

An Analytical Study on Penetrating Injuries of Abdomen in Tertiary Care Hospital

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ABSTRACT

Background: Abdominal injuries due to penetration of sharp objects are one of the important causes of surgical emergencies. Sharp objects may be knives, iron rods, gunshot injuries. These injuries are commonly observed young males than females. Severity of injury depends on circumstances like, sharp object, force. The injury maybe deep lacerated or it may perforate bowl or any other organ like liver, spleen, stomach or sometimes blood vessels. Gunshot injuries may cause severe bleeding and immediate mortality. The mortality also depends on depth of injury and size of injury, loss of blood and number of injuries. The common age group involves between 20 years and 40 years.

Aims: To know the incidence, pattern of injuries, Management of penetrating injuries in a tertiary care hospital.

Materials and Methods: We have conducted this study for 1 year 6 months from November 2018 to March 2020 in Krishna Mohan Medical College, Madhura, in the department of General Surgery. We have examined 85 patients out of those 85 males were 67 and females were 18 in number the common age group is between 20 years and 40 years. Mortality in our study is 16 number. (14.7%).

Results: The number of patients include in the study is 85. Males were 67 and females were 18. The common age group is between 20 years and 40 years. The intestine was most

commonly injured organ. In laceration of lever was observed in 7 cases, spleen was injured in 5 cases. The mortality in our study was 14.7%.

Conclusion: Penetrating abdominal injuries are very common in surgical practice. Stab injuries are very common. Diagnostic laparotomy is important tool in diagnosis and management. The most important factors in the mortality are blood loss, number of injuries and size of injuries.


Keywords: Abdominal Wall, Penetrating Injury, Perforation Mortality.

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INTRODUCTION

Penetrating abdominal injuries are one of the common surgical emergencies in India and worldwide also most of the injuries are caused by stab injuries, accidental, and gunshot wounds. Young males are commonly affected Homicidal stab injuries are most common type of injury. Self-inflicted stab injuries are also seen sometimes, but it is very low 1.5% - 1.9%.¹ The organs most commonly involved are Intestine, penetration of peritoneum, Liver, Spleen. Penetrating injuries may lead to peritonitis, Haemorrhage with shock, and infections.² The management of penetrating abdominal trauma in the presence of shock or physical findings hot peritonitis should be immediate laparotomy.

The technical advances in imaging and the appropriate use of blood transfusions and antimicrobials have helped in the selective approach to these injuries. In 1960, through their landmark article,

Shaftan from the Kings County Hospital Centre in Brooklyn suggested selective management of patients with stab wounds after observing an increased rate of negative laparotomy in civilian setting which was reinforced by Nance and Cohn in 1969. According to Inaba and Demetriades, selective non-operative management of both stab wounds and gunshot injuries is safe and has been shown to decrease the rate of unnecessary laparotomy, length of hospital stays, and management costs.

MATERIALS AND METHODS

We have conducted this study for 1^{1/2}year from November 2018 to March 2020, Krishna Mohan College, Madhura, in the department of General Surgery. We have included 85 patients out of those 85 males were 67 and females were 18 in number. We have obtained

informed consent from the relatives of the patients. After careful history and clinical examinations, the Blood was drawn and send for complete Blood picture, Blood grouping and Cross matching, Blood sugar, Blood urea, Serum creatinine, x-ray erect abdomen, ultrasound abdomen and CT scan abdomen. Based on clinical signs and symptoms, haemodynamic, and imagining features patients were either managed conservatively in the trauma intensive care unit or underwent emergency laparotomy. After collection of data systematically, it was computerised by using Ms office.

Table 1: Age Differentiation

Age in Males (65)	No. of (%)	Age in Females (18)
20-29	22 (33.4%)	8 (44.5%)
30-39	19 (29.2%)	5 (27.7%)
40-49	15 (23.7%)	3 (16.65%)
50-60	12 (18.4%)	2 (11.6%)

Table 2: Different Causes of Injuries

Causes of Injuries	No. of Males (67)	No. of Females (18)
Stab Injury	32 (49.2%)	8 (44.5%)
Accidents & Falls	17 (26.1%)	5 (27.8%)
Gunshot Injuries	11 (16.9%)	3 (16.7%)
Others	7 (10.8%)	2 (11.2%)

Table 3: Different Organs Injured

Organs effected	No. of pts (M)	No. of pts (F)
Intestine	29 (44.8%)	9 (46.5%)
Peritoneum	26 (40.5%)	4 (22.5%)
Liver	7 (10.7%)	3 (16.7%)
Others	5 (7.8%)	2 (11.2%)

