



OUTCOME IN PATIENT OF BLUNT ABDOMINAL TRAUMA: RETROSPECTIVE STUDY

General Surgery

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ABSTRACT

Injury in some form and shape is known to mankind since times immemorial. Trauma or injury has been defined as “damage to the body caused by exchange with environment energy that is beyond body's resilience”. The increasing fascination of people with speed travel has made accidental death the leading cause of mortality among young people today. Abdominal trauma is one of the more common injuries caused mainly due to road traffic accidents. Motor vehicle accidents account for 75 to 80% of blunt abdominal trauma. Blunt injury of abdomen can also be a result of fall from a height, assault with blunt objects, sports injuries, industrial mishaps, bomb blasts and fall from height. Blunt abdominal trauma is usually not obvious, and hence often missed, unless actively and repeatedly looked for. The clinical presentation of these injuries also varies considerable. Blunt abdominal trauma can result in complications such as hemo-peritoneum due to injuries to solid organs such as spleen, liver, kidney and may even cause a retroperitoneal hematoma. It can also cause various modalities of injuries to hollow viscus like stomach, small and large intestines. Due to the inadequate treatment of the abdominal injuries, most of the cases are fatal. The knowledge in the management of blunt abdominal trauma is progressively increasing due to the in-patient data gathered from different parts of the world. In spite of the best techniques and advances in diagnostic and supportive care, the morbidity and mortality remains at large. In view of increasing number of vehicles and consequently road traffic accidents, the subject for this dissertation has chosen to study the cases of blunt abdominal trauma with reference to the patients presenting at tertiary care hospital, south Gujarat.

KEYWORDS

MATERIALS AND METHODS

This study consists of an analysis of 30 cases of blunt abdominal trauma undergoing management during the period July-2012 to July-2017. It is a retrospective observational study.

Each patient was evaluated clinically taking into consideration history, general examination, abdominal examination and investigations and analyzed according to data collected based on a planned Performa.

INCLUSION CRITERIA-

- Cases of blunt abdominal trauma with isolated splenic injury management at Tertiary care hospital, south Gujarat from July-2012 to July-2017.
- Patient of blunt abdominal trauma with isolated splenic injury with or without chest/limb injury.
- Age: 18 to 60 years.
- Sex: both sexes.

EXCLUSION CRITERIA-

- All patients less than 18 years of age.
- Penetrating injuries.
- Other associated intra-abdominal organ injuries.
- Head injury with GCS < 13.
- Case before July 2012.
- All patients more than 60 years of age.
- All patients presented to the trauma Centre at Tertiary care hospital, south Gujarat were managed initially by the emergency medicine department.

All the patients were initially evaluated and underwent appropriate primary resuscitation by I.V. line placement and fluid resuscitation, catheterization, vital assessment (Temperature, Pulse, Respiration, and Blood pressure) and systematic examination. Investigation in the form of USG (FAST) was performed in all patients of blunt abdominal trauma at the trauma Centre; CT scan was performed in hemodynamically stable patients. Other appropriate investigations for associated injuries were done. The patients who were ready for determined period of follow-up have been enrolled in the study.

OBSERVATION AND DISCUSSION

The present study was carried out over a period of 60 months and all cases of blunt trauma of the abdomen who were eligible for inclusion [based on the inclusion and exclusion criteria describes under the /materials & Methods section earlier] were studied. A total of 30 patients were includes in the study.

Regarding the distribution of cases according to their age, it was

observed that the maximum number of cases was from the age group 18 to 30 years followed by cases in the ages of 31 to 45 years. Almost 83.3% of all the studied cases are accounted for by the ages between 18 to 45 years, with an almost equal distribution among the age groups 18 to 45 years and 46 to 60 years.

It was observed that almost 83.33 percent of the cases were males with a M:F ratio of approximately 6:1 This is in accordance with earlier studies where similarly high prevalence was noted among males. In a study conducted in 2001, Lone observed a M.F ratio of 4:1 [1] while Davis and his co-workers [2] and Ayoade et al [3] reported a prevalence of 70% male cases. Similarly, research studies have shown that young males, most of all those aged 18 to 29 years, are more frequently involved, followed by men in the age group 30 to 39 years[4]. Similar observations have also been reported by other workers [2,3]. Thus, blunt trauma to the abdomen predominantly affects people in the young and productive age group.

Regarding the cause of injury / trauma, it was observed that more than half of all the cases were because of road traffic accidents. The majority of cases of blunt trauma abdomen are related to motor vehicle collision or auto versus pedestrian accidents 63.33 percent [5,6]. Blows to the abdomen [caused mostly by interpersonal violence] and falls from height account for 10 percent and 26.67 percent of cases respectively [7] Occult blunt trauma abdomen may also result as a consequence of child abuse and / or domestic violence. The findings in the present study are similar to those by earlier workers as we observed almost 63.33 percent of the injuries to be because of road side accidents and almost 26.67 % because of falls from a height. This is in accordance with the finding by Khanna et al [8] who reported 57% of cases because of vehicular accidents. The present study also included 10% cases who suffered abdominal injuries as a consequence of violence or assault.

TIME INTERVAL BETWEEN INJURY AND HOSPITALIZATION

Almost 57 percent of the cases were brought to the hospital within 6 hours of the onset of injury, while 6 cases [about 20 % of the total] were brought to the hospital after duration of 24 hours. These could probably be cases that were referred from other health facilities.

