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Penetrating Injury Abdomen, Homicidal Versus Accidental

[1]Dr Mahendra Choudhary, SR Gen surgery AIIMS Jodhpur
[2]Dr S S Rathore, Senior Professor Gen Surgery Dr SN Medical College Jodhpur
[3]Dr Ramdayal, Assistant Professor Gen Surgery Dr SN Medical College Jodhpur
[4]Dr Naresh, Resident Gen Surgery Dr SN Medical College Jodhpur

Corresponding Author: Dr Mahendra Choudhary SR Gen surgery AIIMS Jodhpur

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Abstract

Introduction

Penetrating traumais an injury that occurs when an object pierces the skin and enters a tissue of the body, creating an open wound. The various modes of penetrating injuries are homicidal injuries, accidental injuries and suicidal injuries.

Method

This study was conducted on 35 cases of penetrating abdomen and thorax injury admitted in surgical wards of Mathura Das Mathur hospital, attached to Dr. S. N. Medical College, Jodhpur (Rajasthan) during the period of January 2015 to September 2017 according to our inclusion and exclusion criteria.

Results

Homicidal injury was noted in 54.28 % and accidental injuries were noted in 45.71. Therapeutic laparotomy was performed in 73.68 % of homicidal injuries and 50% of accidental injuries and non therapeutic laparotomy was performed in 21.05% of homicidal injury and 43.75 % of accidental injuries.Hollow viscus injury was noted in 52.63% of homicidal injury and 50% of accidental injury, solid organ injury was noted in 26.31% homicidal injury and 6.25% accidental injury.

Conclusion

To conclude male female ratio for accidental penetrating injury was almost the same whereas homicidal penetrating injuries the gap was wider.Homicidal injuries causes more intrabdominal organ injury and more therapeutic laparotomies as compare to accidental penetrating abdominal injuries.

Keywords: Penetrating injury, assault, accidental injury

Introduction

Penetrating trauma is an injury that occurs when an object pierces the skin and enters a tissue of the body, creating an open wound. Penetrating abdominal trauma can be life-threatening because abdominal organs, especially those in the retroperitoneal space, can bleed profusely, and the space can hold a great deal of blood. Injuries of the liver, common because of the size and location of the organ. The intestines, taking a large part of the lower abdomen, are also at risk of perforation.[1]

The various modes of penetrating injuries are homicidal injuries, accidental injuries and self inflicted or suicidal injuries. Among these suicidal injuries are very rare. Homicidal and accidental injuries are predominant mode of abdominal injury. Although accidental and assault-

induced penetrating injuries might have different mortality and morbidity rates, no studies have evaluated the source of the injury as a predictive factor.

Method

This study was conducted on 35 cases of penetrating abdomen injury admitted in surgical wards of Mathura Das Mathur hospital, attached to Dr. S. N. Medical College, Jodhpur (Rajasthan) during the period of January 2015 to September 2017 according to our inclusion and exclusion criteria.

The patients were divided into either the accidental penetrating injury or the assault-induced penetrating injury group depending on the source of the injury.

All patients who presented with penetrating injury abdomen with sign of peritonitis, hemodynamically unstable, evisceration underwent emergency laparotomy.Patients who presented with hemodynamically stable and no features of peritonitis undwent CECT abdomen and furthure procedure sos.

Operations were divided into nontherapeutic laparotomy and therapeutic surgery. Nontherapeutic laparotomy is defined as exploratory surgery that reveals minimal organ injuries that do not require placement of sutures, electrocoagulation, or topical hemostatic agents to control active bleeding. A nontherapeutic laparotomy was considered to have a negative finding if no injury was identified. Laparotomy performed to treat a significant organ injury with subsequent surgical repair was considered to be therapeutic.

Objective

The aims of this study were to assess the difference between the outcomes of patients presenting with accidental versus assault-induced penetrating abdomen injuries. It was hypothesized that assault injuries would be associated with increased mortality and morbidity, and increased incidences of therapeutic laparotomies.

Observation and Results

35 cases involving penetrating abdominal injury, with 19 patients (54.28%) in the homicidal group and 16 patients (45.71%) in the accidental group and 1 patient (02.85%) in suicidal group. Gender, mean age, and no of wounds were reported.33 patients (94.28%) were subjected to emergency laparotomy and 02 patients (05.71%) were managed conservatively, 02 patients (05.71%) were expired.

Table I: PENETRATING INJURY ABDOMEN

		Penetrating Injury Abdomen(N=35)	Percentage
Sex	Male	26	74.28%
	Female	09	25.71%
Age	Below 20 Yr	05	14.28%
	21-40 Yr	20	57.14%
	Above 40 Yr	10	28.57%
Management	Therapeutic Laparotomy	22	60.0%
	Non Therapeutic Laparotomy	11	31.42%
	Conservativ	02	05.71%
Avg. No. Of Hospital Stay		12.77	
Mortality		02	05.71%

The age group with the greatest predisposition to abdominal penetrating injury was the 21 to 40 year old group which included 20 patients (57.14%) and above 41 year were 10 patients (28.57%).28 cases (80%) were presented with single penetrating wound and 07 patients (20%) were presented with multiple penetrating wound .Out of 35 patients 02 patients (05.71%) were managed conservatively and 33 patients (94.29%) were managed by exploratory laparotomy among these 22 were therapeutic laparotomy and 11 were non therapeutic laparotomy. Average number of hospital stay for a penetrating abdominal injury was 12.77 days. Overall mortality was 05.71%.

