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Research Article

Epidemiological Aspect of Facial Wounds at Teaching Hospital Joseph Dieudonné Rakotovao Antananarivo Madagascar

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Abstract

Introduction: Facial wounds represent the most common facial emergency in maxillofacial surgery. The objective of this study is to determine, through a retrospective study, the aspects epidemiological and clinical trauma facial wounds seen in the maxillofacial surgery department of CHU RPG Befelatanana, Antananarivo.

Method: This is a retrospective study descriptive of 36 month going of month of January 2013 in the month of December 2015. The cases of facial burns have been excluded in this study.

Results: We have collected 684 patients including 513 male and 171 female sex ratio (H/F) of 3/1. The average age of our patients was 28.36 years. The most common causes were the aggressions in adults and the domestic accidents in children, followed by public road accidents. Alcohol was implicated in 9.94% of cases. The first vulnerate agent involved was the White weapon (15.35%). The labial region was the most affected, or 25% of the cases. In 2.92% of cases, a noble facial organ was affected and one or more bone lesions were associated in 37.57% of cases.

Conclusion: The knowledge of its epidemiological peculiarities is important for a better management of these PLA Facials.

Keywords: *Aggression; Epidemiology; Facial Trauma; Facial Wound*

Introduction

Facial wounds (PF) are defined as an interruption in the integrity of the skin or mucosal lining of the face. They are the most frequent motive consultation with maxillofacial emergencies and often affect young subjects. Frequently isolated, facial wounds may be observed in the context of a polytrauma [1,2]. The subsequent severity of cervico-facial traumatic wounds (PTCF) lies in their aesthetic, functional and psychological sequelae. The Knowledge of its epidemiological and clinical peculiarities is crucial for a better management and especially for the elaboration of a national policy prevention adapted. Thus, the purpose of this work is to determine, through a retrospective study, the epidemio-clinical aspects of the wounds Traumatic facials observed at CHU-RPG Befelatanana Antananarivo.

Materials and Method

This is a re-descriptive retrospective conducted over a period of 3 years from January 2013 to December 2015, in the service of maxillofacial surgery (CMF) of the University Hospital Joseph Dini Rafiq (CHU-RPG) Befelatanana Antananarivo. The study includes all the patients having been treated in the service for a facial wound. The cases of facial burns were excluded from this Study.

The parameters analyzed were the age, the sex, the profession of the patient; the exhibitor factors; etiologies the types and the topographies of wounds as well that the lesions associated with.

Ethical approval was given for this study.

Results

We have collected 684 patients or 13.71% of the total consultation. The average age of our patients was 28, 36 years with extremes of 2 years and 76 years and the age range from 21 to 30 years was the most affected (Table 1).

Age group	Effective	Percentage
[2 - 10]	120	17,54
[11 - 20]	118	17,24
[21 - 30]	212	30,99
[31 - 40]	141	20,61
[41 - 50]	35	05,11
[51 - 60]	26	03,79
[61 - 70]	22	03,21
71 and above	10	01,45
Total	684	100

Table 1: *Distribution of patients by age groups.*

We noted a sharp male predominance with a sex ratio of 3/1 (Figure 1).

