STAB INJURY: RETROSPECTIVE AND PROSPECTIVE STUDY IN TERTIARY CENTRES IN CENTRAL INDIA
R. S. Raikwar¹, S. Odiya², Ashish Dubey³, Sachin Arora⁴

HOW TO CITE THIS ARTICLE:

ABSTRACT: AIMS AND OBJECTIVES: The aim of this study was to, 1. Evaluate the incidence of stab injuries admitting in our institute, to know various parameter and its association with injuries such as age group, sex ratio, clinical presentation. 2. Various surgical intervention and conservative treatment according the nature of stab injuries and through examination. 3. Morbidity and mortality of these patients, settings and design. The study was conducted in a retrospective and prospective manner and included cases between January 2009 and September 2013. METHODS AND MATERIALS: 424 patients admitted with stab injuries in ICU and ward. Various surgical interventions were done according to standard indication such as laparotomies, thoracotomies, vascular repair etc., and results reported. RESULTS: Out of 424 patients there were over all 413 males (97.4%) and 11 females (2.6%) highest number of cases (226) in the third decade(21-30) i.e. 53.3% maximum number of cases are from 11-40 yrs. Majority of the stab wounds were homicidal in nature comprising 386 cases i.e. 91% followed by are accidental. Chaku (knife) were the most common weapon. The Chaku was used in 351 cases i.e. 82.8% maximun numbers of patients 309 were presented with localised tenderness at site of stab injury i.e 72.87%. In the perspective of management 244 abdominal stab that there were total 189(44.6%) exploratory laparotomy. In 189 laparotomies peritoneal breech in 114 patients on local examination/exploration was the major indication there were 114 i.e., 60.3%
CONCLUSION: Stab injuries are becoming common nowadays because people often try to settle interpersonal relationship and political problems by mean of stabbing, although its incidence more in our country as compared to European studies because of overpopulation unemployment and poverty. Incidence of stab injury can be reduced by improving the social morale of people especially the younger generation by providing good education, employment, preventing alcohol abuse Proper law enforcement and some form of penalty for carrying the knife – commonest weapon. Mortality can be reduced by prompt transportation of injured patient to hospital especially by the police. Adequate resuscitation in the casualty room, supply of blood in blood banks during emergency hours. Supervision by skilled and experienced surgeons especially in mass casualties, strict aseptic precaution during surgery and good post-operative care.
KEYWORDS: Stab, Stab Abdomen, Trauma.

INTRODUCTION: The incidence of stab injuries has a great variability throughout the world, ranging from 0.07 to 141 per 100000 inhabitants per year. Despite these huge differences, the incidence of interpersonal violence is unfortunately prone to increase in India and in Indore as well. Patients with stab injury present a diagnostic and therapeutic problem because of the variety of associated internal injuries which can occur. The depth and severity would vary and
depending upon the length of the weapon, type of weapon, the force with which it is introduced and the reaction of the host at the particular moment. The present study, a statistical survey, was to describe and assess the population of patients admitted to our Emergency Department (ED) because of a non-firearm penetrating trauma.\(^{(1,2)}\) We particularly addressed the circumstances and characteristics of the patients and their observed injuries. The medical procedures to manage these stab-wounds were also assessed.

**PATIENTS AND METHODS:** The present study was conducted at the M. Y. hospital, Indore covering a period of four year and 9 months. The present study includes 424 cases of stab injury admitted to surgical wards of M. Y. Hospital, Indore over this period.

**INCLUSION CRITERIA:** The study includes patients who reported to hospital with history of stab injury and require hospitalization for further management. This series includes all homicidal suicidal and accidental, incised and stab wound. Patient who sustained fatal injuries and were resuscitated in the casualty and admitted to the SICU and subjected to appropriate management. The admitted patient who died during the treatment was also included in this study.

**EXCLUSION CRITERIA:** Those patients who are discharged on the out patients basis after minor repair in casualty M.O.T are not included in this study.

**OBSERVATION:** The spectacular observation made on these patients in different perspectives is presented as follow, Total 424 admission during the period of study.

Maximum admissions are during year 2009, 2.5% (120) and minimum admission during the year 2013, 1.4% (55) of total surgical patients.

Out of 424 patients there were overall 413 males (97.4%) and 11 female (2.6%) highest number of cases (226) in the third decade (21-30) i.e. 53.3% maximum number of cases are from 11-40 yrs. It comprises about 391 cases i.e. 92 %.

