

MAXILLOFACIAL INJURIES IN INTERNALLY DISPLACED PERSONS

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ABSTRACT

This study was conducted to evaluate the incidence of maxillofacial injuries and their causes in Internally Displaced Persons from Swat, Malakand Division, Bajaur and Waziristan.

A total of 73 Internally Displaced Persons with various maxillofacial injuries admitted in the oral and maxillofacial surgical unit of Khyber College of Dentistry, Peshawar from May 2009 to October 2009 were included in the study.

Males in their second decade of life were more in number. Maxillofacial trauma due to firearms (48%) and RTA (37%) were reported. Most of these patients were injured while they were outside their homes. Mandible (54.80%) was the most common bone fractured. Open reduction internal fixation was employed in 69.86% patients.

Key words: *Maxillofacial trauma, Internally Displaced Persons, Firearm Injuries.*

INTRODUCTION

Documentation, analysis, and prevention of the harmful effects of armed conflict are established public health priorities.^{1,2} Civilian mass casualty events are becoming an increasingly important security issue all over the world.^{3,4}

Due to the hostile activities of the extremists, about half a million people were displaced from Swat, Malakand Division, Bajaur and Waziristan. Battle related maxillofacial injuries are fairly common comprising 23-27%. Mandible is the most common facial bone fractured followed by zygomatic complex and maxilla. In the peace time adult males are mostly affected but recent conflicts have shown considerable increase in the numbers of females and children wounded. Such injuries may cause both severe functional disabilities and aesthetic disfigurement.⁵⁻¹²

METHODOLOGY

A total of 73 Internally displaced persons with various types of maxillofacial injuries were

treated within the period from 1st May 2009 to 31st Oct 2009.

All relevant data were entered on performa including bio data, background of firearm use, causes, place and source of injury, types and extents of injuries and type and cost of treatment. Data were analysed using SPSS version 17.

Radiographs such as Orthopantomogram, Posteroanterior view of Face, True Lateral view skull, Occipitontal projections and CT Scans in selected cases were advised and used for the purpose of diagnosis along with detailed clinical examination.

RESULTS

73 IDPs were included in this study. Out of these 49 were male and 24 were female with male to female ratio of 2:1 (Fig 1). The common age group involved was second decade of life (Fig 2). The geographic distribution of these patients was such that 22 patients (30.14%) belonged to District Swat followed by District Dir (24.66%). Details are given in Table 1.

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Fire arm injuries (FAI) comprised 48% of the total patients followed by Road traffic accidents (RTA) (Fig 3). This study showed 42.46 % (n=31) of these injuries occurred on the Road and 13.29 % (n=17) in the Market (Fig 4) when these patients were caught in cross fire (27.40%), shot by Terrorists (31.50%) or both (41.10%). The entry wounds in 94.28% (n=33) of these FAIs were smaller than the exit wounds with shattering of hard and soft tissues inside.

Out of 73 patients who suffered from maxillofacial trauma, mandible was the mostly fractured bone

TABLE 1: GEOGRAPHIC DISTRIBUTION

S. No	Area	Number of patients	Percentages
1	Swat	22	30.14%
2	Dir	18	24.66%
3	Waziristan	11	15.07%
4	Bajaur	8	10.96%
5	Buner	7	9.59%
6	Malakand	6	8.22%
7	Shangla	1	1.36%
	Total	73	100%

TABLE 2: TYPES OF MAXILLOFACIAL TRAUMA

S. No	Type of injury	No. of patients	Percentage
1	Mandible	40	54.80%
2	Maxilla	12	16.44%
3	ZMC	8	10.96%
4	Mandible + Maxilla	5	6.85%
5	Maxilla + ZMC	5	6.85%
6	Pan facial trauma	3	4.10%
	Total	73	100%

TABLE 3: DETAILS OF FINANCIAL SUPPORT

S. No	Particulars	Expenses (Rs)
1	Medicines provided in ward	68875
2	Cost of investigations	44950
3	Surgical expenses	121800
4	Anesthesia expenses	20300
5	Cash Payments	58000
6	Medicines provided at discharge	51910
	Total	365835