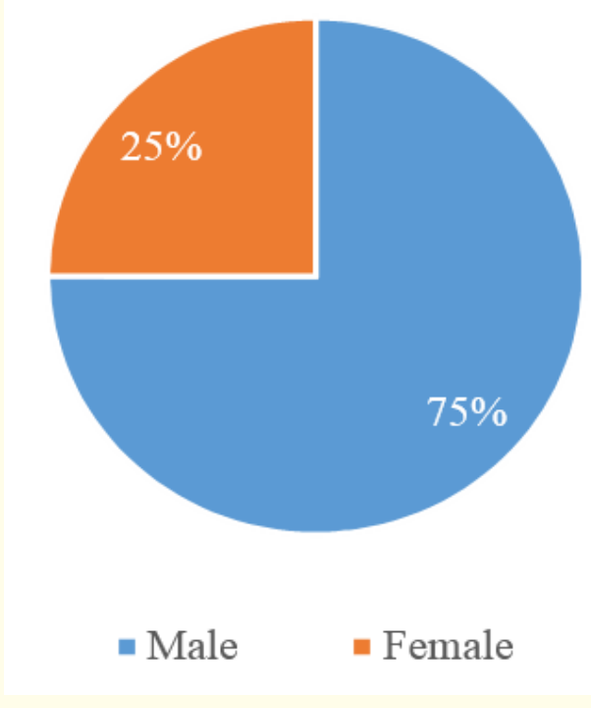

Figure 1: *Distribution of patients by gender.*

Schoolchildren accounted for 45.46% of our patients (Table 2).

The first because of wounds facial was the accidents domestic at the children (29.75%) and aggression among adults (44.97%) (Figure 2).

Alcohol has been As a predisposing factor in 9.94% of cases (Figure 3).

	Subjects under 15 Years	Subject more than 15 Years	Total
Workers	-	234 (34,21%)	234 (34,21%)
School-children	184 (26,90%)	127 (18,56%)	311 (45,46%)
Unemployed and non-schoolchildren	21 (3,07%)	118 (17,25%)	139 (20,32%)
Total	205	479	684 (100%)

Table 2: *Distribution of patients by profession and age group.*

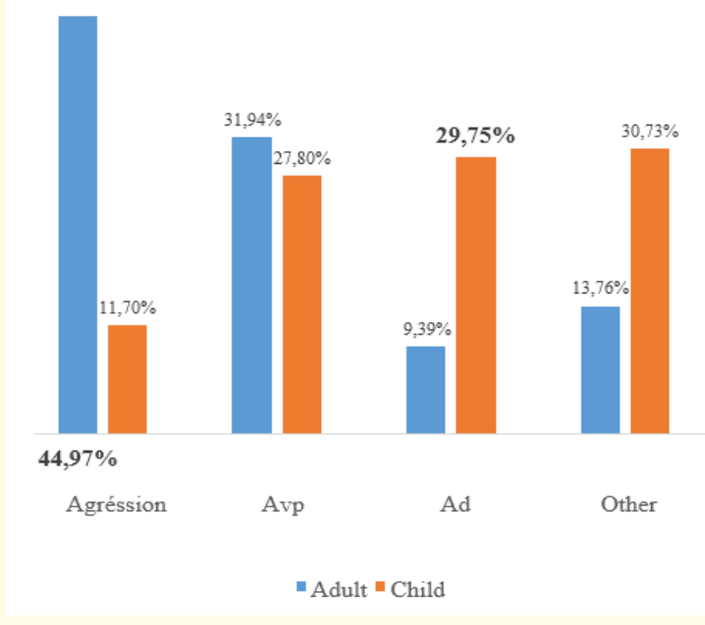

Figure 2: *Distribution of patients according to the etiology of wounds.*

(AVP: Public Road Accident; AD: Domestic Accident; Other: Sports Accident, School Accident).

