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Original Research Article

Hollow Viscus Injuries in Abdominal Trauma: An Observational Clinical Study

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Conflict of interest: Nil

Abstract

Background: In today's highly developed civilised society, trauma is thought to be the main factor contributing to morbidity and mortality.

Methods: In the current study, 50 cases of abdominal trauma (including blunt and penetrating wounds) were examined over a 12-month period in our institute.

Results: Males between the ages of 21 and 30 were most frequently impacted. Injury from a car accident is the most frequent type. 93% of patients experienced abdominal pain, and 86% report tenderness. An upright abdomen plain x-ray was effective at spotting hollow viscus damage. An ultrasound examination clearly showed free fluid and solid organ damage. Small bowel was the viscera that was most frequently injured in this study, and it was treated with straightforward anastomosis, resection, and closure of perforations. There were postoperative issues such wound infection, wound dehiscence, respiratory issues, pelvic abscess, and faecal fistula. Most of the patients in this study stayed between 11 and 20 days, with a mean of 15 days. In this trial, mortality was 4%.

Conclusions: Young boys are most frequently impacted by traffic accidents. The prognosis for penetrating abdominal trauma is made worse by factors such as small bowel injury, long time between injury and operation, presence of shock at admission, and female gender.

Keywords: Wound Dehiscence, Respiratory Issues, Developed Civilised Society.

Introduction

Due to advancements in industries and human lifestyle, trauma is the primary cause of mortality and morbidity in daily life. The third most frequently injured organ after head and chest injuries is the abdomen.[1,2].

In hospital emergency rooms, blunt as well as penetrating injuries are not uncommon. Solid viscera are the most often injured organs after trauma, and several analytical studies have been conducted on them. However, hollow visceral injuries, which result in higher blood

loss and contaminated bowel damage, are common and equally or more lethal than solid visceral injuries.

Injuries to the lower genitourinary tract, liver, biliary tract, and cervical portion of the oesophagus are referred to as hollow viscus injuries in abdominal trauma.

A serosal rupture or a full transection of the gut or tracts are examples of injury. Except for blunt abdominal injuries, which may be silent at first but result in a deadly consequence later as time passes[3], the majority of injuries other than abdominal injuries manifest themselves more quickly.

The type of the injury, a thorough clinical history and examination, and straightforward radiographs can all aid in the diagnosis of many patients with hollow visceral injuries with reasonable accuracy, even when using the most modern procedures and cutting-edge technology like ultrasound, CT scan, MRI, and endoscopy.

The morbidity and mortality will eventually rise with any delay in diagnosis. Because abdominal hollow visceral injuries are so common these days, a general surgeon should be able to clinically suspect and treat trauma, especially those associated to them. This study is done in order to understand the prevalence of abdominal trauma, vast intra-abdominal organs injured in penetrating and blunt abdominal injuries, and their various consequences.

Materials and Methods

This was a 12-month prospective observational study of 50 patients with abdominal trauma from accidental falls, assaults by various objects, interpersonal violence, and traffic accidents in Government Medical College and Attached Hospitals, Kota, Rajasthan. The patients were admitted with blunt or penetrating abdominal trauma.

Patients with traumatic abdominal discomfort but did not have radiological or intraoperative signs of hollow viscus injuries were not included in the study.

Following approval by the institutional ethical committee, a thorough history of the injury's occurrence, type, cause, location across the abdomen, and interval from injury to admission was recorded. All patients underwent in-depth clinical examinations. Regular blood and urine tests were conducted. As needed, additional blood tests, plain X-rays of the abdomen, abdominal ultrasonography (USG), and X-rays of the chest, abdomen, and pelvis were performed. I.V. fluids and blood transfusions were initially used to revive shock patients. To offer stomach decompression and bowel rest, nasogastric tube aspiration was performed on each patient. The bladder was catheterized so that urine output could be watched, particularly in patients who had shock. Patients with increased heart rates and who had increased abdominal distention and pain were shifted for surgical management.