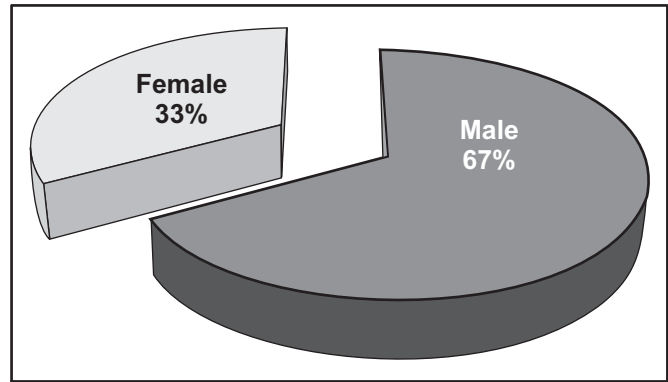


Fig.1 Gender Distribution

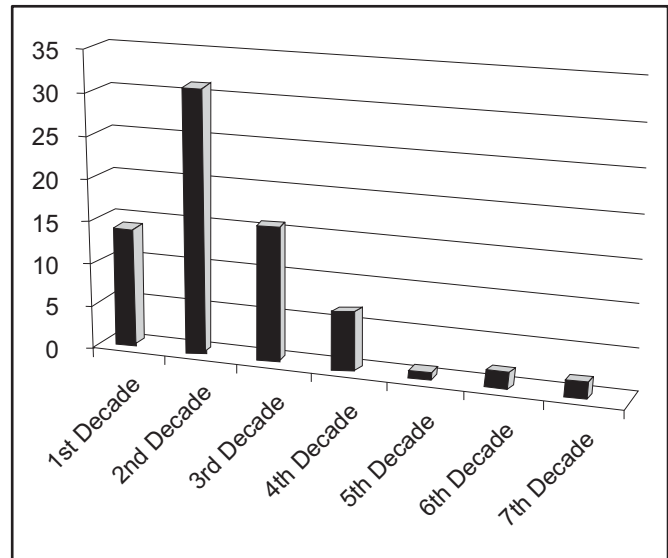


Fig 2: Age Distribution

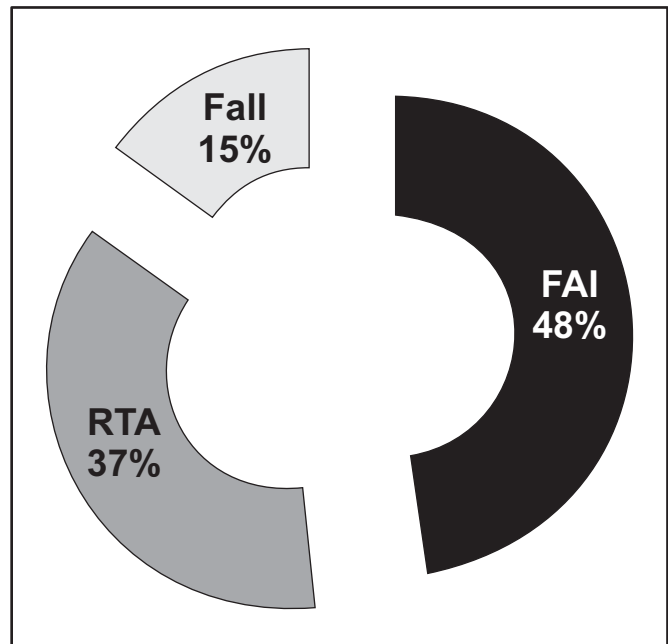


Fig 3: Distribution of Maxillofacial Trauma

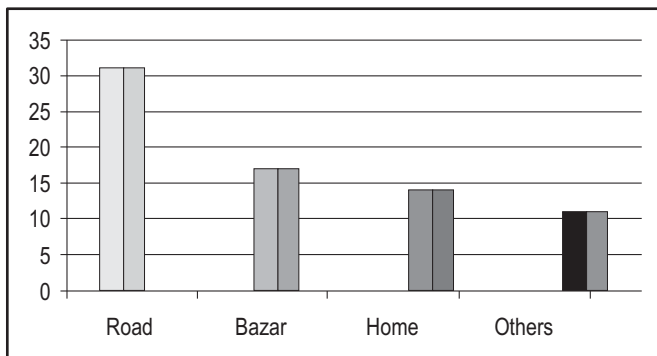


Fig 4: Location wise distribution of Trauma

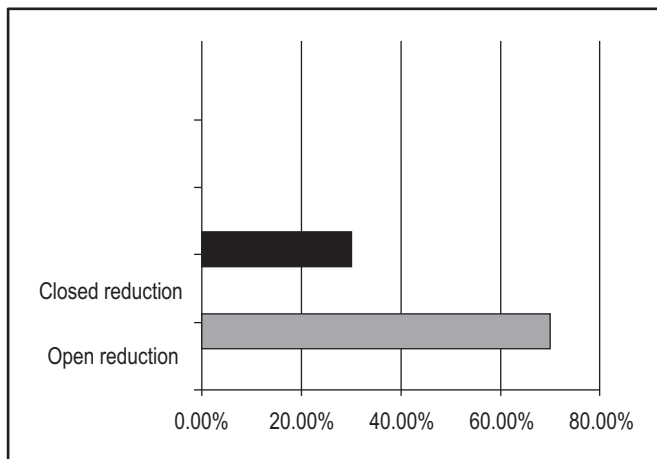


Fig 5: Surgical approach of the trauma patients

(54.80 %) followed by maxilla (16.44 %) (Table.2). It is pertinent to mention that isolated soft tissues injuries were not reported, although they occurred in combination with other bony trauma in almost 63% (n= 46) of the cases.

A total of 29 (39.7%) patients were provided free treatment in the form of medicines, plates, sutures, anaesthesia kit and cash payments (Table 3). The average cost per single patient treated in our unit was approximately Rs.12615 (approx 157 US Dollars).

Open reduction internal fixation (ORIF) under GA were employed in 69.86% (n = 51) of the trauma patients (Fig 5).

DISCUSSION

Household surveys can be used to retrospectively estimate battle injuries over time. Passively reported data are subject to several biases. High levels of battle related morbidity occur in those violent and dangerous areas where eyewitnesses are least likely to go, result-

ing in systematic underreporting of injuries by media sources.¹³ Media and eyewitness reports and to a lesser degree facility records, are also subject to political pressures, which can result in either exaggeration or under-reporting. Such reports however, represent the only source of information for the vast majority of conflicts, and passive data collection has formed the basis for most efforts to date to analyse global trends in battle mortality and morbidity.

In this study, males in their second decade of life were the most common victims which is in agreement with the study of Obermeyer.¹⁴

As the military operation was concentrated mostly in District Swat and Dir, more than half (54.7%) of the patients (n=40) had reported from these two areas. During this crisis period, a total of 90 IDPs with different diseases of the maxillofacial region were admitted in this unit. Out of these patients, the incidence of maxillofacial trauma is 81.1% (n=73) which is far higher than the studies done on wars by others. For example Regev (16%)⁹, Christoffel (27%)¹⁵, Susic (30%)¹⁶ and Rustermever (40%)¹⁷.