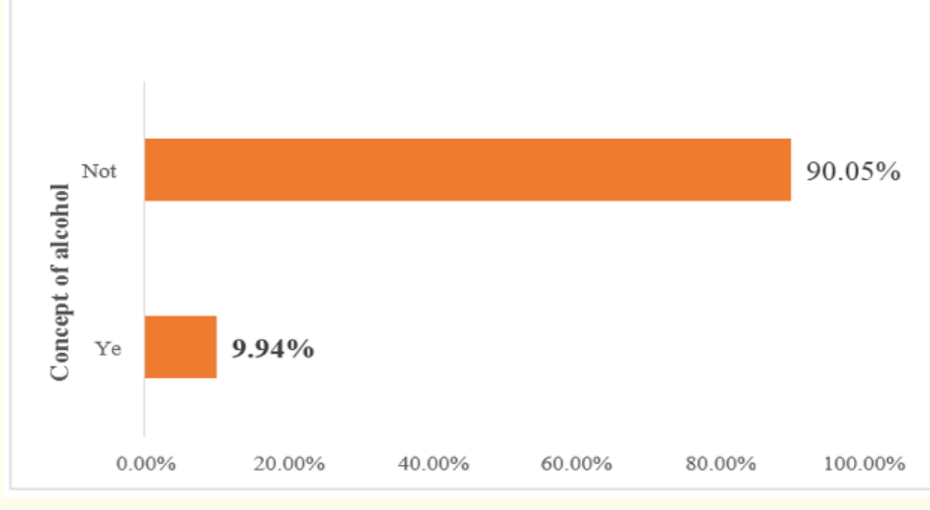

Figure 3: *Distribution of patients according to the concept of alcohol intake.*

The white weapon was noted as the first vulnerate agent in 15.35% of the cases (Table 3) while that the AVP with of gear a two wheels have been the more identified (Table 4).

Agents vulnerates	Number	Percentage
White weapon	105	15,35
Firearm	06	0,87
Human bite	10	1,46
Other	88	12,86
Not specified	475	69,44
Total	684	100

Table 3: *Distribution of patients according to vulnerates agents.*

Place	Car	Motorcycle	Bicycle	Cart	Total
City	147 (21.49%)	236 (34.50%)	23 (3.36%)	-	406 (59.35%)
Suburban	108 (15.79%)	34 (4.97%)	16 (2.34%)	3 (0.44%)	161 (23.54%)
Rural	47 (6.87%)	-	39 (5.70%)	31 (4.53%)	117 (17.10%)
Total	302 (44.15%)	270 (39.47%)	78 (11.40%)	34 (4.97%)	684 (100%)

Table 4: *Distribution of patients by location of accident and causes of AVP.*

The labial region is the most affected (25% of cases) followed by the frontal region (13.88% of cases) (Figure 4).

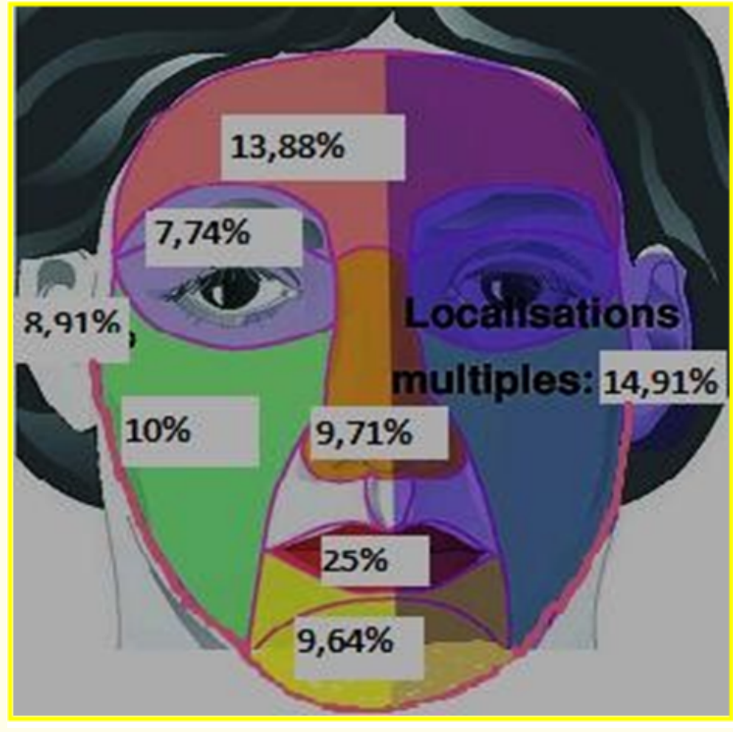

Figure 4: *Distribution of wounds according to topography.*

Abrasions dominated the clinical picture (63.59% of cases). The wound FCfia was transfixante in 11.84% of cases and accompanied by loss of substance in 6.14% of cases (Table 5).

