

Occupational Maxillofacial Trauma: Report of a Rare Case

SUMMARY

Maxillofacial trauma, any physical trauma in the face, can involve soft tissues (lacerations, avulsions, bruises etc), bone injuries (fractures and dislocation), avulsed or fractured teeth (dental issues) and special regions (nerves, eyes, salivary glands etc). As the most exposed part of the human body, the face can be susceptible to injuries in work-related accidents. Occupational accident in the maxillofacial region rates 0.9-5% and, in some cases, can reach 9%. Based on their occupation, patients are classified as farm and forestry workers, construction workers, factory workers, craftsmen, service workers, and office workers.

This paper describes a rare case of a farm-related maxillofacial trauma in a 50-year-old woman and a brief review of the relevant literature.

Keywords:Trauma, occupational; Trauma, maxillofacial

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CASE REPORT (CR)

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Introduction

Occupational maxillofacial trauma rates between 0.9-5%^{1,6} and can rarely reach about 9%², varying due to socioeconomic, cultural, season, environmental and geographic factors, regional government, methods of transportation, recorded period and population density^{1,3-5,7}. It seems to be rare, although studies have reported that work-related accidents, along with road traffic accidents (RTA's) and assaults-interpersonal violence represent the most common causes of maxillofacial injuries⁴.

It is often complex and challenging involving the healing (treatment) of facial bone fractures, dentoalveolar trauma and soft tissue lesions. Particularly the treatment of patients suffering from occupational injuries is very important because it concerns a purely productive age and so, a quick and efficient recovery of these patients is required to return to their job^{4,6}. Patients may present with facial injuries alone or with associated trauma to other systems⁶. The nature of the work is classified as:

1. agriculture and forestry;
2. construction;
3. manufacturing;
4. other services (craftsmen, office and service workers, transportation and warehousing etc)^{2,7}.

In this paper, a rare case of a farm-yard maxillofacial injury is presented. We also discuss the danger of agricultural jobs, some measures that can be taken, and some general but significant elements about maxillofacial injuries.

Case Report

A 50-year-old woman, farm worker, joined in urgent outpatient clinic of a provincial hospital after an injury of the lower lip and mandible, with tooth dislocation, fracture of the alveolar process in the same area and a condyle fracture of the opposite side. The patient reported that the trauma was caused in a field of sunflowers while she was working in the sunflowers seed harvest. Soft tissues of the lower lip were sutured in the emergencies of the local hospital.

Clinical and radiographic assessment revealed a fracture of the anterior right part of the mandibular alveolar process, along with the teeth #43 and #45 displaced lingually (Figs. 1 and 2). A second fracture was depicted in the panoramic radiography at the condyle neck of the opposite side of the mandible (Fig. 1). No sign of paraesthesia was detected.



Figure 1. A panoramic radiography reveals a fracture of the alveolar process in the anterior aspect of the mandible and a fracture of the left condyle

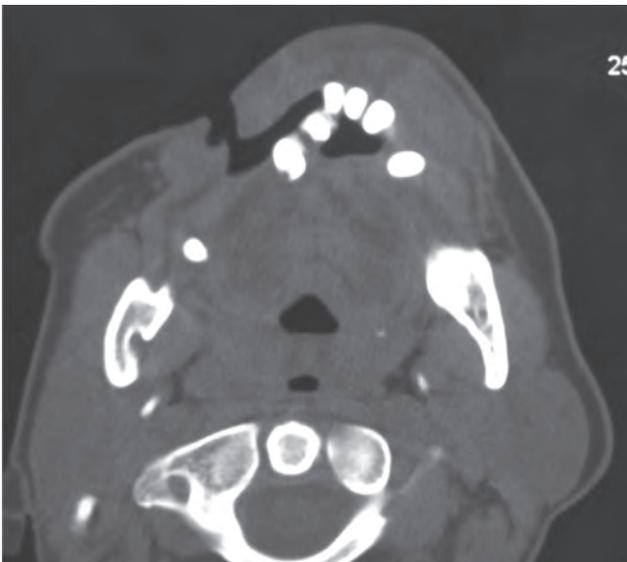


Figure 2. The lip laceration is well depicted in this CT-Scan image



Figure 3. The sunflower seed shell removing machine



Figure 4. Patients image 40 days after

After the initial deal, the patient was referred to the Department of Craniomaxillofacial Surgery (University clinic in the General Hospital G. Papanikolaou). Teeth #31, #32 and #33 were mobile. Under local anaesthesia, all luxated and displaced teeth, along with the fractured alveolar process, were stabilized with an external fixation, using an Essig-type splint. The patient stayed for monitoring, and after 3-4 days she was discharged. She showed significant improvement during post-operative control. In the case of patients reporting, the injury was done within seconds: the rotating machine in use (Fig. 3), caught her overcoat and with the power of rotation it pulled her throughout. Before her co-workers were able to do anything, her lip touched the rotary cylinder and caused the injury by its rotary force.

