A Comparative Study on Maxillofacial Fractures in Central and Eastern Anatolia

A Retrospective Study

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Introduction

Many studies have previously been reported concerning maxillofacial injuries and their treatment (Donaldson, 1961; Kiley, 1977; Ajaoge and Daramola, 1980; Ellis et al., 1985), but the profiles of the trauma mechanisms and aetiology seem to be changing continuously, relative to geographical area, in each decade.

The aim of the present study was to analyse and compare the aetiologies, types, sites and treatments of maxillofacial fractures in Central and Eastern Anatolia.

Patients and Methods

The survey represents a large and significant sample, as patients were treated by various departments. Data, collected in this study, were obtained from the East Anatolian (E.A.) population from the Department of Maxillofacial Surgery, Faculty of Dentistry, University of Dicle and for the Central Anatolian (C.A.) population from the Department of Maxillofacial Surgery, Faculty of Dentistry, University of Ankara, and Department of Otosinolaryngology, Faculty of Medicine, University of Ankara, Turkey.

The series comprised 402 patients (E.A.: 190, C.A.: 212) with maxillofacial fractures who were treated in three departments, in two different areas, between January 1982 and June 1986.

The records of the patients were evaluated. The factors considered were age, sex, cause of injury, types and anatomical sites, and mode of treatment (Fig. 1–3).

Results

149 of the E.A. patients (78.42%) were male and 41 (21.58%) were female. 158 of the C.A. patients (74.53%) were male and 54 (25.47%) were female (Fig. 1).

The most common fractures in this study were mandibular body fractures (E.A.: 31.37%, C.A.: 23.01%) followed by angle fractures (Table 1). In the E.A. group body/angle combined fractures, in the C.A. group symphysis fractures were third in prevalence. Tab. 1 shows the anatomical distribution of mandibular fractures.

LeFort I fractures were seen as the most common midface fractures in both groups (E.A.: 27.45%, C.A.: 25.86%; Table 2). In the E.A. group, LeFort II (25.49%), in the C.A.
Fig. 1 Distribution according to sex in the two areas.

Fig. 2 Distribution according to age (E.A. = hatched, C.A. = white).

Fig. 3 Causes of injuries (E.A. = hatched, C.A. = white).
group, fractures of the Proc. alveolaris (24.14%) were second in prevalence. The majority of 190 E.A. patients were treated by intraoral self-curing-acrylic splints (42.11%). In contrast, most of the C.A. patients were treated by only arch bar fixation (66.04%; Table 3). Open reduction with trans-osseous wiring was used in only a small number of patients (Table 3). In the E.A. group, 4 out of the 5 displaced zygomatic arch fractures were replaced by the Gillies (1927) approach and an intraoral approach. One of the fractures was treated by the Caldwell-Luc approach. The patients with zygomatic fracture in the C.A. group were similarly treated by the same techniques, some cases involving the orbit through a lower lid incision. For stabilization in cases of delayed zygomatic arch fractures, following reduction, extroral self-curing-acrylic bows were used for a period of 3 weeks (Givens, 1987).

Discussion and Conclusions

The aetiology, type and site of maxillofacial fractures vary depending on many factors. The geographic area, the socio-economic status of the population area will vary and affect the results of studies. However, most of the results of the many studies performed by different authors reveal that maxillofacial fractures are commonly caused by trauma such as traffic accidents, alleged assault, industrial and sporting accidents (Blumens and Gores, 1961; Rowe and Kiley, 1968; Adeyeye, 1980; Khalil and Shaladi, 1981; Abiuse, 1986). The results of the present study indicate that the most frequent cause of maxillofacial fractures is traffic accidents. Fights and assaults are found to be the next most common cause (Fig. 3). It is interesting to note that these results are not much higher than the results of the study on the same community reported by Borganakan et al. (1978).

The results of our study show a high male:female ratio. This extreme disparity in incidence was found to be unique when compared with the results of Abiuse (1986), Nair and Paul (1986) and Tabor (1986).

In our study, the peak incidence was found in the 21-30-year age group of the E.A. community, while it was highest in the 31-40-year age group of the C.A. community (Fig. 2). Our findings confirm the other studies which indicate that young people suffer more trauma (Borganakan et al., 1978; Nair and Paul, 1986; Tabor, 1986).

The percentage of paediatric fractures was higher when compared with the study of Ellis et al. (1985), Abiuse (1986), Nair and Paul (1986) and Tabor (1986).

Previous studies have reported that mandibular fractures are common facial injuries treated by maxillofacial surgeons and that they occur twice as frequently as midfacial fractures (Adeyeye, 1980; Khalil and Shaladi, 1981). The results of the study of Kelly and Harrigan (1975), and Adeyeye (1980) confirm our findings. Mandibular body fractures are the most common fractures seen in our study. This observation is also in agreement with the studies by Ellis et al. (1985), Abiuse (1986), Nair and Paul (1986). The majority of the fractures in the middle third of the face were situated at the LeFort I level (Fig. 4). Abiuse (1986) found a similar distribution in his study.

The treatment of maxillofacial fractures varies from surgeon to surgeon. However, treatment should be related more to the type of injury than to the desire of an individual surgeon to practice a particular technique. In our study most of the patients had no surgical intervention. Simple techniques of reduction and fixation were preferred.
References


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