Types	Number	Percentage
Abrasion	435	63,59
Laceration	126	18,42
Transfixiante	81	11,84
Loss of substance	42	6,14
Total	684	100

Table 5: *Distribution of patients by type of wound.*

A lesion of the noble facial organs is found in 2.92% of the cases (Table 6). In 37.57% of cases, a facial fracture was associated (Table 7). In 7.89% of cases a cranio-facial lesion was found in 20% of the cases were extra facial lesion (Figure 5).

Affected organs	Number	Percentage
Eyeball	15	2,19
Nerf facial	02	0,29
Steno Conduit	01	0,14
Lacrimal track	02	0,29
Total	20 Cases/684	2,92

Table 6: *Distribution according to the noble facial organs reached.*

Associated facial Fracture	Number	Percentage
Mandible	106	15,49
Maxillary	82	11,98
Alveolo-Dental	25	3,65
Nasal	31	4,53
Malaire	12	1,75
Panfaciale	01	0,14
Total	257	37,57

Table 7: *Distribution according to the associated facial fracture.*

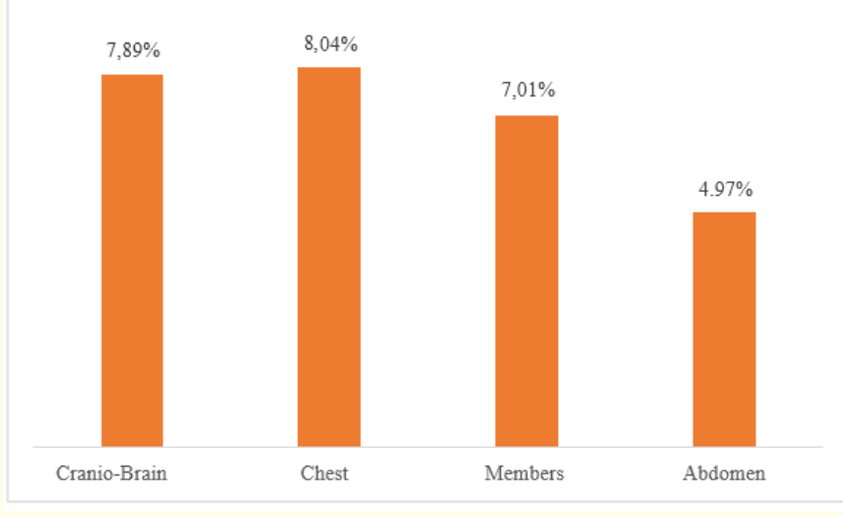

Figure 5: *Distribution according to the associated extra facial lesions.*

Discussion

There were 684 patients included in this study out of a total of 4987 consultants either a frequency of 13.71%. Not far, Poncet JL., *et al.* have reported a frequency from 15 to 20% [3]. Another malagasy study made by Razafindrakoto., *et al.* has reported 1.9% in the department of Cervico-facial surgery in Antananarivo [4]. In Morocco, Lana M., *et al*., have found that cervico-facial traumatic wounds accounted for 35% of all the their patients [5]. Often, simple facial wounds are taken care in another center close to place of accident and don't attend the special specialized center.

Facial wounds are often a prerogative topic of Young., *et al* [4]. We have found in our series an average of age about 28.36 years old. That fact has joined what Diallo Gold., *et al*. have noticed in Guinea. Their average age of patients has been around 28 years with a predominance of the age group of 21 à 30 Years. Depending on Razafindrakoto., *et al*. the age range from 21 to 30 years was the most affected by traumatic facial wounds [4]. This may be related to the fact that young subjects are more active and more exposed to the risk of trauma.

