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A Study on Pattern of Hollow Viscus Injuries In Abdominal Trauma, Trauma Care Centre

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Abstract: *Hollow viscus injuries in abdominal trauma are frequently overlooked leading to increased morbidity and mortality. . The diagnosis of hollow viscus injury with advanced diagnostic tools and management of trauma by conservative and surgically by laparotomy Complications like wound infection, dehiscence, respiratory, renal injuries and pelvic fracture are properly managed by multi-specialty approach in our college to reduce*
mortality . Post operative infections and wound dehiscence are common in blunt abdominal trauma By analyzing the data the common etiologies of HOLLOW VISCUS PERFORATION, the most appropriate modality of investigation, treatment, and complications associated with different management modalities and possible ways to prevent them were studied. Road traffic accident was responsible for 63% of blunt abdominal trauma cases, while stab injury responsible for 29% ,third common was fall from heights accounted for 4% of cases and Bull gore was responsible for 2% of injuries, Crush injury was responsible for 2% of injuries Thus, this study is intended to throw light upon the prompt diagnosis and management of hollow viscus injuries in trauma

Keywords: *Abdominal trauma ,hollowviscus injury pattern.*

I. Introduction

Hollow viscus injuries in Abdominal trauma accounted for approximately 12.5% of all male deaths, compared with 7.4% of female deaths[1]. The risk of death from injury varied strongly by religion,age, and sex. Approximately 2 male deaths due to violence were reported for every female death. and correction of anatomy The diagnosis of hollow viscus injury with advanced diagnostic tools and management of trauma by conservative and surgically by laparotomy. Hence such injuries are frequently overlooked leading to increased morbidity and mortality. Thus, this study is intended to throw light upon the prompt diagnosis and management of hollow viscus injuries in trauma.

II. Materials And Methods

2.1Source of Data

Patients admitted in Govt. Rajaji Hospital, Madurai small bowel perforation.

2.2.Methods of Collection of Data

Data collected with meticulous history taking, clinical examination and appropriate radiological, serological, histopathological and operative findings.The collected data analyzed with respect to the presentation by the patient, age and sex incidence, etiologies, pathological features, morbidity and mortality associated with the causation and management.By analyzing the data the common etiologies of HOLLOW VISCUS PERFORATION, the most appropriate modality of investigation, treatment, and complications associated with different management modalities and possible ways to prevent them will be studied.

2.3.Inclusion Criteria

Patients aged > 11 years. Patients presenting with gastrointestinal perforation. Patients presenting with history of RTA, stab injuries, fall from height & mechanical crush injuries.

2.4,Exclusion Criteria

Genitourinary, biliary, & pancreatic injury. Injuries caused by blast injuries & gunshot injuries.

Investigations required:

Routine blood investigations like CBC, Random blood sugar, Bleeding time, Clotting time. Blood grouping and Rh typing

Renal function tests, Serum electrolytes and LFT

X-ray erect abdomen.
Ultrasound abdomen
Computed tomography of abdomen Histopathological Examination
Chest radiograph, ECG

III. Observation And Results

Most of the patients admitted to this hospital came from rural areas. Most of the patients were from low socio economic status, illiterate, anaemic , malnourished and were solely responsible for their family earning. Because of this, the disease not only caused physical and mental problem but they also had serious repercussion, psychological as well as economical on the whole family.The majority of the patients belonged to 21-30 years age group,

followed by 11-20 years age group.In the 51 cases studied, 42 cases were males, with females accounting for only about 9 cases. Road traffic accident was responsible for 63% of blunt abdominal trauma cases, while stab injury responsible for 29% ,third common was fall from heights accounted for 4% of cases and Bull gore was responsible for 2% of injuries, Crush injury was responsible for 2% of injuries.

Most common symptom was pain abdomen about 100%,second most common was not passing flatus about 78%. Average latent period seen in the present study is between 6 10 hours. Majority of patients (47%) were taken for surgery between 6- 10 hours of latent periodPlain x ray of abdomen was done in 43 cases, out of the total 51 cases. This was not done in 8 patients as the patient's condition did not permit to shift them to the x ray room or they died while being resuscitated for shock. Gas under diaphragm was found in 38 cases out of 51 bowel perforations detected at laparotomyFour quadrant aspiration was done in 32 patients, among which 20 cases were positive and 12 cases were negative. Out of the 12 negative cases, 3 cases were false negative. On laparotomy, they were found to have hemoperitoneum Diagnostic peritoneal lavage was done in 15 cases, out of which 9 were positive and 6 were negative. All positive cases showed significant injury at laparotomyA total of 43 patients were subjected for ultrasound examination, out of which 33 patients had scan detected hollow viscus perforation and associated solid organ injuries and other system injuries for which they underwent laparotomy and found to have significant injuries. Ten patients had scan detected normal solid organs with free fluid, decreased peristalsis and found to have hollow viscus injury at laparotomyLiver injuries were usually graded as I and II. Of all patients with liver injury, only 6 patients underwent hepatorraphy with spongistan packing and rest of them were treated with spongistan packing alone. Out of 5 patients with splenic injury, 3 patients underwent splenectomy and 2 were managedconservatively. All 51 bowel perforations were treated with 2 layered closure, with only 3 patients requiring resection and anastamosis. Omental and mesenteric injuries were treated by simple suturing and ligating the bleeding points A total of nine patients died in the present study.