Majority of the stab wounds were homicidal in nature comprising 386 cases i.e. 91% followed by are accidental comprises 24 cases i.e. 5.6 % than suicidal stab wounds comprises 14 cases i.e. 3.4%. Chaku (knife) were the most common weapon. The Chaku was used in 351 cases i.e. 82.8%. The next most common weapon were sword and glass-piece in 12 case each i.e. 2.83%. There were 16 cases of which weapon were unknown i.e. 3.77%. Rest of injuries by other object such as hasiya blade etc. 9.2%.

For the time of presentations after injury 378 patients came within 6 hours of injury i.e. 89.1%. Only the minority of the patients 46 i.e. 10.9% came to the hospital after 6 hours of injury up to 24 hours. 249 patients, i.e. 58.72% patients were single stab wound and 175 patients, i.e. 41.27% patients were having more than one stab wound.

Due to multiple stab wound there is overlapping of patients’ number as per site of injury concerns, 57.5% (244) patients were had injury over the anterior abdominal wall including all 9 regions of anterior abdomen. Other areas of injuries in descending order are the chest 37% (158), limbs (both upper and lower limbs 34.1% (145), head, neck and face 14.1% (71) and the least was on gluteal; and pelvic region 11.5% (49).
In 424 patient’s maximum numbers of patients, 309 were presented with localised tenderness at site of stab injury i.e 72.87%. 62(14%) patients with stab injury came to hospital with feature of shock. Only 28 patients i.e 6.6% which are presented with respiratory distress as chief complaints. 3 patients i.e 0.7% presented with head injury and with neurological sign. 13 (<3%) number patients of stab wound presented as pain in abdomen and tenderness and guarding in clinical examination.

**Brief Observations of abdominal stab**: Out of 244 patients of stab wound of abdomen the most common site was the left lumbar region, 18%(44) followed by epigastrium 15.1%(37) and umbilical 14.7%(36), left hypochondrium 12.7%(31) region respectively. Least common site were the right iliac fossa 4.1% (10).

In the perspective of management 244 abdominal stab that there were total 189(44.6%) exploratory laparotomy include exclusively or associated with other procedure i.e. inter coastal drainage.

In 189 laparotomies peritoneal breech in 114 patients on local examination/exploration was the major indication there were 114 i.e. 60.3%, followed by protruding omentum (40), bowel evisceration (18), rectal tear (3) rest are on clinical symptoms.

In hollow organ injuries 107 laparotomies require primary repair of bowel, three colostomy and ileostomy each five resection and anastomosis, three cholecystectomy one patients require gastro-jejunostomy. In solid organ injuries eight spleenectomy 10 patients liver three with diaphragm injury 19 patients with mesenteric tear and four with renal injury. 27 patients of stab injury abdomen declare as negative laparotomy as there was no finding of any solid or hollow viscus.

52/244(21.3%) patients of stab injury of abdomen did not require exploratory laparotomy as there were no sign of internal organ injury and this group of patients were managed on conservative lines. 8 out of 189(4.2%) of total laparotomy were delayed laparotomy (>24 hours of admission). Isolated inter-coastal drainage (ICD) required 53 out of 424 total admission.

In 189 laparotomy, in hollow viscus there were ileal injury 45 cases, gastric injury 36 cases, mesenteric injury 32 cases, colonic injuries and 27 cases, jejunal injury was 20 cases and diaphragmatic injury 9 cases, in solid organ injury there were maximum incidence of 10 liver injury followed by spleen eight and kidney and ureter four. There were no injury to pancreas, urinary bladder and heart, which were explored antemortemly.

**Management of other stab injuries**: For ICD respiratory distress was the indication in 21 cases, in 19 pleural breech and in 18 both respiratory distress and pleural breech both indication were presented i.e. in 14 case ICD was done on the basis of radio logical findings such as hemothorax, pleural effusion etc.

Inter coastal drainage (ICD) along with laparotomy was done in 18 i.e. 4.2% of total stab injury. 157(37%) patients required only simple repair of wound and were managed on conservative line of treatment in the ward. Two emergency thoracotomy were perform as per standard indication.
The number of patients required wound exploration under local or general anaesthesia was 11 out of 424 patients. 1.6% 7/424 of patients required vascular repair (repair of artery and ligation or repair of vein). Out of which 4 repair was done on femoral vein followed by popliteal vessel and brachial vessels equal incidence two each. Single tracheostomy was done for tracheal injuries.

144 cases required hospital stay 7-12 days while 114 cases required less than 3 days. Only 71 case required hospital stay more than >12 days. 22.4% (95) cases required hospital stay in between 4 to 6 days. 38 patients show some degree of wound infection. Other significant complication (<1%) were burst abdomen, fecal fistula, subdiaphragmatic abscess and pelvic abscess. Over-all mortality 2.3% in the period of study. Out of those patients who were discharged or had improved, 83.9% of cases were improved without complication and 13.6% cases were improved with complication.

