Clinical and Médico-Legal Aspect of Traumatism Bucco-Dental Injuries in Yaounde-Cameroon

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Abstract

The main objective: of the study was to describe the socio-demographic, clinical, medico-legal, therapeutic and prognostic characteristics of traumatic oral lesions in patients presenting to health facilities in Yaoundé.

Methods: We conducted a descriptive, prospective, cross-sectional study for 7 months during 2021, in consenting patients, with traumatic dental lesions in four secondary and tertiary health facilities in Yaoundé. The data was collected, processed, and analyzed using IBM SPSS version 23.0 software® for Windows®.

Results: Of the 129 patients included, 70.54% were male. The median age was 29.57 ± 14.73 years. Single people accounted for 67.44%. People working in the private sector and those with a secondary education represented 48.84% and 44.96% respectively. The emergency department of the selected hospitals received 51.00% of the patients with traumatic oral injuries. Clinically, patients with head and neck injuries and those with isolated oral trauma had 72.09% and 22.48% respectively. Of 183 traumatized teeth, 79.24% were incisors. About 56.59% of the patients were hospitalised, while 75.20% underwent radiological examination. In total, 73.64% had undergone a surgical procedure. About 54.26% of the cases were victims of road traffic accidents (MVA). From a medico-legal point of view, 75.97% of the patients suffered an involuntary trauma. The average total temporary disability was 21.97 days ± 17.47 days (0-45 days). The 5-level pain scale was used and 37.21% of our population had a pain grade of 5. Only 16.28% (21) of the cases received a documented forensic assessment. Of the participants, 13.18% (17) expressed their intention to seek legal compensation for the trauma they suffered. Almost 76.74% (99) of the cases had a combination of functional impotence and cosmetic damage as a result of the traumatic injury. A total of 68.97% (60) of the cases had received a TIW≥30 days for involuntary trauma while, 68.00% (17) received a TIW<8 days for voluntary trauma

Conclusion: The oral trauma profile in Yaoundé is similar to many studies worldwide. Documented forensic assessment of damage to the orofacial sphere is not systematic and is mostly done at the request of the patients.

Keywords: Traumatic Bucco-dental Injuries; Clinical Characteristics; Medico-legal Certificate.

Introduction

Traumatic bucco-dental injuries (TDI) are quite frequent, though certainly under-reported worldwide [1]. In order to promote oral health, experts have identified the need to properly treat the most common oral diseases, and oral

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trauma is listed alongside six other conditions including dental caries, periodontal disease and the oral manifestations of HIV and AIDS [1]. Oral dental trauma (ODT) is quite common, although certainly under-reported worldwide. Petti et al. in 2018, in their meta-analysis on the world prevalence and incidence of ODT, reported that oral trauma injuries account for 5% of all body injuries, in all age groups, although the oral region accounts for only 1% of the total body surface. They also stated that TBD patients account for a remarkable 85% of all those with maxillofacial trauma injuries [2]. Similarly, Figueiredo et al in 2019 stated that dental injuries and fractures are among the most common orofacial injuries, with orofacial injuries being the 5th most common traumatic injury worldwide [3].

In our context, Agbor et al. in 2012 reported a prevalence rate of 37.1% for dento-facial injuries in athletes practicing contact sports in Yaoundé [4]. Mossus et al. recently reported in 2021 a prevalence rate of 14.74% for dento-maxillary trauma in combat sports in Yaoundé [5]. Bengondo et al. reported a prevalence rate of 38.2% for traumatic injuries of the alveolar complex and soft tissues in patients aged 1-14 years and a prevalence of 0.5% for mandibular fractures [6]. However, none of these studies examined the medico-legal aspects of the patients’ injuries and lesions. The considerable and obvious variations in the incidence and prevalence of traumatic oral injuries around the world may explain why they were not reported among the 310 most important acute and chronic diseases in the Global Burden of Disease Study [7]. Among the reasons identified so far for this global variability are social, economic and cultural diversity [8] and a clear lack of standardised recording and classification of TBH in the currently available literature [9]. From a clinical perspective, evidence-based dental trauma remains a distant wish due to the potentially unethical feat of requiring patients to consent to randomised controlled trials in the acute phase of injury. However, since 2001, the International Dental Trauma Association has been developing and revising guidelines for clinical management in emergencies [10].

