

Hollow Viscus Injuries Due To Trauma

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Abstract

Background: Hollow viscus injuries can be due to traffic accidents, fall from the height, and fall of heavy objects leading to trauma. Abdominal trauma is the most common with Injuries pertaining to Gastro-Intestinal tract from the cardiac end of the esophagus to the anus, gall bladder, and biliary tract and lower genitourinary tract. The aim of the study is to study the modes of trauma, clinical features of hollow viscus injuries, and the diagnosis and management of hollow viscus injuries. **Subjects and Methods:** This was a hospital-based cross-sectional study. conducted over a period of one year from June 2018 – May 2019. at Department of General Surgery on 90 patients with hollow viscus injury. After initial resuscitation of the trauma victims, a careful history was taken to document any associated medical problem. The collected data was analyzed with respect to the presentation by the patient's age and sex incidence, etiologies, pathological features, morbidity, and mortality associated with causation and management. The ultrasound and CT- Scan were done to assess the injury and plan accordingly before taking up for the surgery. **Results:** The majority of the patients belonged to the age group of 21 – 30 years and the least pertaining to the age group of 41 – 50 years of age group. The Incidence in Males is much more than females. The males were 74% and females were 26%. The most common causative agent of hollow viscous injury was a Road traffic accident with 59%. Majority of the patients who were admitted more than 24 hours after the injury, the mortality rate was much higher compared to the patients who were admitted in less than 24 hours of the trauma. **Conclusion:** HVI is a dangerous condition. High mortality rates represent the seriousness of HVI and related injuries. Patients of HVI should be carefully monitored for associated injuries and complications.

Keywords: Hollow viscous injury, blunt injury abdomen, Ultra Sonography

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Introduction

Traumatic injuries are the leading cause of death in the world and it accounts for substantial morbidity in the population. Hollow viscus injury (HVI) following blunt abdominal trauma is an infrequent diagnosis that is usually inflicted by forceful mechanisms that cause serious associated injuries.^[1] The rate of hollow abdominal injury wounds varies from 4% to 15%.^[2] Patients of abdominal trauma often suffer from HVI. Such condition is not frequent in blunt abdominal trauma, because the injury should be severe. Solid-organ damage and consequent hemodynamic dysfunction have a higher priority for the management of blunt abdominal trauma, however, HVI is typically not assumed unless the clinical picture becomes highly suggestive. Delays in the diagnosis and treatment of hollow viscous injury are well known, leading to early peritonitis, hemodynamic instability, increased mortality, and morbidity. The reduction in the penetrating level of abdominal trauma and the increase in the rate of blunt abdominal trauma has resulted in hollow viscus injuries being increased.

Effective Diagnosis and treatment, therefore, remain the significant management component.

Managing blunt abdominal trauma triggering hollow viscus injury is a herculean task for both anesthesiologists and surgeons. The diagnosis of hollow viscus injury is delayed because the most apparent stable visceral injuries that frequently accompany it are managed non-operatively, and imagery studies (CT scans in particular) may not show them soon after the injury.

Early surgical intervention is of paramount importance in case of hollow viscus injury, in contrast to the non-operative management of total muscular visceral injury. Delayed diagnosis and consequently treatment increase morbidity and mortality.^[3,4]

Subjects and Methods

Place of Study: Department of General Surgery

Type of Study: Hospital-based cross-sectional study

Sample Collection: Sample size: 90 Patients with Hollow viscus injury

Sampling Methods: Consecutive sampling

Inclusion Criteria

Patients above the age of 11 years with blunt injury due to Road Traffic Accidents, Train Traffic Accidents or Fall from height or Fall of heavy objects were included in our study.

Exclusion Criteria

Patients below the age of 11 years, Genitourinary, biliary, & pancreatic injury, Injuries caused by blast injuries & gunshot injuries were excluded from our study.

Statistical Analysis

Data were presented in the form of statistical tables and charts. SPSS software version 20 was used for statistical analysis.

Ethical Approval

Approval was taken from the Institutional Ethics Committee prior to the commencement of the study.