Table II: Comparision of Homicidal Versus Accidental Injuries

		Homicidal (N=19)	Accidental (N=16)
Sex	Male	16(84.21%)	09(56.25%)
	Female	03(15.78%)	06(37.5%)
Age	Below 20 Yr	02(10.52%)	02(12.5%)
	21-40 Yr	14(73.68%)	08(50.0%)
	Above 40 Yr	04(21.05%)	06(37.5%)
Management	Therapeutic Laparotomy	14(73.68%)	08(50.0%)
	Non Therapeutic Laparotomy	04(21.05%)	07(43.75%)
	Conservativ	01(05.26%)	01(06.25%)
Avg. No. Of Hospital Stay		13.36	11.43
Mortality		02(10.52%)	00

It was observed that male to female ratio in homicidal injury was 5.3 and in accidental injury 1.5. Exploratory laparotomy in homicidal injury was performed in 18 cases (94.74%) among these 73.68% were therapeutic laparotomy and 21.05% were non therapeutic laparotomy. Exploratory laparotomy in accidental injury was performed in 16 cases (93.75%) among these 50.0% were therapeutic laparotomy and 43.75% were non therapeutic laparotomy. Average days of hospital stay in homicidal injury were 13.36 and in accidental injury were 11.43. Mortality in homicidal injury was 10.52% cases and no mortality was noted in accidental injuries.

Table III : Organ injury

	Penetrating Abdomen(N=35)	Homicidal Injury(N=19)	Accidental Injury(N=16)
Hollow Viscus	18(51.42%)	10(52.63%)	08(50.0%)
Solid Organ	06(17.14%)	05(26.31%)	01(6.25%)
Diaphragm	02(5.71%)	02(10.52%)	00

Hollow viscus was most common organ injured in penetrating abdomen injury noted in 51.42% of cases and solid organ injury was noted in 17.14% cases and diaphragm injury was noted in 5.71% cases. In homicidal injury hollow viscus injury was noted in 52.63%, solid organ injury was noted in 26.52% and diaphragm injury was noted in 5.71%. In case of accidental injury hollow viscus injury was noted in 50.0%, solid organ injury was noted in 6.25%.

Discussion

35 patients were enrolled in the study. Male to female ratio was 2.88:1. Homicidal injury (54.28%) was most common mode of injury followed by accidental injury (45.71%) and suicidal injuries (05.71%).33 patients (94.28%) underwent emergency laparotomy and 02 patients (05.71%) were managed conservatively, 02 patients (05.71%) were expired. The age group with the greatest predisposition to abdominal penetrating injury was the 21 to 40 year old group which included 20 patients (57.14%) and above 41 year were 10 patients (28.57%).28 cases (80%) were presented with single penetrating wound and 07 patients (20%) were presented with multiple penetrating wound .Out of 35 patients 02 patients (05.71%) were managed conservatively and 33 patients (94.29%) were managed by exploratory laparotomy among these 22 were therapeutic laparotomy and 11 were non therapeutic laparotomy. Average number of hospital stay for a penetrating abdominal injury was 12.77 days. Overall mortality was 05.71%. Hollow viscus was most common organ injured in penetrating abdomen injury noted in 51.42% of cases and solid organ injury was noted in 17.14% cases and diaphragm injury was noted in 5.71% cases.

Neeraja Tillu, Chetan Rathod, Meena Kumar, Vinit Kumar study had 54 patients; male female ratio was 5.75:1. Majority of the patients (83.33%) had homicidal stab wounds.[3] In our study it was revealed that male to female ratio was 2.88:1. Homicidal injury (54.28%) was most common mode of injury followed by accidental injury (45.71%) and suicidal injuries(05.71%).

According to Dr. Hardik Dodia, Dr. Keval Sansiya penetrating abdomen and thorax study (25 patients) showed that 18(72%) patients had single entry wound, 6(36%) patients had 2-5 entry wounds and 1 patient had more than 5 wounds on presentation[4]. In our study 28 cases (80%) presented with single penetrating wound and 07 patients (20%) were presented with multiple penetrating wound.

In our study hollow viscus (51.42%) was most common organ injured in penetrating abdomen injury and solid organ injury was 17.14% cases and diaphragm injury was noted in 5.71% cases.

Results

- Penetrating abdominal injury was noted in 74.28 male and 25.71 female and the age group with the greatest predisposition to abdominal penetrating injury was the 21 to 40 year old group which included 20 patients (57.14%) and above 41 year were 10 patients (28.57%).
- Homicidal injury was noted in 54.28 % and accidental injuries were noted in 45.71. Therapeutic laparotomy was performed in 73.68 % of homicidal injuries and 50% of accidental injuries and non therapeutic laparotomy was performed in 21.05% of homicidal injury and 43.75 % of accidental injuries.
- Hollow viscus injury was noted in 52.63% of homicidal injury and 50% of accidental injury, solid organ injury was noted in 26.31% homicidal injury and 6.25% accidental injury.
- Total mortality in penetrating abdominal injury was 5.71% and in homicidal injury was 10.52 % and no mortality was noted in accidental injuries.

Conclusion

To conclude male female ratio for accidental penetrating injury was almost the same whereas homicidal penetrating injuries the gap was wider. Homicidal injuries causes more intrabdominal organ injury and more therapeutic laparotomies as compare to accidental penetrating abdominal injuries

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