Seven patients belonged to operative group and died in the post operative period, majority of them due to peritonitis and septicemia. This shows the disadvantages of management like associated, delayed treatment and management. Therefore the mortality in the present study is 13.7%.

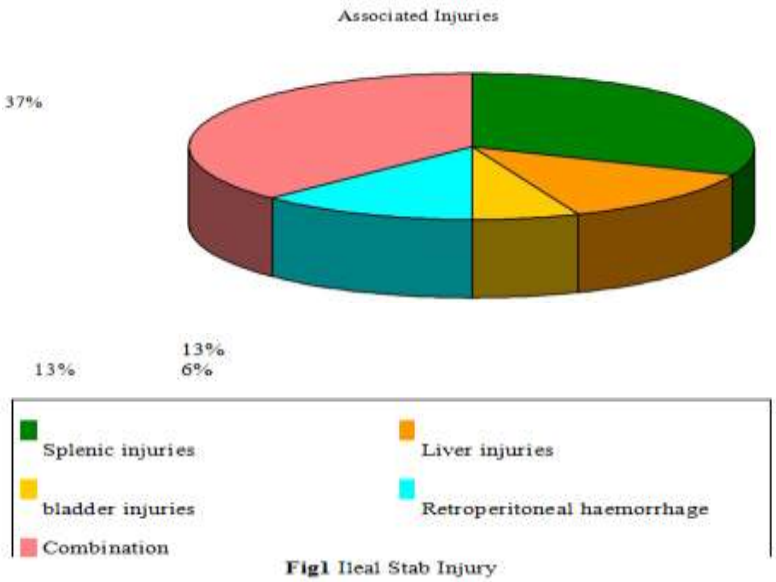
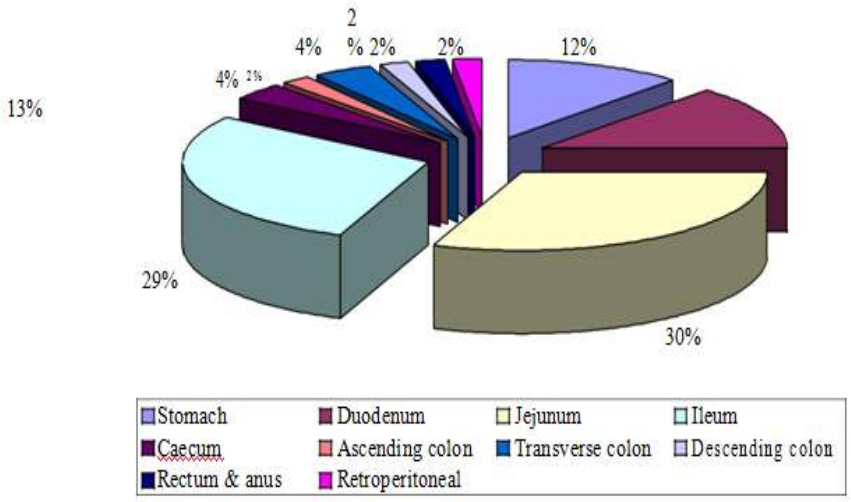
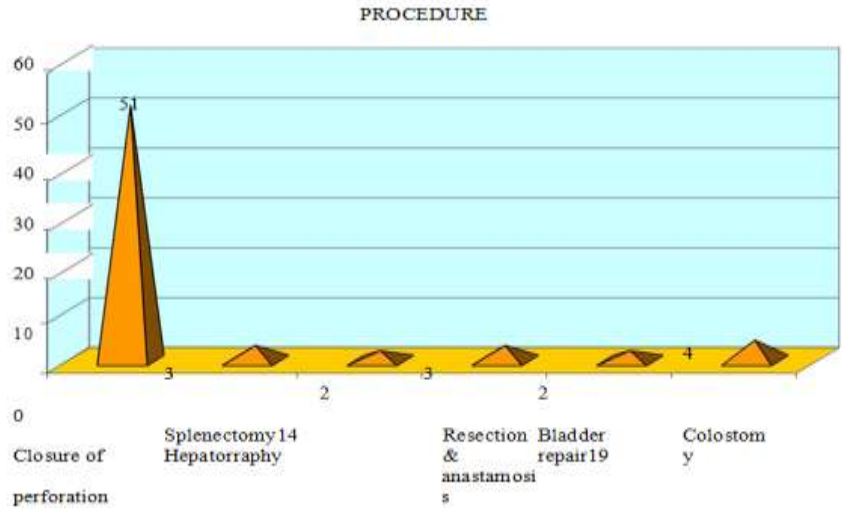