Patients coming with blunt injury due to Road Traffic Accidents, Train Traffic Accidents, or Fall from height or Fall of heavy objects were admitted to the department of general surgery. Data collected with a detailed background, clinical investigations and radiological, serological, histopathological, and surgical results of those patients who were admitted. Post-operative follow up was done to note for complications. After the initial resuscitation of the trauma victims, a careful history was taken to document any associated medical problem. The collected data was analyzed with respect to the presentation by the patient's age and sex incidence, etiologies, pathological features, morbidity, and mortality associated with causation and management. The ultrasound and CT- Scan were done to assess the injury and plan accordingly before taking up for the surgery.

Results

The majority of the patients belonged to the age group of 21 – 30 years and the least pertaining to the age group of 41 – 50 years of age group. The Incidence in Males is much more than females. The males were 74% and females were 26%. The most common causative agent of hollow viscous injury was Road traffic accident with 59%.

The significant injury associated in trauma was Polytrauma with 26% followed by orthopedic injuries constituting 24%, Head injuries in 15% and the least being the thoracic injuries seen in 8% of the patients.

The majority of the patients around 67% were operated within 12 hours of the injury of the surgery. Only 1% of the patients were produced more than 48hrs after the damage due to conservative management as the risk was more complicated.

Table 1: Distribution of the patients with regards to age, gender and Causative agent.

Age group (yrs)	No. Of patients	Percentage (%)
11-20	21	21
21-30	34	34
31-40	26	26
41-50	8	8
>50	9	9
Gender		
Male	74	74%
Female	26	26%
Causative agent		
Road traffic accident	59	59
Train traffic accident	8	8
Fall from height	24	24
Stab Injury	9	9

Table 2: Associated injuries with trauma

Injuries	No. of Pts	Percentage
Head	15	15%
Thoracic	8	8%
Orthopedic	24	24%
Polytrauma	26	26%

Table 3: Latent Time, Time between injury and surgery

Hours	No. Of cases	Percentage
0-12	67	67%
12-24	30	30%
24-48	2	2%
>48	1	1%

Table 4: Mortality of patients based on reporting to the hospital after injury

Mortality	No. of patients	Percentage
Presentation <24 hrs	6	6%
Presentation >24 hrs	12	12%

Majority of the patients who were admitted more than 24 hours after the injury the mortality rate was much higher compared to the patients who were admitted in less than 24 hours of the trauma.

Discussion

Hollow Viscus Injuries are common in India following blunt trauma due to road and rail accidents and multiple stab injuries due to south Indian movies inspired scenes that portray extreme heinous crimes which goons are using to take out their threats or enemies. Morbidity and mortality are high and adverse CT-Scan are not adequate to exclude these accidents in some clinical scenarios. These incidents are often not suspected and are challenging to diagnose.

The majority of the patients were teenagers belonging to the young and productive age group of 21 – 30 years and the least pertaining to the age group of 41 – 50 years of age group.^[5-7] In Davis et al study the majority of patients belonged to 21-30 years age group.^[5]

The Incidence in Males is much more than females. The males were 74% and females were 26%. In Davis et al study the males were 70% and females were 30% which were similar to our research. As in India, males are the family's sole bread-earners and, most of the Time involved in outdoor work-related activities.

The most common causative agent of hollow viscous injury was Road traffic accident (RTA) with 59%.^[8] Davis et al & Khanna et al study also showed the most common causative agent of hollow viscus injury was RTA with 70% and 57% respectively.^[5,6] This is because of the rapid technological growth in all domains, including in the automotive industry, where speed rather than health has been the emphasis.

The significant injury associated with trauma was Polytrauma with 26% followed by orthopedic injuries constituting 24%, Head injuries in 15% and the least being the thoracic injuries seen in 8% of the patients. The Majority of the patients around were admitted within 24 hours of the damage.^[7-9] The majority, about 67% were operated within 12 hours of the injury of the surgery. Only 1% of the patients were produced more than 48hrs after the damage due to conservative management as the risk was more complicated. Majority of the patients who were admitted more than 24 hours after the injury the mortality rate was much higher compared to the patients who were admitted in less than 24 hours of the trauma. The most common cause of mortality was septicemia.^[10]

Conclusion

Hollow Viscus Injuries are common in trauma patients, many predictive factors for morbidity and mortality have been established and treatment delays have been described as a clear indicator of morbidity that significantly influences the post-operative path.

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