The abdominal viscera, both solid and hollow viscus, were extensively examined for pathology in almost all instances after wide, vertical abdominal incisions. Patients were treated post-operatively with nasogastric aspiration, intravenous fluids, and antibiotics. Patients were regularly observed and evaluated for recovery and complications, which were effectively managed. Percentages of all participants were used to calculate the results. Additionally, results were compared in accordance with differences in age and gender in the data that were internally compared.

Results

One patient out of the 50 who were studied was under 20 years . 54% of patients are in the age group of 21 to 30 years, which demonstrates the higher occurrence of RTAs and assaults and consequently higher abdominal trauma in this group. Age groups of 31 to 40 years had 26% of patients, whereas 41 to 50 years had only 18% of patients, demonstrating the decline in the incidence of the triggering factor with advancing years.

88% of the patients were men, and 12% were women. The most frequent cause of injury (61%) is from traffic accidents. The cause of 72% of patients' hollow viscus injuries was blunt trauma.

The most prevalent symptom was abdominal pain (88%) and the most prevalent sign was abdominal tenderness (72%). The majority of patients (46%) were taken for surgery during the latent period of 12 and 24 hours. Air under the diaphragm was the most frequent finding in erect chest x-rays (62% of patients). 16% of patients had no identifiable findings. 8% of patients did not have an X-ray because of their hemodynamic unstability.

Table 1: Radiological findings based on x-ray abdomen erect

Findings	No. of Patients
Air under diaphragm	31
Dilated bowel loops	3
Ground Glass Appearance	4
No abnormality detected	8
Not taken	4

The most frequently affected organ in patients with blunt abdominal trauma was the jejunum, followed by the ileum. In 36 cases of blunt trauma, jejunal and ileal lesions made up 16 and 13, respectively.

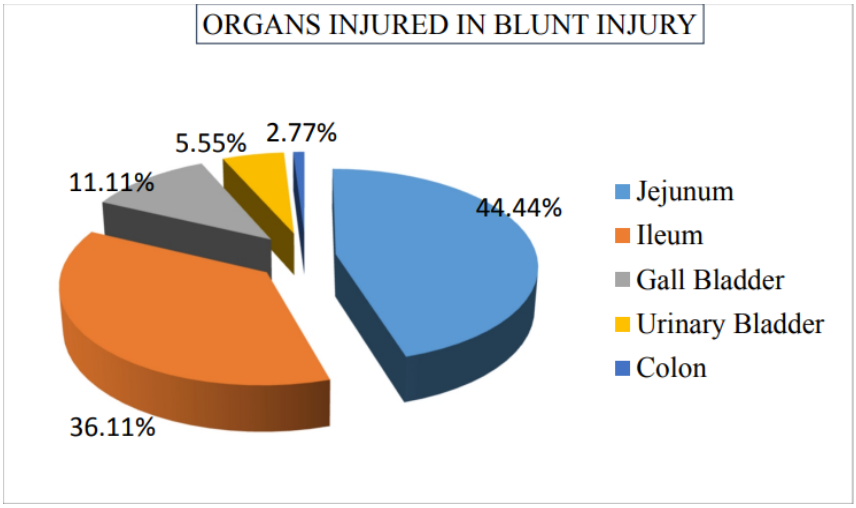

Figure 1: Organs injured in blunt injury

In traumatic penetrating abdominal injuries, ileum was found to be the most common organ injured followed by jejunum. Out of the 14 patients with penetrating abdominal trauma 6 had injury identified in ileum and 4 in jejunum.