Chart I: Sex Differentiation

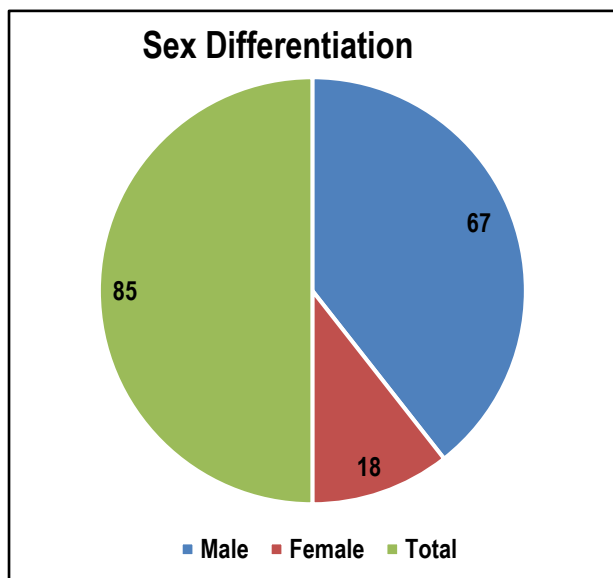


Chart II: Different Age Group Male

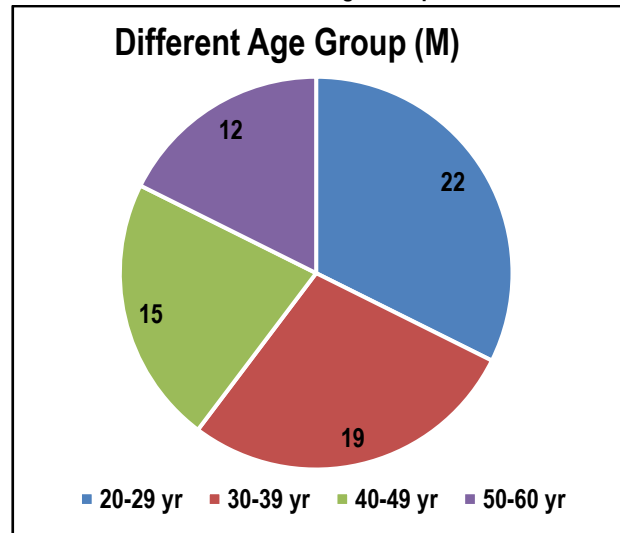
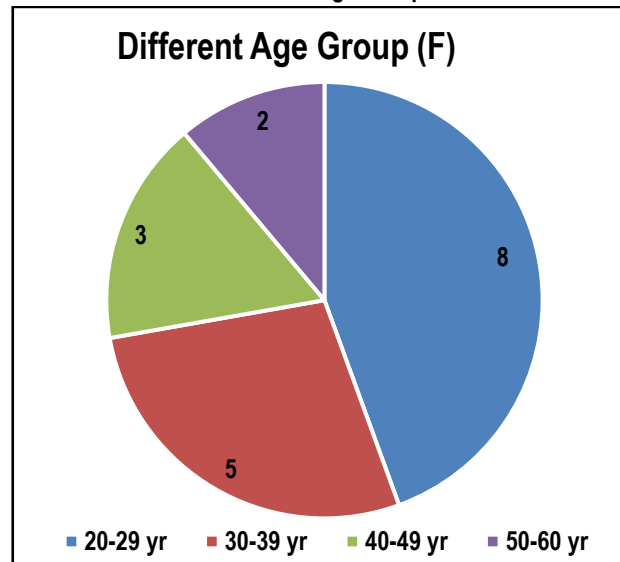


Chart III: Different Age Group Female



RESULTS AND DISCUSSION

The total number of patients included in this study are 85. Males were 67 and females were 18. The common age group is between 20 years and 40 years. Since crime rate is very high among young age group and males are commonly involved than females nearly more than 80% the studies conducted by Moore et al shows nearly similar results (Males are affected 83.5%).³ The common causes of penetrating injuries in our study are stab injuries (49.2%) in males and (44.57) in females; accidents and falls are (26.1%) in males and (27.8%) in females gunshot injuries are (16.9%) in males and (11.2%) in females. The observations made by Salim et al shows penetrating injuries are due to (32%) stab injuries and accidents.⁴

The organs injured in penetrating injuries are intestine, peritoneum, liver, Spleen. In our study intestines injured in 44. 8% in males and 46. 5% in females; peritoneum injured in 40. 5% males and 22. 5% in females; Liver injured in 10. 7% males and 16. 7% in females. The study conducted by Steed G et al shows intestine in 36.7% and peritoneum44.95%.⁵ The Mortality in our study is 14.7%. The main causes of mortality in our study are massive Haemorrhage. delayed transport of the patients and comorbid conditions and sometimes multiple organ injuries.⁶

Penetrating injuries are very common emergency condition in surgical practice. Young age males are most commonly involved. Injuries maybe simple lacerated, deep multiple lacerated wounds, which may lead to death of the patient immediately. Injuries maybe due to knives, sharp objects, and most of the injuries are homicidal.⁷ The technical advance in investigations like US abdomen/ MRI, blood transfusion and use of antibiotics have helped in the selective management to these patients.