Facial wounds affect all age groups but also both sexes. Among our patients, there were 513 men (75%) and 171 women (25%) being a sex ratio of 3/1. Several authors shared the same finding that men were more concerned with traumatic facial wounds. Diallo., *et al*. found a male predominance of 74.34% with a sex ratio of 2.90 [1]. Hans S reported that facial trauma is more common in male sex subjects [6]. Male dominance could be explained by their mobility and by the fact that men are often more exposed to risky work.

According to the profession, students were the most affected with a percentage of 26.42% followed by workers and artisans 20.75% in Conakry-Guinée [1]. On the other hand, the non-workers patients were the most affected in our study. They have represented 24% of our patients and they are more involved in brawls and aggression [7].

In relation to causal factors, our results showed that the first causes of facial trauma were assault and traffic accident especially for adult but domestical accident and falls are the most frequent traumatic causal for children. Razafindrakoto., *et al.* [4] also Diallo., *et al.* public road accident followed by assaults and brawls in 15.85% of cases [1]. The European authors have reported that brawls, sport are the main causes of facial wounds [8,9]. For Carvalho, the main etiology of facial wounds were interpersonal violence (27.9%) and public road accidents (16.6%) [10]. They are often related to excessive consumption of alcohol [11].

One Nigerian study has reported that public road accident has been the first cause of facial wound followed by interpersonal violence [12]. In this study, alcohol is not implicated as a risk factor. Data of a study shows that there is a statistically significant correlation between the decline in alcoholism and the and the drop in impact of maxillofacial trauma [13]. Among the public road accident, accidents related to two wheels motorcycles were in the first place (40.11% against 22.75% for four wheels vehicles). In Malaysia, half of the facial wounds due to public road accident are also caused by two-wheeled vehicle accidents [14]. This high frequency of public road accident can be explained by combination of a number of factors such as the increase of number of two-wheeled gears, or a context of ignorance and non-observance of the rules of road traffic, the non-use of protective helmets, the poor state of roads.

One hundred and five of our patients or 15.35% of the cases were victims of a facial wound by a white weapon and we noticed six cases of wounding by firearm. According to Ehsani A, the first vulnerate agent involved in all mechanical confounded was the white weapon (9.2%) and 63% of the cases of these wounds by white weapon sat at the jugal level. The second vulnerate agent involved was the stones (8.4%) while the third was the glass shards (5.9%) [7].

Among our population, ten or 1.46% were victims of a wound by human bite. In this series, she was responsible for complex wounds with loss of labial substance (Figure 6). Indeed, the facial wounds by human bite were rare, constituting around 20% of the wounds per bite and were related to the intake of alcohol [15]. Animal bite wounds were the most observed and it was often a dog bite, encountered In children. The lesions were deep, and caused functional and aesthetic sequelae. The main infectious risk is very high. Surgical management must be immediate in a specialized environment [15,16].

In our study, the labial regions were the most affected followed by frontal region. Our results has joined what Ehsani A has reported, that frontal region and cheek were the more exposed region to trauma in the face. But for others, like those of Diallo G., *et al*. forehead and lips were the more affected in 26.79% respectively, followed by the eyebrows arcade (16.60%) [1]. The topography changes and depending on series and studies. Those regions are more exposed because they are the salient and the prominent regions of the face [7].

Figure 6: *Lower labial wound with loss of substance following a human bite (photo taken during consultation at CHU RPG Befelatanana Antananarivo)*

Facial wounds exposes noble organs of the face to these traumas such as the eyeballs, the lacrimal pathways and the facial nerve that have been affected in our patients. Ehsani A., *et al*. have also reported associated ocular lesions [7].

Clinically, abrasion skin or type I wound according to Carter classification was more frequent than other kind which is similar to that of Ehsani A [7]. While for Diallo., *et al*. also Vaillant JP., *et al*. type II wounds with risk of skin necrosis second area, were most observed (49.05%) [1,17]. The types of wounds depend on the traumatic agent, the force of aggression and the distance between the traumatic agent and the subject but often it is the blunt wounds are treated in the center Hospitals [1].