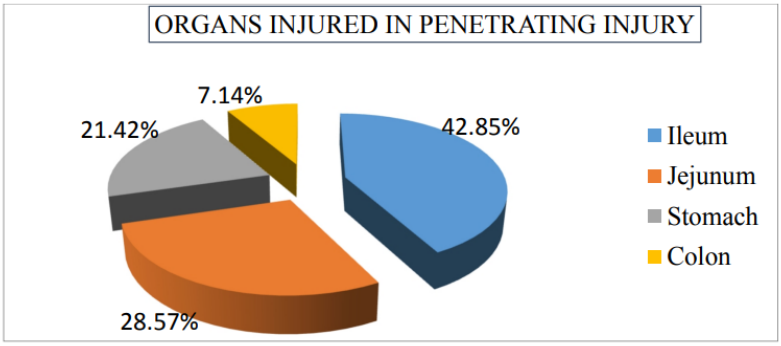

Figure 2: Organs injured in penetrating injury

The most frequent techniques used to treat gastrointestinal injuries include anastomosis, serosal tear repair and resection, omental patch closure of perforation, and primary closure of perforation. Twenty of the 44 individuals with these injuries underwent primary perforation closure. Resection and anastomosis were done in 10 instances. Five occurrences of serosal tears had straightforward repairs.

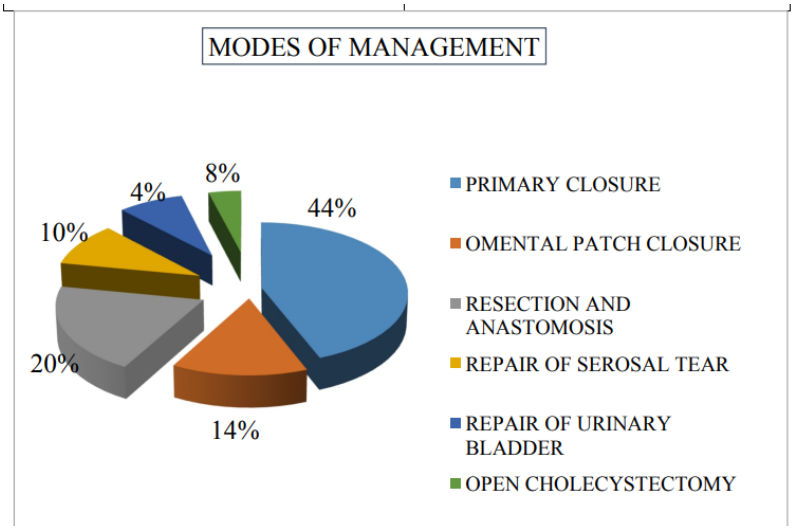

Figure 3: Modes of management

` Figure 4: Traumatic small bowel perforation

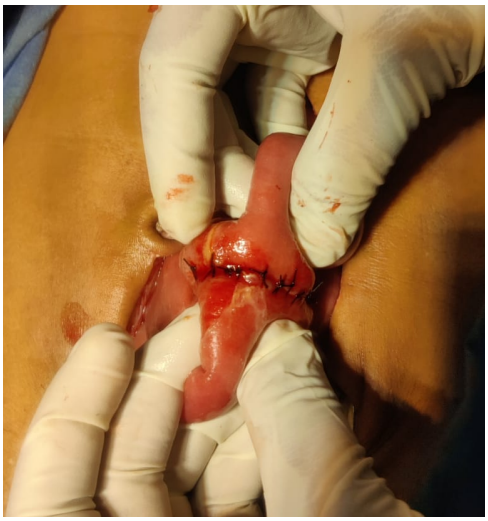

Figure 5: Primary Repair of perforation

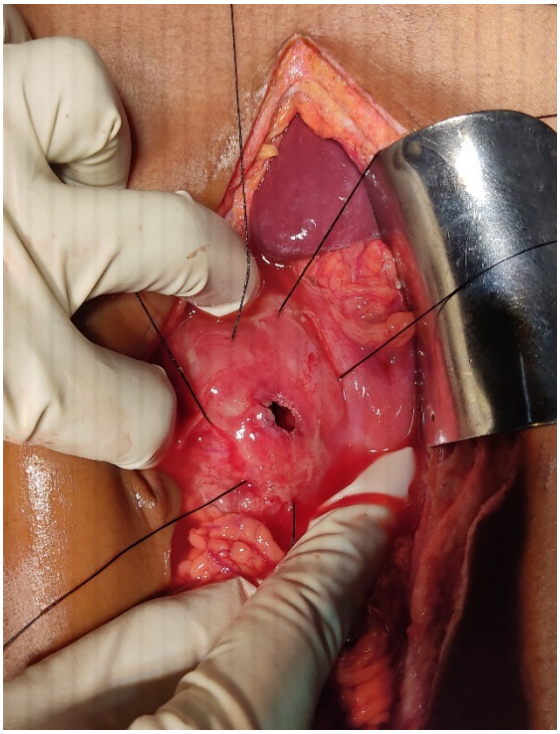

Figure 6: Omental patch repair of peptic perforation.