32% of penetrating injuries are due to Bullgore injuries which are common in rural area. Injuries varies depending on the site of perforation.

Complications develop in 3. 6% to 29% of injured patients because of unnecessary laparotomy. Plain x-ray abdomen is not very useful in evaluating the cases of stab wounds to the abdomen. According to the study conducted by Andressy et al, only 9.2% of cases were show positive results in x-ray abdomen.⁸ During the management of injuries, Selective non-operative management of deep lacerated and penetrating injuries due to sharp objects and gunshot injuries is safe and according to studies conducted by Livingston et al, decreases the period of hospital and cost effectiveness of the treatment, decreases the period of hospital stay and cost effectiveness of the treatment.⁹

In 1986 Philips et al described the use of CT scan in penetrating injuries of abdomen.¹⁰ The studies conducted by Shanmughanathan et al shows that triple contrast helical CT accurately identifies visceral injury.

Diagnostic laparoscopy is very much useful in decreasing hospital stay, decreasing pain, faster return to regular work. The complications identified are Respiratory complications, anastomotic leak, wound infection and wound dehiscence.¹¹

In penetrating abdominal injuries whether civilian or military, gunshot or stab, the organ most commonly injured is the small bowel accounting 49 to 60 % of all injuries. In general, stab wounds are less damaging than gunshot wounds and result in fewer complications. Nearly one third of abdominal stab wounds do not penetrate the peritoneal cavity and only 50 % of those that penetrate require surgical intervention. Studies by Moore et al. and Croce et al. have shown that the number of organs injured, the penetrating abdominal trauma index, and the abdominal septic complications are significantly lower in stab injuries than with gunshot wounds.

Local wound exploration is helpful in determining the integrity of the peritoneum, and a negative finding enables discharge of patients from an emergency department. Thompson and Moore found that local wound exploration followed by diagnostic peritoneal lavage when peritoneal violation was deemed likely after stab wounds resulted in a low unnecessary laparotomy rate of 8 %. In our series, all the patients underwent wound exploration under regional anaesthesia and 70.31 % of the patients were detected positive for peritoneal penetration.

The management of penetrating abdominal trauma in the presence of shock or physical findings of peritonitis should be immediate laparotomy. Selective conservatism is advocated for stab injury patients with no abdominal signs and those who are hemodynamically stable. As per the guidelines established by Biffi and Moore, shock, evisceration, and peritonitis warrant immediate laparotomy following penetrating abdominal trauma.

CONCLUSION

Abdominal trauma due to penetrating injuries are very commonly encountered in Surgical practice and it is one of the conditions of Surgical emergencies. The common causes are stab injuries, accidents and falls, Diagnostic laparotomy is very useful in diagnosis and management. The delay in diagnosis and management lead to mortality because of haemorrhage and infections like peritonitis. Early diagnosis and early intervention will improve the prognosis.

REFERENCES

1. K. Misrus, chiuwcetal. Penetrating trauma; triple contrast helical in CT in peritoneal violation Radiology 2004; 231; 775-84.
2. Freidman P. Selective management of stab wounds of the Abdomen. Arch Surg 1968; 96; 292-5.
3. Moore. Chon. Penetrating abdominal trauma index J. trauma 21(6): 439-45.
4. Salim, Martin et al use of computed tomography in interior abdominal stab wounds. Arch. Surg.141; 745-52.
5. Steed G. Bitondo et al. Study an Abdominal Stab Wounds. Am J Surg. 148; 772-7.
6. Kawal hiker Petal. Injury due to bull goring. Int. Surg. 58 (9): 635-6.
7. Simeon RJ. Sable WM. A critical evaluation laparoscopy in abdominal trauma J. trauma 1933; 33: 471-5.
8. Andery, Aust JB. The value and cost effectiveness of abdominal x-ray in the evaluation of stab wounds to the abdomen. Surg Gynecol obstr 1986; 162 (4): 337-9.
9. Livingston Dlt, Blackwood J et al. The role of laparoscopy in abdominal trauma J-Trauma 1992; 33. 471-5.
10. Philp T Gold Stein A et al use of contest enhanced CT enema in the management of penetrating trauma. J. Trauma. 26-593-60.
11. That. Evaluation of partitioned leverage and local exploration in the lower chest and abdominal wounds. J Trauma 1977; 17.642-8.

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