In the present study an attempt was made to assess the time interval between the onsets of the trauma to the time taken for the patient to reach the hospital. This is an important feature that a direct bearing on the outcome, because as per Stewart et al “a delay for splenic injuries in particular of greater than six hours is associated with significantly increase in morbidity [9]. We observed that almost 57% of the cases were brought to the hospital within 6 hours of injury. Less than 43

percent cases were brought more than 4 hours after the injury, out of which 6 cases [20%] who were referred from other medical centers were brought after 24 hours of the onset of trauma. Here we compare this with Ahmed H et al. study.

CLINICAL SIGNS

With reference to the clinical signs, a majority of cases presented with abdominal tenderness while 40 percent of all the studies cases had a soft and non-tender abdomen. For those with a tender abdomen, the most common feature was either a diffuse tenderness in the abdomen or, a combination of hypogastric and / or epigastric tenderness.

Muscle guarding and was observed in 36.67 percent of cases, while about 16.67 percent of the cases presented with distension of the abdomen. Muscle rigidity observed in only 3.33 percent of the cases. Other presentation such as scrotal swelling, restricted movements of the hip joint, subcutaneous emphysema on the chest wall, etc. were case specific and do not merit generalization.

Clinical signs	Number of cases	Percentage
Soft and non tender	12	40 %
Distension	5	16.67 %
Tenderness	18	60 %
Guarding	11	36.67 %
Rigidity	1	3.33 %

INVESTIGATIONS:

Routine laboratory investigations were performed in all the cases. X-ray chest and the abdominal region and spine were also performed as and when indicated. Diagnostic peritoneal Lavage was not performed in any of the cases studied.

ULTRASOUND

Ultrasound was performed in all the 30 cases.

CTSCAN

CT scan was not indicated / nor performed in almost 90 percent of the cases studied. CT scan performed in 10 percent of cases in which splenic injury is present on ultrasonography.

Not indicated / not performed = 27 cases [90 %]
 Performed = 3 cases [10%]

MANAGEMENT:

A large number of cases could be managed conservatively .All the Patient Of Splenic Injury Required Hospitalization. Almost 10 percent of the cases required operative procedures. A laparotomy had to be performed in almost all the hospitalized cases that needed surgical intervention. This was associated with other specific operative procedures depending on the nature of the findings.

Total number of cases – 30
Treated conservatively = 27 cases [90%]
Treated operatively = 3 [10%]

Discharged- 22 cases [73.33 %]
 Discharged- 2 cases [6.66 %]
 Expire- 5 cases [16.67%]
 Expired – 1 case [3.33 %]

Total number of patient discharged – 24 cases [80 %]
Total number of patient expired - 6 cases [20 %]

Out of the 30 cases of splenic injuries 23 were managed successfully by conservative management. While some research studies have documented that ages greater than 55 years are often associated with high failure rates [10], others have refuted that observation. However, Since the 1990s, non –operative management of splenic injuries has become a standardized approach [11]

Mortality

The overall mortality in our study was about 20 percent which is similar to the findings reported by Davis et al [13.3%] and comparable to those reported by DiVincenti et al [16%]^[35]

Table 4. Deaths attributable to abdominal injury as per divincenti study

Therapy	Number	Deaths	Deaths attributable to abdominal injury

Died in emergency room	15	15	6
Admitted for observation	153	3	0
Negative laparotomy	40	2	0
Surgery, no repair necessary	30	4	2
Surgery, repaired is required	199	34	15
Total	437	58(13.3%)	23(41%)

CAUSES OF MORTALITY IN OUR STUDY:

1. Due to multiple rib fractures with lung contusion injury with hemothorax with bilateral lower limb amputation due to crush injury.
2. Due to hemodynamic instability patient is operated.
3. Due to multiple rib fracture with hemothorax and lung injury.
4. Due to head injury with electric shock and patient is expired due to shock and hemorrhage due to head injury.
5. Due to multiple rib fracture with hemothorax and lung contusion injury.
6. Due to late presentation to hospital after 5 days and patient is expired due to shock and MODS following hemorrhage due to splenic injury.

CONCLUSION

- Blunt trauma to abdomen constitutes a major public health problem.
- Males are predominantly affected. Most of the cases occur in the age groups of 21-40 years, which constitute the young and productive group of the society.
- Road traffic accidents are the commonest mode of injury.
- Conservative management by repeated clinical examination aided by better diagnostic modalities is gaining increased acceptance. However operative management remains the main stay of treatment in selected indicated patient.
- A through and repeated clinical examination and appropriate diagnostic investigations at appropriate time is an important factor in decision making and hence successful management in these patients.
- Repeated and careful examination is required when patients are treated conservatively.
- Detailed history, careful and repeated examination can often reveal the extent of injury in most cases.
- Ultrasound examination gives a clear picture of solid organ injury and free fluid in majority of cases.
- spleen is the most commonly affected organ and majority of such cases can be conservatively.
- Fully equipped trauma care centers should be established at least at every district hospital to take care of early management, arrangements of early transport of patients in fully equipped ambulance from accident site to primary trauma center and subsequently after primary stabilization and care from primary trauma center to tertiary center is helpful in decreasing mortality and morbidity.
- Associated extra abdominal injuries like head, chest, and orthopedic can greatly influence the outcome.
- Looking to the epidemiological trends of such injuries, it is important for policy makers to initiate public awareness and sensitization programmes to educate young people about safe driving and safety on the roads.
- Traffic rules need to be implemented strictly to prevent accidents that cause a heavy economic burden on the society because a majority of the cases are young people who contribute directly to the economic development.
- There is also need for formulating appropriate clinical guidelines and standard operating procedures for medical practitioners at the peripheral levels, so that such cases can be properly managed and stabilized before being referred to tertiary care centers. This can positively affect the outcome of such cases.
- The need for better communication, coordination and referral support for better management of such of trauma can never be overemphasized.

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