Fig1 Ileal Stab Injury





IV. Discussion

The majority of patients belonged to 21-30 years of age group, followed by 11-20 years age group. In Davis et al5 study the majority of patients belonged to 21-30 years age group. Therefore it can be concluded that the young and the productive age group people are the usual victims of abdominal trauma.males are the more common victims of blunt abdominal trauma. When compared to other studies the incidence of males is much more than those of the females, as, in India males are the chief bread winners for the family and are involved in outdoor activities most of the times.there is an increasing trend towards conservative management; however the

present study shows that 26% of patients were subjected for non operative management. Davis et all[5] showed 23% and Khanna etall[31] showed that 43% of patients were subjected for conservative management. Non operative management is gaining increasing acceptance mainly because of the easy availability of CT scan. With the aid of CT scan it is possible to accurately grade the extent of injury to solid organs like liver and spleen. Minor lacerations and capsular tears, difficult to diagnose clinically can be easily demonstrated by CT scan and selected for non operative management. The disadvantages of non operative management are those of missed injuries and delayed treatment resulting in excessive morbidity and mortality. road traffic accidents are the first common mode of injury. This is due to the rapid development in technology, in all field including automobile industry where the first priority has been given to speed rather than safety.abdominal pain was the most common presenting complaint accounting for 100% and abdominal tenderness was the most common sign accounting for 53% of cases. But the signs and symptoms in abdominal injuries are notoriously unreliable and are often masked by concomitant head injuries, chest injuries and pelvic fractures. Significant injuries to the retroperitoneal structures may not manifest with signs and symptoms immediately and be totally missed even on abdominal x rays and DPL predisposing the patients to grave consequences of missed injuries. In Davis et al5 study, 43% of patients had no specific complaints and no signs or symptoms of intra abdominal injury when they first presented to the emergency room. But 100% of those patients eventually required exploratory laparotomy and almost all of patients had an intra abdominal injury. This emphasizes the importance of careful and continuing observation and repeated examination of individuals with abdominal trauma.Latent period is the interval between the time of injury to the time of surgery. About 47% of patients were taken for surgery between 6-10 hours and 20% of patients between 1-5 hours of injury. This time lag is due to the site of accidents, which are usually rural, and the time taken to transport them to thehospital. 2 patients (4%) were taken for surgery after 2 days of injury as they were initially put on conservative management. Since their condition deteriorated on repeated clinical examinations, they had to be taken up for delayed exploratory laparotomy

The common extra abdominal injuries were extremity chest injuries including rib fractures In the present study closure of bowel perforation was done in all patients, colostomy in 4 patient, , splenectomy in 3 patients, splenorrhaphy in 2 patients, hepatorraphy in 2 patients and resection and anastamosis in 3 patients. In Khanna et al6 study closure of bowel perforation was done in 13 patients, colostomy in 2 patients, repair of mesentery in 9 patients, splenectomy in 4 patients.In the present study 63% of patients were subjected for four quadrant aspiration as against 44% in Davis et al study. 20 cases were fou nd to be positive and 12 cases were negative in the present. Therefore the sensitivity of this investigation in the present study is 40%. Correct results (positive or negative), as determined by subsequent lapar Diagnostic peritoneal lavage was done in 15 cases, out of which 9 were positive and 6 were negative. All positive cases showed significant injury in the present study is 60%. But the sample is very small to compare the results with other studies.A total of 7 patients died in the present study. All patients belonged to operative group and died in the post operative period, majority of them due to peritonitis and septicemia.This shows the disadvantages of conservative management Associated extra abdominal injuries were found in 29 cases.. The above table shows the comparison of the present fractures, pelvic fractures, head injuries and study incidences of associated injuries with other studies

V. Summary And Conclusions

Males are predominantly affected. It is mostly seen in the age group of 21-30 years which form the young and reproductive group. Well established trauma care centers should be established at least at every taluk hospital. Measures for early transport of the patients from the accident site to the trauma care centers to be undertaken.A thorough and repeated clinical examination and appropriate diagnostic investigations lead to successful treatment Though operative management remains the main stay of treatment. Plain erect x ray abdomen shows gastrointestinal injuries as gas under diaphragm, ultrasound examination gives a clear picture of solid organ injury and HVP as free fluid, four quadrant aspiration is a simple and an important tool for diagnosis. But better results are given by Diagnostic peritoneal lavage but it was performed for few cases. In multiple organ injuries diagnosed by CT more accurately.The most common injured viscera in the present study is small bowel and they were managed by simple suturing.Splenic injury is the second most commonly injured organ and majority of them were managed by splenectomy because of mode of injury. Liver injuries occupy the third position and managed by hepatorraphy and spongistan packing. Retroperitoneal hematoma was seen in a small proportion of patients associated with injuries that were encountered were treated conservatively. Multiple organs were involved in most of injuries. Associated extra abdominal injuries like head, thoracic and orthopedic injuries were found in cases in the present study.Complications like wound infection, dehiscence, respiratory, renal injuries and pelvic fracture are properly managed by multi-specialty approach in our college to reduce mortality . Post operative infections and wound dehiscence are common in blunt abdominal trauma The present study showed a mortality of 13.7% with compare to other studies performed nationally as well as internationally are very near to this value.

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