38%, 18% and 14% patients respectively. Liver was found to be injured most commonly. Similar study by Razm *et al* showed hepatic and splenic injuries in 29.8% and 28.3% patients respectively.⁹

There is an increase in trend towards conservative management if the patient is haemodynamically stable If patient is taken to hospital as early as possible (within golden hours) after trauma, it can decrease patient's morbidity and mortality.¹⁰

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 included splenectomy, primary closure of perforation and resection and anastomosis. Similar surgeries were required in patients of BAT as reported by Wu CL *et al* AB.¹¹

CONCLUSION :

No abdominal organ is safe from injury with injuries of solid organs being more in blunt abdominal trauma Blunt Abdominal Trauma is one of the important causes of morbidity and mortality in relatively young individuals. Most common mode of injury is road traffic accidents and men are affected predominantly. Early diagnosis of extent of injury by appropriate imaging (X-ray, Ultrasound) and appropriate interventions (Aggressive fluid resuscitation, blood transfusion and operative interventions) are crucial in management.

A combined evaluation comprising of physical examination, imaging techniques, hemodynamic assessment and monitoring the patients have decreased the number of non-therapeutic laparotomies and have increased the non-operative management of solid organ injuries.

REFERENCES

1. National Center for Health Statistics. National Vital Statistics System. Hyattsville, MD: National Center for Health Statistics, CDC; 2010.
2. Schwartz's principles of surgery, 9th edition, chapter 9th, Schwartz, Seymour I, Brunicaudi, F Charles. New York: McGraw-Hill Medical Pub. Division, c201;1928:135-196.
3. Sabiston's textbook of surgery, 18th edition, section II, chapter 20. 2007;477-520.
4. Mock CN, Jurkovich GJ, Nii-Amon-Kotei D, Arreola-Risa C, Maier RV. Trauma mortality patterns in three nations at different economic levels: implications for global trauma system development. J Trauma. 1998;44:804-14.
5. Munns J, Richardson M, Hewett P. A review of intestinal trauma. Australia J Surg. 1995;65:857860.
6. Maurice A, Okon B, Anietimfon E, Ogbu N, Gabriel U, Ikpeme A. Non-operative management of blunt solid abdominal organ injury in Calabar, Nigeria. Int J Clin Med 2010;1:31-6.
7. Joe Jack Davis, Isidore Cohn, Francis C. Nance; Diagnosis and management of Blunt abdominal trauma. Ann, Surg. 1976 183: 672-678.
8. R. Khanna, S Khanna, P Singh, Puneet and A K Khanna;Spectrum of blunt abdominal trauma in Varanasi; Quart J; 1999:35;25-28.
9. Raza M, Abbas Y, Devi V, Prasad KV, Rizk KN, Nair PP. Non operative management of abdominal trauma - A 10 years review. World J Emerg Surg 2013;8:14
10. Goyal S, Sancheti KH, Shete KM. Poly Trauma in Rural India- Changing Trends. Indian J Orthopaed. 2006 Oct 1;40(4):259
11. Wu CL, Chou MC. Surgical management of blunt abdominal trauma. Gaoxiong Yi Xue Ke Xue Za Zhi. 1993;9:540-52.