Among 10 deaths during study period 60% immediate death within one hour of admission were due to injury to vascular and vital organ which were responsible for massive haemorrhage prior to admission death were during resuscitation. Post-operative deaths due to the cardio-respiratory failure due to post-operative complications such as pulmonary oedema chest infections etc.

DISCUSSION: Stab injuries are becoming common nowadays because people often try to settle interpersonal relationship and political problems by mean of stabbing, although its incidence more in our country as compared to European studies because of overpopulation unemployment and poverty. Similar to other studies victims were predominantly young adult male of age group 20-35 year but the female victims are too low as compared to European studies 5,7,9,10 less exposure to circumstances. Likewise, most of the cases are homicidal followed by accidental than suicidal. The Weapon used to stab is different in the different study blade and glass is common in western countries, but knives are common weapon in our study there are slightly higher incidence of multiple stab wound than single stab wound which distinct from previous studies. In our study it is the anterior abdominal wall which affected most out of this left lumbar region at the most.

Most victims present with minimum signs and symptoms like pain, minor bleeding etc. only few patient presents with specific sign and symptoms of shock, septicemia, neurological deficit, etc. depends upon time of the presentation after the injury extent of injury and part of body affected. Almost three fourth of abdominal stab were explored depend up on the indicaton like peritoneal breech, shock, generalised guarding tenderness etc. Among hollow visus and over all small bowel injuries are most common followed by gastric, mesentry, colon in solid organ liver followed by spleen and kidney and ureter. Only few laparotomies were declared as negative with no solid organ or bowel injury. Almost half(=42%) of chest stab require inter coastal drainage in our study and a few=1% requires thoracotomy. In our study average hospital stay is 10 days, which is slightly higher than other studies due to reason of infection and patient and relative to psychologica factors, mortality in our study due to shock owing to vital organ injuries few post operative deaths due to complication like respiratory distress and septicemia.

CONCLUSION: In the end, stab injuries are quite common in our society maximum number of cases (53.3%) was in the age group 21-30 year. Male comprised 97% of study. In all Stab injury
91.03% case account for homicidal in nature. Knife is the most common (82.8%) weapon used in the stab injury. Majority of patients (89.1%) attend emergency department in first six hours of injury. Maximum number of patients (58.7%) having single stab wound. Anterior abdomen is the most common (5.7%) site of stab injury. Localized tenderness is the most common (72.9%) presentations whereas feature of shock is 2nd most common. Emergency laparotomy is most common surgical procedure followed by primary repair of incised wound 83.7% laparotomies were therapeutic 16.3% laparotomies are negative. 13% case of observed group of stab injury of abdomen was open delayed. Accurate and vigilant repeated examination is most valuable. Following are the common internal organ injury in descending order ileum, stomach, mesentery, colon, jejunum, liver, spleen, diaphragm, kidney and ureter and cecum. Most extremities injuries are managed conservatively. Most patients’ hospital stay is 7-12 days (avg. 10 days). Wound infection is the most common complication with mortality is 2.3%.

Incidence of stab injury can be reduced by improving the social morale of people especially the younger generation by providing good education, employment, preventing alcohol abuse Proper law enforcement and some form of penalty for carrying the knife – commonest weapon. Mortality can be reduced by prompt transportation of injured patient to hospital especially by the police. Adequate resuscitation in the casualty room, supply of blood in blood banks during emergency hours. Supervision by skilled and experienced surgeons especially in mass casualties, strict aseptic precaution during surgery and good post-operative care.

REFERENCES:
ORIGINIAL ARTICLE


AUTHORS:
1.  R. S. Raikwar
2.  S. Odiya
3.  Ashish Dubey
4.  Sachin Arora

PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Surgery, MGM Medical College & MY Hospital, Indore.
2. Assistant Professor, Department of Surgery, MGM Medical College & MY Hospital, Indore.
3. Senior Resident, Department of Surgery, MGM Medical College & MY Hospital, Indore.
4. 3rd Year Junior Resident, Department of Surgery, MGM Medical College & MY Hospital, Indore.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ashish Dubey, P. G. Medical Hostel, Indore.
E-mail: drdubeyashish@gmail.com

Date of Submission: 28/05/2015.
Date of Peer Review: 29/05/2015.
Date of Acceptance: 17/06/2015.
Date of Publishing: 06/07/2015.