

## Physical Sequelae of Maxillofacial Trauma in Brazzaville About 229 Cases

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### ABSTRACT

**Introduction:** Maxillofacial trauma is an injury with uncertain morphofunctional sequelae despite the evolution of management techniques.

**Purpose:** To determine the frequency and characteristics of physical sequelae of in Brazzaville.

**Patients and Methods:** This was a descriptive cross-sectional study with retrospective and prospective data collection, from January 2017 to December 2021, on 229 isolated maxillofacial traumas, treated and followed up in the Department of Maxillofacial Surgery and Stomatology.

**Results:** The median age of our patients was  $33.30 \pm 1.2$  years, with a clear male predominance (78.1%). Trauma was related to road accidents in 78.6% of cases. 82.5% of patients had bone injuries. Initial management was delayed in 76.8% of cases, and caregivers were not specialized in 37.1%. Sequelae were common in 34.5% of cases. Facial deformities were found in 9.17% of cases, and dysesthetic scars in 8.7%. Temporomandibular dysfunction was found in 7.9% of cases, and permanent constriction of the maxilla in 6.5%.

Inappropriate indications of the initial lesions as well as the delay of the management were found in patients with sequelae.

**Conclusion:** The quality of the initial management of maxillofacial trauma, as well as the delay, is the pivotal factor that determines both the functional and aesthetic prognosis. It must be as complete and rapid as possible in order to minimize the sequelae.

### Keywords

Isolated maxillofacial trauma, Functional sequelae, Morpho aesthetic sequelae, Delay in management, Inappropriate indication.

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**Received:** May 11, 2023; **Accepted:** June 14, 2023; **Published:** June 19, 2023

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**Citation:** Mabika Bredel DD, Ngoua Essininguele L, Eboungabeka T. Physical Sequelae of Maxillofacial Trauma in Brazzaville About 229 Cases. J Oral Dental Care. 2023;1(1):1-4.

### Introduction

The physical sequelae of maxillofacial trauma (MFT) represent the set of more or less late morpho-aesthetic and functional altercations, occurring or persisting after the supposed healing period of an initial facial injury due to a maxillofacial trauma [1].

These sequelae alter the image and/or functions of the face, a social passport, the seat of expression and perception [2,3].

They represent, by their disfigurement, by their nature more and more disabling and difficult to repair [1], a social scourge in a

modern society more and more focused on appearance [3]. In the West, the number of sequelae is clearly decreasing, thanks to appropriate initial treatment, to less than 5% [4]. In Africa, on the other hand, sequelae are still a reality [1]. In Mali [5], a descriptive study identified physical sequelae in the order of 11, 7% respectively.

In the Congo, the studies on FMD carried out by NGouoni G et al. [6] and Eboungabeka et al. [7] only dealt with the epidemiological, clinical and therapeutic aspects. They also noted a high frequency of FMD at the University Hospital of Brazzaville (CHU-B), 47.8% of hospitalizations [6]. However, the sequelae of these lesions were not reported. Therefore, does this high frequency of maxillofacial trauma at CHU-B also translate into a high frequency of physical sequelae? With this in mind, we conducted this study to investigate the frequency and characteristics of physical sequelae of maxillofacial trauma in Brazzaville.

## Materials and Methods

This was a descriptive cross-sectional study with retrospective and prospective data collection, from January 2017 to December 2021, including 229 isolated maxillofacial trauma patients, treated and followed in the stomatology and maxillofacial surgery department of the University Hospital of Brazzaville.

We included: consenting isolated maxillofacial trauma patients, with a minimum of six (06) months of follow-up (time between the initial treatment and the date of evaluation) and aged over 12 years. Those who did not respond to the re-evaluation clinical examination appointments were excluded.

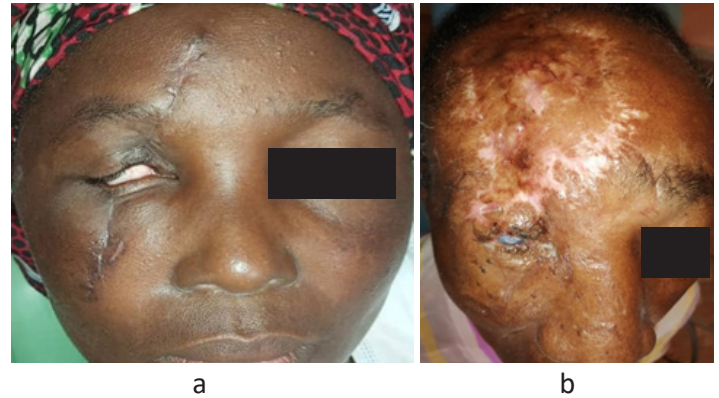
Simple randomization was our sampling technique, as all patients admitted for maxillofacial trauma were recruited with equal opportunity, before selecting only the files of isolated maxillofacial trauma patients, then calling them by telephone for the clinical evaluation examination. This examination was used to identify the type of physical sequelae. The following parameters were studied Socio-demographic, clinical and therapeutic variables at baseline, the presence of physical sequelae and the characteristics of the physical sequelae found during the assessment examination. Results for quantitative variables were expressed as mean  $\pm$  standard deviation and those for qualitative variables were expressed as headcount or percentage.

