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Surgery

PENETRATING CHEST TRAUMA, DEMOGRAPHY AND DISTRIBUTION OF INJURIES; A CROSS SECTIONAL OBSERVATIONAL STUDY

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ABSTRACT

INTRODUCTION: Penetrating chest trauma is a serious type of injury that results in significant mortality and morbidity in the affected population.

MATERIAL AND METHODS: Patients of all ages with penetrating chest trauma were enrolled in the study. Demographic details and the nature of penetrating injuries were recorded as per pre-designed proforma.

OBSERVATIONS AND RESULTS: A total of 125 cases with penetrating chest injuries were enrolled in the study. Majority of the affected population was male (86.4%), from urban areas (55.2%) and between age of 21 to 30 years (38.4%). Bullets were the cause of injury in the majority of cases (62.4%) followed by shrapnels (33.6%). Most of the patients had received injuries on the left chest 62 (49.6%).

CONCLUSION: Young male adults from urban areas were most vulnerable to penetrating chest trauma injuries and bullet were the most frequent cause for these injuries.

KEYWORDS : Penetrating injury, chest trauma, bullet

INTRODUCTION:

Trauma is essentially a surgical disease rightly called a neglected epidemic of modern society and Nations major health problem. [1] Because trauma predominantly affects young people, it accounts for more years of lost life than cancer and heart disease together. Thorax due to its anatomical set up is the part of the body which is frequently exposed to trauma. Chest injuries are becoming increasingly frequent problem in our society due to man-kinds fatal fascination for speed and its propensity for inter-personal and international conflicts.

Penetrating trauma can be caused by a foreign object or by fragments of a broken bone. Penetrating injuries are commonly caused by gunshots and stabbings usually occurring in violent crime or armed combat.[2,3] Penetrating wounds of chest in civil practice are caused primarily by stabbing with knives, gunshots with pistol fire, high velocity riffle fire or with gunshot blasts. Because of the depth of penetration, gunshot wounds are usually more serious than stab wounds. Penetrating wounds of chest and thoracoabdominal areas may result from free flying objects (sharpnel). The extent of injury is similar to that associated with gun-Shot wounds since the injuring agent is free flying and moving at high speeds. Rarely penetrating injury may be caused by impalement upon a pointed object as a result of a fall.

For the planning of resource allocation and timely management of the cases, extent of the problem in a particular population needs to be known before hand. This study was designed to know the distribution and nature of the injuries in Kashmir Valley which falls in war zone in northern India.

MATERIAL AND METHODS: This cross sectional observational study was conducted at the department of surgery, Government Medical College Srinagar, which is a tertiary care centre for surgical patients in the state of Jammu and Kashmir, India. Study was commenced after taking written informed consent from subjects or their parents/gaurdians in cases where the patient was a minor or unable to give consent. A total of 125 cases with penetrating chest trauma injuries were enrolled in the study. Demography of the patients with respect to residence, sex and age group and nature and the cause of the injuries were recorded on a predesigned proforma.

OBSERVATION AND RESULTS:

Demography of the patients is depicted in table 1. Cause of the injuries and nature of the injuries is depicted in table 2.

Table 1 Demography of the patients (n=125)

Attribute		No. (% age)
Gender	Male	17 (13.6)
Age group (years)	0-10	2 (1.6)
	11-20	33 (26.4)
	21-30	48 (38.4)
	31-40	23 (18.4)
	41-50	10 (8)
	51-60	6 (4.8)
	61-70	3 (2.4)
	71-80	0(0)
Residence	Urban	69 (44.8)
	Rural	56 (55.2)
District wise distribution	Anantnag	12 (9.6)
	Baramulla	8 (6.4)
	Budgam	16 (12.8)
	Pulwama	14 (11.2)
	Kupwara	6 (4.8)
	Srinagar	69 (55.2)

DISCUSSION:

A total of 125 cases with penetrating chest trauma injuries were enrolled in the study. Majority of the affected population was male (86.4%), from urban areas (55.2%) and between age of 21 to 30 years (38.4%) [table 1]. Bullets were the cause of injury in the majority of cases (62.4%) followed by shrapnel (33.6%). Stab injury was the least common (4%). Most of the patients had received on the left chest 62 (49.6%) followed by right chest 51(40.8%). Bilateral injuries were the least common 12 (9.6%) [table 2].

Table 2 Cause and nature of injuries (n=125)

Attribute	No. (%age)	Site of injury	No. of cases (%age)
Bullet	78 (62.4)	Right anterior chest	16 (20.5)
		Left anterior chest	14 (17.9)
		Right posterio-lateral chest	19 (24.4)
		Left posterio-lateral chest	29 (37.2)
Shrapnel	42 (33.6)	Right anterior chest	4 (9.5)
		Left anterior chest	7 (16.7)
		Right posterio-lateral chest	10 (23.8)
		Left posterio-lateral chest	9 (21.4)
		Bilateral chest	12 (28.6)

Stab	5 (4)	Right anterior chest	1 (20)
		b) Left anterior chest	1 (20)
		Right posterio-lateral chest	1 (20)
		d) Left posterio-lateral chest	2 (40)
Over all laterality of injury		Right chest	51(40.8)
		Left chest	62 (49.6)
		Bilateral	12 (9.6)

The affected population in our study was predominantly male (86.4%). This may be because of the fact that it is often the males who are involved in violent conflicts. Kashmir is a land of conservative population, where males are supposed to work outdoors. This also might have contributed to this male preponderance. Other researchers have reported similar findings [4,5,6,7] In early 1990s anti-militancy operations in Kashmir were predominantly centered to urban areas and that might explain why majority of the injuries were received by the people residing or working in urban areas. Nearly 2/3rd of the affected population in our study was young adults and the adolescents. This may again be explained by the fact that this population is prone to be involved in violent conflicts. Other researchers have reported similar findings.[7,8]

Bullets were the commonest objects involved in the causation of injuries. The obvious reason being the armed conflict that has broke down between the armed forces and the rebels in the state when the study was underway. Most penetrating wounds of the chest in civilian practice are caused by stabbing while gunshots are least common. But our study though includes civilians, observed penetration of chest by bullets in 62.4% cases followed by shrapnel (33.6)while stabbing in only 4%. Thoracic wounds in Israel battle casualties during 1982 evacuation of wounded from Lebanon were studied by M. Rosenblot et al who observed 64.1% of cases were wounded by shrapnel while-as bullets were the agents of injury in 14% of cases. This signifies that civilian population, being wounded by gunshot which causes considerable damage to tissues penetrate more deeply than stab wounds and may provide perforation injury with an external wound of exit. [10]

Left side of the chest was most common site of injury. This may be because of the fact that majority of the injuries were caused by bullets and bullet are often fired at the victims with an intention to kill.

CONCLUSION:

Young male adults from urban areas were most vulnerable to penetrating chest trauma injuries and bullets were the most frequent cause for these injuries. The most common site of injury was the left side of chest.

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