

e-ISSN: 2454-9141, p-ISSN: 2455-0779

Volume 09, Issue 12, December 2023

DOI : <https://doi.org/10.55640/ijmsdh-09-12-10>

EPIDEMIOLOGICAL AND DIAGNOSIS ASPECTS OF FACIAL SMASH

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ABSTRACT

Introduction : Facial smashes are violent traumas occurrent on the face and Leading to lesions with functional, aesthetic and even cerebral complications. The aim of this study was to determine the epidemiological and diagnostic aspects of these fractures.

Material and method : It is an epidemiological, descriptive, retrospective, monocentric, non-exhaustive, non-representative study carried out from the files of patients with Facial smashes, between April 2018 to March 2021 in the maxillofacial surgery department of Owendo. The sources of information were departmental records, patient files and radiographic images. All patients with fractures in at least two levels of the face were included, all patients with fractures in only one level of the face were excluded, and all patients with incomplete records were not included. The Sex, the age, the etiology, the clinical and radiological signs were analysed.

Results : 15 cases were selected. The sex ratio was 14 men to 1 woman. The average age was 30, 53 ± 7.26 years. MVA predominated in 11 patients. The limitation of the mouth opening was found in 14 cases and periorbital ecchymosis in 13 cases. CT scan was the most frequently used examination. Fractures on the middle and lower levels were the most frequent.

Conclusion : It's a serious lesion of interest to young subjects. CT scan is the first line morphological examination.

KEY WORDS : Epidemiology, Facial Smash, Diagnosis

INTRODUCTION

Due to its anatomical position, the face is the part of the body most exposed to trauma because of the fragility of its skeleton ^[1]. Trauma to the face is common and affects mainly young male adults ^[2]. The injuries it causes are a public health problem, both physically and psychologically, because of their seriousness in terms of brain damage and their aesthetic or functional sequelae ^[3]. One of the most serious injuries is facial fracture, which is a break in the continuity of the bones, resulting in multiple fractures and involving at least two levels of the face. These fractures are the result of road traffic accidents, which are still the main cause ^[2] because of the lack of enforcement of speed limits, seat belt and helmet laws, and because many drivers are impaired by alcohol ^[4]. As the morphology of these fractures is often complex, multi-detector CT with multi-planar reformation (MPR) and three-dimensional imaging is a standard part of the evaluation of these maxillofacial injuries due to its sensitivity ^[5]. The aim of our work is to determine the epidemiological and diagnostic aspects of these fractures.

MATERIAL AND METHOD

This is an epidemiological, descriptive, retrospective, monocentric, non-exhaustive, non-representative study conducted from the records of patients with facial fractures between April 2018 and March 2021 at the Owendo maxillofacial surgery department. Sources of information were departmental registers, patient records and radiographs. Patients with fractures of at least two levels of the face were included, patients with fractures of only one level of the face were excluded, and patients with incomplete records were excluded. Sex, age, aetiology, clinical and radiological signs were analysed. Data were analysed using Epi info 6.0 software.

RESULTS

The sample consisted of 15 cases, 14 males and 1 female, giving a sex ratio of 14. The mean age was 30, 53 ± 7.26 years, with extremes of 23 and 52 years. The most common age group was 25-30 years with 40% of cases, followed by under 25 years and 30-35 years with 20% of cases, 35-40 years with 13.3% of cases and over 40 years with 6.7% of cases. The predominant aetiology was road traffic accidents,

accounting for 73.4% of cases, followed by falls from heights and work accidents, each accounting for 13.3% of cases.

The predominant signs on stomatological examination were restricted mouth opening (93.3%), vestibular ecchymosis (93.3%), periorbital ecchymosis (86.7%) and skin wounds (86.7%) Table 1 :

signs	Numbers	Frequencies
Limitation of mouth opening	14	93,3
Maxillary vestibular ecchymosis	14	93,3
Periorbital ecchymosis	13	86,7
Skin wound	13	86,7
Premature molar contact and open bite	13	86,7
Chin deviation	12	80,0
Gingival wound	11	73,3
Facial oedema	11	73,3
Tooth mobility	9	60,0
Stomatorrhoea	9	60,0
Hypoesthesia/Anesthesia V2	8	53,3
Hypoesthesia/Anesthesia V3	7	46,7
Traumatic dental avulsion	6	40,0
Telecanthus	6	40,0
Dental dislocation	1	6,7

Table 1 : Clinical signs of the stomatological examination according to the number of patients

Cinical signs of the stomatological examination according to the number of patients On otorhinolaryngological examination, pistaxis was the main sign in 73.3% of cases, followed by a completely normal examination in 26.7% of cases, then otorrhagia and facial paralysis in 6.7% of cases. The predominant sign on ophthalmological examination was subconjunctival haemorrhage in 93.3% of cases, followed by enophthalmos in 60% of cases, then blindness, diplopia and normal examination in 6.7% of cases each.