## Results

The median age of our patients was  $33.30 \pm 1.2$  years with extremes of 12 and 74 years. There was a clear male predominance (78.1%).

The traumas were related to public road accidents in 78.6% of cases, and assaults represented 17.5%. The delay in admission was late in 11.8%. 82.5% of the patients had bone injuries and 8.7% had facial disfigurements. The initial management was late in 76.8%, the indications were inappropriate in 30.1% and the caregivers were non-specialized in 37.1%, mainly paramedical staff. The survey conducted on 229 isolated maxillofacial trauma

patients revealed 81 patients with physical sequelae, i.e. 34.5%. They were morpho-aesthetic, functional and mixed (Figure 1).

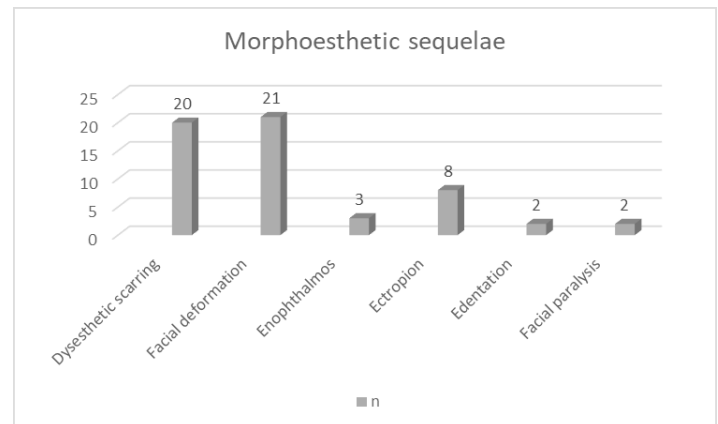


**Figure 1 (1a,1b):** Some overviews of morpho aesthetic and functional sequelae.

1a: Hypotrophic frontopalpebrojugal scar with palpebral ectropions. Sequelae of an inadequately sutured frontopalpebrojugal wound.

1b: Dyschromic right frontopalpebral scar, palpebral ectropion and post-traumatic cataract. Sequelae of a frontopalpebral loss of substance with exposure of the frontal bone and having benefited from a total skin graft.

The sequelae were isolated or associated. Figures 2 and 3, illustrate the number of patients according to the different types of sequelae.



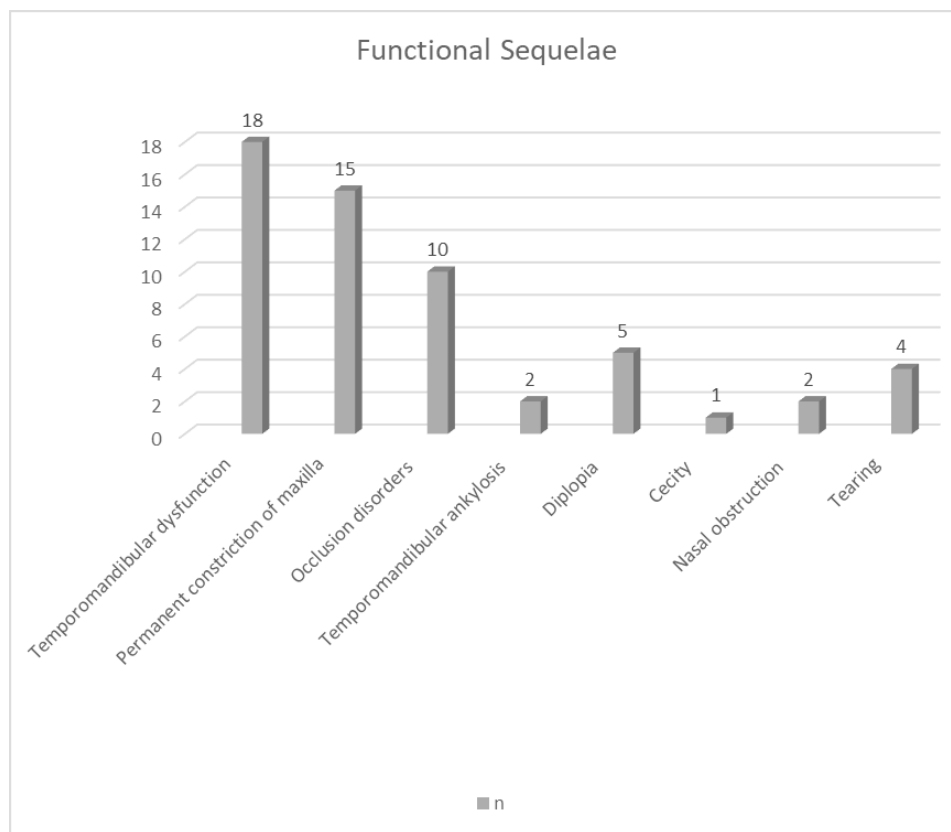
**Figure 2:** Number of patients according to the different types of morpho-aesthetic sequelae.