Nearly all patients had uneventful postoperative periods, and two patients passed away during this time. One patient suffered a severe injury after falling from a height, developing an ileal injury that required resection and anastomosis; unfortunately, the patient passed on the day of the procedure. Another patient was admitted after being assaulted with a blunt injury, had ileal perforation repair and anastomosis, and died three days later from myocardial infarction.

Discussion

The study's age range is 15 to 50 years. The fact that 27 of the 50 patients were in the 21–30 age range shows that young individuals are more vulnerable to blunt and penetrating

damage. This age group is the most prolific. This study can be compared to studies [1-3].

From the 50 cases examined, 44 were men and 18 were women. This is identical to a research by Khadilkar, which likewise revealed that males were more likely than females to suffer blunt abdominal trauma [1].

Our analysis reveals that the most frequent cause of blunt abdominal injuries was automobile accidents (61%). According to other studies, RTA was to blame for 62% to 70% of cases of blunt traumatic abdominal injuries[1].

Abdominal discomfort was the most prevalent symptom in the current study (88%). The results are close to those of studies by R.B. Dhaded and Dr. Vidhuta, which found that abdominal pain affected 85% and 96% of patients, respectively[4,5].

Abdominal tenderness (72%) is the most prevalent clinical sign in the current study. The results of our study are close to those of Tripati's study [5], which found that in 80% of their patients, tenderness was the most prevalent sign. The majority of patients in our study (46%) were taken for surgery between 12 and 24 hours after their initial appearance. These results concur with other studies[4-6].

In the current study, an abdominal plain x-ray was taken of each patient. Air under the diaphragm was the most frequent finding in erect chest x-rays (62% of patients). The accuracy of an abdominal x-ray in detecting Hollow viscous injuries was reported to be 100% in another study by Mohapatra [7].

The small bowel was most frequently affected in this study. While ileum was shown to be the most frequently wounded organ in penetrating abdominal injuries, jejunum was revealed to be the most frequently affected organ in individuals with blunt abdominal trauma. This finding is contrasted with a study by Allen and Curry[8], which revealed that small intestinal involvement occurred in 35.3% of cases.

Small intestine (ileal > jejunal) injury was described in 45 cases by R. S. Raikwar, or 18% of all hollow viscous injuries in abdominal trauma patients[9].

The most frequent surgery was primary closure of perforations. This is comparable to Khanna's work, in which 13 patients had their intestinal perforations repaired[10]. Results are comparable to those of research by Sreenidhi G., which revealed that 54% of patients had closure of their intestinal perforations [11].

Conclusion

In the current study, men are more frequently impacted. The most frequently afflicted age group, 21 to 30, was young adults. Injury from a car accident is the most frequent type. The most typical symptom and presenting sign are abdominal pain and tenderness. Although absence of gas under the diaphragm does not rule out the potential of hollow viscus perforations, X-ray chest was sensitive in detecting hollow viscus injuries. Small bowel injuries were the most frequent visceral injuries in the current investigation, and they were treated with straightforward suturing, perforation closure, resection, and anastomosis.

In this trial, mortality was 4%. The prognosis for penetrating abdominal trauma is made worse by factors such small bowel injury, long time between injury and operation, presence of shock at admission, and female gender. It is important to take action to stop these mishaps and care for the injured right away. Every district hospital should have well-established trauma centres, at the very least. It is important to take steps to get patients from the accident scene to the trauma centre as soon as possible.

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