The patient was re-examined in the follow-up process, and after a period of 40 days she showed an uneventful healing of the wound in the skin of the lower lip (Fig. 4).

Discussion

Sunflower farming is significant and widespread in several parts of Greece. The plantation belongs mostly to small family growers, which have limited resources, and their harvest gets in a manner that does not ensure the safety of workers. Farming is well known for its hazards, ranking among the most dangerous occupations for fatal

and non-fatal injuries. The methods used, can be called primitive, for the worker is completely unprotected on this machine: the process of these plants takes place in a rotary machine, which does not provide security, due to the fact that the worker touches the plant with bare hands on a rotary cylinder in order to detach the seeds from the sunflower. For many families it is the only crop and only income source (selling oil or seeds). This case is characteristic of the total lack of security measures in a region of the Balkans, where the population is rural and the methods used for the harvest and processing of agricultural products are dangerous. Unfortunate is the fact that in such works, children are involved and this is very dangerous, since severe injuries of the facial skeleton and soft tissues may lead to disorders in children's physical and mental development, or even death^{8,9}. The case presented here is not the only accident reported in the same family. A relative of our patient (a female cousin) was a victim of a similar accident while working in the same machinery some time ago. She had an upper limb amputated.

Unfortunately, especially in the maxillofacial area, there is not concrete data for such accidents. Sporadic reports are made and a lack of information exists for the outcome of such events. Fortunately those accidents are few in number. In the international literature, there are several reports and articles on occupational accidents, generally. Eggenesperger et al⁴ report a study in 42 patients suffering from occupational maxillofacial fractures (3 year survey, 2006). The mean age of the patients was 44.4 ages, male:female ratio=41:1. 69% of these injuries occurred in farm and forestry workers. The same authors agree that injuries generally are the main cause of reduced productivity, due to loss of days at work, even more than heart disease and cancer combined. Our patient had to stay out of work for at least 1 month.

The consequences of maxillofacial fractures remain of great significance, aesthetically and functionally. Rarely can it lead to death, with the exception of non stop bleeding and when inhalation of blood from oral bleeding is combined with a state of depressed consciousness - death may result from aspiration and asphyxia³. Another memorable risk factor is the fact that injury that takes place on farms and can cause serious infection (brain contamination) due to the fact that in the injury area, there is grass, mud, gravel and manure¹⁰.

Possible mechanisms of injury in agricultural work are: hit by object or an animal, fall from height and of course during operating or assisting in operating farming equipment and wood processing. Work-related accidents are related to 3 causes: (1) human error, (2) machinery or apparatus failure, and (3) improper use of equipment due to a lack of training and/or instruction^{11,12}. The majority of publication shows huge superiority of men towards women in occupational accidents and consequent injuries^{1,7,11}.

It is very important to know the differences between the population groups as well as the culture of it because it seems directly related to the causes of fractures and their severity. The only way to control the fact that these accidents occur is to understand the causes, habits leading to them, and thus be able to prevent them in any form. This requires the collection of data (sex, age, cause, circumstances of the accident, type and location), which must be recorded by a special unit recording and collecting maxillofacial trauma reports (cases, patients). This is possible to happen locally in large academic teaching modules that can be responsible for the treatment of such incidents in large cities-populations. Precautionary measures should be taken - even though they are not mandatory by law, as right information and training of workers across the work piece farm machinery etc, wear face and mouth guards, face shields or full-face protection helmets and spectacles, protective clothing and obviously not consume alcohol during work.

The list of machines available on the internet for the process of the sun flowers, did not appear anywhere the existence of such mechanism as the one that caused the accident. We suppose that this device was not fulfilling criteria of safety and probably was not officially patented in the EU.

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