CT was the only radiological examination performed in all patients. CT scans showed 41.7% of fracture lines in the midface, 33.3% in the lower face and 25% in the upper face. The distribution of fracture levels showed a rate of 40% panfacial fractures, 40% middle 1/3 and lower 1/3 fractures



Figure 1 : 3D CT Fractures middle and lower third of the face

and 20% upper 1/3/middle 1/3 fractures. The location of the fracture line according to fracture stage showed a predominance of maxillary, frontal sinus and orbital roof fractures in the upper 1/3/middle 1/3 fractures

Upper 1/3 fracture	Frontal sinus bone fracture	Orbital roof fracture
Middle 1/3 fracture		
Maxillary fracture	6	6
Orbital floor fracture	5	6
Fracture of the zygomatic bone	5	6
Sphenopalatine fracture	6	3
Fracture of the OPN	2	1
Fracture of the lacrimal bone	2	1

Inter-maxillary fracture	2	1
Nasal spine fracture	1	0

Table 2 : Frequency of fracture lines on the bones of the upper third middle third of the face

The combination of sphenopalatine fracture, mandibular symphysis, mandibular parasymphysis, mandibular angle and coroneum was most common in the middle 1/3 to lower 1/3 fracture.

Lower fracture	1/3	Para-symphyseal fracture	Angulo-mandibular fracture	Symphyseal fracture	Condylar fracture	Coronoid process fracture
Middle fracture	1/3					
Sphenopalatine fracture		5	5	2	0	2
Maxillary fracture		4	4	0	1	1
Fracture of the zygomatic bone		4	5	0	0	1
Orbital floor fracture		3	4	0	1	1
Fracture of the OPN		4	2	0	1	1
Fracture of the lacrimal bone		3	2	0	0	0
Fracture of the zygomatic arch		1	1	0	0	1
Nasal spine fracture		0	0	1	0	1
Inter-maxillary fracture		0	0	0	1	0

Table 3 : Frequency of fracture lines on the bones of the lower third middle third of the face

For panfacial fractures, the most common associations were sphenopalatine fracture, frontal sinus and mandible.

Upper and lower 1/3 fracture	Frontal sinus bone fracture	Orbital roof fracture	Mandibular fracture
Middle 1/3 fracture			
Sphenopalatine fracture	6	3	6
Orbital floor fracture	2	3	4
Maxillary fracture	3	3	3
Fracture of the zygomatic bone	2	3	4
Fracture of the OPN	2	1	2
Fracture of the lacrimal bone	2	1	2
Nasal spine fracture	1	0	1
Inter-maxillary fracture	1	0	1

Table 4 : Distribution of the fracture line over the 3 levels of the face

DISCUSSION

Facial fracas is observed in young subjects who enjoy violent games and activities. Our study, like those of other authors, confirms the young age of the patients, although the average age varies between 22 and 30 years in the United States ^[6,7,8]. The sex ratio is strongly male, suggesting that this type of fracture is the prerogative of subjects who like to take risks in their daily activities. This male predominance is confirmed by Iranian studies ^[9]. The main cause of fractures in our country is accidents on public roads, which can be explained by the poor quality of our road network and the lack of awareness of and compliance with traffic regulations. This predominance of accidents on public roads is not confirmed by the work of Fassih et al, who consider fights and assaults to be the main causes ^[10]. Other authors who report public road accidents as the first cause find falls from heights and work accidents as the second cause ^[9].

The predominance of midfacial bone injuries explains why limited mouth opening and maxillary vestibular ecchymosis are the main signs. This level is also the site of cutaneous involvement, such as the high rate of periorbital ecchymosis. However, according to Fassih et al, the cutaneous wound is the first telltale sign of this type of fracture ^[10]. Given the force of the impact, it is normal that the combination of middle and lower level fractures is the most common, as the face is in the impact zone. However, it is the middle layer of the face that is most affected when analysing radiological images from CT scans, which must now be the first-line examination to confirm the diagnosis.

CONCLUSION

Facial fractures are more common in young male adults. The most common fracture relationship is between the middle and lower levels. Computed tomography is the radiological imaging test of choice for the diagnosis of facial fractures.

No conflict of interest

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