Facial deformities were found in 9.17% of cases, and dysaesthetic scars in 8.7% of patients.

Temporomandibular dysfunctions were found in 7.9% of cases, and permanent constrictions of maxilla in 6.5% of patients. Sensory disorders, particularly hypoesthesia, were found in 7% of patients.

## Discussion

Maxillofacial trauma, in spite of well-conducted treatment, may result in morphological and functional sequelae. It is therefore



**Figure 3:** Number of patients according to the different types of functional sequelae.

recommended that primary treatment be carried out as early and as completely as possible, in order to minimize the occurrence of these sequelae, especially since secondary surgery for corrective purposes remains difficult [8,9].

The study carried out has certain limitations, notably in the non-inclusion of certain categories of patients:

- Children under 12 years of age were not included in our study. It is true that the after-effects of Trauma sequelae can be found at any age, but given the limited number of maxillofacial trauma in children, we preferred to focus our study population on patients over 12 years old [6,7].
- Maxillofacial trauma associated with other lesions were also not included in our study: the aim was. The aim was to evaluate, in the strict sense of the term, the state of the art of sequelae in absolute relation to maxillofacial trauma. The association of other lesions could influence or obscure the sequelae directly related to maxillofacial trauma [10].

In our study, the patients were predominantly male (78.2%) with a sex ratio of 3.58, victims of road accident (78.6%) and assault (17.4%). In varying proportions, this predominance was found among the majority of perpetrators in Cameroon [11], and in Guinea Conakry [12]. This could be explained by the fact that men are more exposed than women to trauma in their daily activities. Thus, the more there is a clear predominance of trauma in a segment of the population, the greater the risk of occurrence of physical sequelae [1].

The physical sequelae represented 35.4%. This finding was also made by MOSSUS Y et al. [11] in Cameroon who found 33.87% of physical sequelae. This particularly high frequency in Cameroon can be explained by the type of fracture treatment, which was mostly orthopedic treatment known as maxillomandibular blocking, a therapeutic option that is a source of many sequelae, as noted by Nguoni Gerard et al. [6]. In general, in developing countries, the non-specialized management and the delay in diagnosis would explain this frequency [11]. In Madagascar, Randriamanampisoa J. [13] and in France [14], on the other hand, this frequency was low and respectively (7.63%) and (5.1%), which can be explained by the rapidity of management and the availability of specialized care.

Morphological sequelae such as facial deformities were found in 9.17% of cases, and dysesthetic scars in 8.7% of patients. These facial deformities were mainly found in patients who were treated late or who had received inadequate treatment, particularly for orbitozygomatic fractures. Many of the patients were managed by paramedical staff due to a lack of doctors. The morphological sequelae pose a real aesthetic problem with very often important psychological repercussions due to the feeling of community stigmatization [15,16].

The functional sequelae were diverse. Temporomandibular dysfunction, for example, was found in 7.9% of patients and permanent constriction of maxilla in 6.5% of patients. The disorders of the dental articulation were high in 4.4% of the patients. These

were mainly occlusal fractures. This can be explained by the fact that occlusal fractures, especially mandibular fractures, have been treated without specialization and with inappropriate indications, especially intermaxillary blocking. This therapeutic option is often the source of functional sequelae [6,14].

Other functional sequelae were essentially ophthalmological, notably diplopia, sequelae of lacrimation and blindness, found in 4.36% of cases. They represented 34% of cases in the study by Mabika et al. on facial fractures [1]. These ophthalmological sequelae (ocular motility disorders, sequential diplopia, blindness, lacrimation, etc.) are disabling for the patient [17]. Neurological disorders, essentially hypoesthesia, were found in 7% of patients, particularly in connection with bone damage.

## Conclusion

Sequelae of maxillofacial trauma are a reality in the Congo and represent a real social problem, with a frequency of 34.5%. It is of a morpho-aesthetic, functional or mixed nature and is the prerogative of young subjects with an average age of  $33.3 \pm 1.2$  years, male (sex ratio of 3.58), victim of maxillofacial trauma or assault, initially with morphological lesions, treated late sometimes by inappropriate indications and non-specialized care. Their prevention is based on an early, complete and hierarchical management, while knowing that a repair with return to the pre-traumatic state is difficult.

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