Among the maxillofacial trauma, maximum injuries were due to FAI (48%) in the form of ground shelling or airstrike or their secondary effects. Most of these patients were outside their homes at the time of injury (Fig 4) while they were caught in a cross fire between the security forces and terrorists.

Choudry and Mohan¹² has reported the same statistics. They confirmed further that wounds due to direct gunshot were cleaner with entry wound much smaller than the exit wounds. While injuries sustained due to secondary effects of shelling or airstrike on the suspected areas such as falling off roofs or walls have dirty and contaminated wounds.

The capacity of a missile to injure depends on the kinetic energy (KE) on impact. The terminal velocity is more important than mass in determining the energy dispersed at the point of impact and the impact velocity is the most important determinant of wounding capacity. The impact of a bullet / missile in living tissue transforms that tissue into secondary missiles which are ‘thrown away’ from the passage of the bullet largely in a radial direction producing a very short lived temporary cavity. Cavitation results in entry of air and

contaminants into the cavity behind the missile and the pressure effect within the tissues results in extension of tissue damage well beyond the visible tract of the missile.¹² 94.28% cases of FAIs in our study had the same wounding characteristics with the entry wound smaller than the exit wound and shattering of hard and soft tissues.

RTAs related trauma in our study comprised the second most common group (37%) which correlates well with the studies of Mohan¹² and Levin¹⁸. Injuries due to fall have the same scenario as reported by most of these victims, that they experienced injuries due to fall from heights or in a mountainous areas during escape.

Approximately 70 % patients of trauma were treated with open reduction and internal fixation either by plating or intraosseous wiring. Majority of such patients were very poor¹⁹ and were unable to afford their treatment. This unit from its own resources and donations provided free treatment to most of the patients (Table 3).

This study includes only those patients who required admission in the hospital and not those who were treated as outdoor patients in this hospital or in other hospitals.

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