The obsession with all traumatic facial wounds is the presence of the associated lesions both on the locoregional plane and in general [2]. In this study, facial wounds were associated with facial fractures in 37.57% of cases and mandibular fracture ranks first (15.49%). For Diallo., *et al*. body bruising was 46.80% followed by fractures of facial bones (14.7).

Conclusion

Facial wounds is frequent in our context. They are the prerogative of the young adult male and often secondary to interpersonal violence. Labial and frontal region wound have been the more affected but it didn't saved for enough the other regions. The wounds have been superficial but also profound which require urgent and adapted management to avoid infectious complications but also functional and aesthetic.

Bibliography

1. Diallo OR., *et al*. "Traumatic Cervico-facial wounds at the National Hospital Donka of the CHU of Conakry". *Mali Medical* 27.1 (2012): 1-5.

2. Thiéry G., *et al*. "Damage Control in facial maxillofacial surgery". *E-Memoirs of the National Academy of Surgery* 11.4 (2012): 64-68.

3. Ponce JL., *et al*. "Assessment of gravity ET is looking for early complications in a traumatized cranio-facial". *Rev Practitioner* 9 (2003): 1033-1039.

4. Razafindrakoto RMJ., *et al*. "Study Epidemio-Clinical facial Wounds traumatiques at the University Hospital Centre in Antananarivo". *Revue d'odontostomatologie Malgache en ligne* 8 (2014): 9-21.

5. Lahloul M., *et al*. "Conduct to stand before a trauma of face". *Rev Med expectancy.* 96 (2003): 5-7.

6. Hans S. "Thes face trauma, conduct to be held and functional sequelae". *Rev Cancer Trauma Face* 210 (2002): 9-24.

7. Ehsani Has., *et al*. "Profile of the wound facial in the region Marrakech Tansift El Haouz: About 1500 cases". Faculty Medicine and Pharmacy - Marrakech, thesis N 66 (2012): 1-4.

8. Motamedi MHK. "An assessment of maxillofacial fractures: a 5 year study of 237 patients*". Journal of Oral and Maxillofacial Surgery* 61.1 (2003): 61-64.

9. Dongas P and Hall GM. "Mandibular fracture patterns in Tasmania, Australia". *Australian Dental Journal* 47.2 (2002): 131-137.

10. Carvalho TB., *et al*. "Six years of facial trauma care: an epidemiological analysis of 355 cases". *Brazilian Journal of Otorhinolaryngology* 76.5 (2010): 565-574.

11. Hutchinson IL., *et al*. "The BAOMS United Kingdom survey of facial injuries: aetiology and the association with alcohol consumption". *British Journal of Oral and Maxillofacial Surgery* 36.1 (1998): 3-13.

12. Adeyemo WL., *et al*. "Trends and characteristics of oral and maxillofacial injuries in Nigeria : a review of the literature". *Head and Face Medicine* 1 (2005): 1-7.

13. Gassner R., *et al*. "Craniomaxillofacial trauma: a 10-year review of 9543 cases with 21 067 injuries". *Journal of Cranio-Maxillofacial Surgery* 31.1 (2003): 51-61.

14. Hussaini HM., *et al*. "Maxillofacial trauma with emphasis on soft-tissue injuries in Malaysia". *International Journal of Oral and Maxillofacial Surgery* 36.9 (2007): 797-801.

15. Rothe K., *et al*. "Animal and human bite wounds". *Deutsches* Ärzteblatt *International* 112.25 (2015): 433-443.

16. A Ducasse., *et al*. "Plaies palpébro-lacrymales de l'enfant". *Journal Français d Ophtalmologie* 32.5 (2009): 374-379.

17. Valiant JP. "Face trauma. Emergency trauma". ROUSSEL France (Paris) (1980).

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