In contrast to clinical management, where there is some degree of consensus on what to do with various injuries, the forensic assessment of these injuries appears to be a major problem worldwide [10], including in our context. In order to contribute to the scientific landscape of this very important subject, the aim of this study was to characterise the clinical and especially the medico-legal aspects of oral trauma injuries in patients treated in Cameroon.

**Methodology**

It was a prospective, cross-sectional study for 7 months from December 2020 to May 2021. Our sampling was consecutive including all patients consenting, presenting with traumatic dental injuries in 4 secondary and tertiary health facilities in Yaoundé. This study was conducted in Yaoundé city, respectively at the Yaoundé Central Hospital (HCY), the Efoulan District Hospital (HDE), the Biyem-Assi District Hospital (HDB) and the Cité Verte District Hospital (HDCV). These hospitals were selected because of their high patient attendance. After obtaining ethical clearance from the Institutional Ethics Committee of the Faculty of Medicine and Biomedical Sciences of the University of Yaoundé, administrative authorization from the directors of the above-mentioned hospitals was obtained and finally, informed consent was submitted and signed by the patients who agreed to participate in the study. The data was collected, processed, and analyzed using IBM SPSS version 23.0 software® for Windows®.

**Results**

Out of 2429 cases of body trauma consulted, 129 cases of oro-facial trauma were recruited in four health structures in the city of Yaoundé [Table 1], corresponding to a prevalence of 5.60% and a male prevalence of 70.54% (91). The mean age was 29.57±14.73 years with extremes of 1 year and 68 years. Single people were the most represented with 67.44% (87). People working in the private sector were more prone to traumatic oral injuries with 48.84% (63), followed by students with 29.46% (38), then the unemployed with 12.40% (16) and finally civil servants with 9.30% (12). Individuals with secondary education were 44.96% (58), and only 14.73% (19) of the participants had a university degree. About 46.51% (60) of the patients were seen at the Yaounde Central Hospital (HCY) [Table 1]. The emergency department of the selected health facilities received 51% of patients [Figure1]. Regarding oral trauma injuries, 85.27% had dental injuries, followed by 81.40% of traumatic lip injuries [Figure 2]. A total of 183 traumatized teeth were composed of 79.23% canines (145). There were 56.59% (73) of the patients admitted to hospital, 43.41% (56) of the cases had undergone imaging procedures, 26.36% received drug treatment and 73.64% (95) received surgical treatment. These were 31.78% major surgery.

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In terms of forensics, 75.97% (98) of the patients suffered involuntary trauma (MVA, falls, sports injuries) and 24.03% (31) voluntary trauma (assault or brawl). The participants had a mean total temporary disability of 21.97 days ± 17.47 days with extremes of 0 and 45 days. On the pain intensity scale from 1 to 5, 37.21% of the patients with involuntary trauma had an optimal pain level of 5. Only 16.28% (21) of our participants received a documented forensic assessment. Of the participants, 13.18% (17) of the cases expressed their intention to seek legal compensation for the trauma they had suffered. Approximately 76.74% (99) of our participants had a combination of functional sexual impotence and cosmetic damage because of the traumatic injury. It was found that 68.97% (60) of the participants with involuntary traumas had received ≥30 days TTD while 31.03% (21) who had obtained<30 days TTD. Regarding voluntary trauma, 68.00% (17) received<8 days TTD while 32.00% (8) received≥8 days TTD in our cohort.

### Discussion

Out of 129 cases of orofacial trauma, the management in an emergency unit was done in 73.65% of cases; and 51% were not directly managed in the oral department. This result corroborates that of Malandris et al. in Australia in 2020, where 50.39% of patients received in an emergency unit were treated immediately in the odontostomatology practice that was housed in the emergency unit [11]. About 77.52% of the participants had mixed oral/extra-oral lesions, and only 22.48% had isolated oral lesions. This is because the impact involved the whole head and/or the whole body in drivers and those carried by motorbike taxis. Dental injuries were present in 85.27% of cases. This result is in agreement with Petti et al., in whom dental trauma injuries accounted for 85% of cases [3], and Lam et al., in whom the frequency of dental injuries was higher [12].

Out of 183 teeth with trauma, 79.23% were incisors. This can be explained by the fact that the upper incisors are the most exposed teeth in the oral cavity, and receive more impact than other teeth. This result is in agreement with Gonget al who found 59.2% central incisors and 17.9% upper lateral incisors [13]. Approximately 43.41% underwent CT-scan imaging. In addition, 31.78% of our participants underwent minor procedures and 30.01% underwent major procedures. These results reveal a questionable aspect of patient management, as many of the patients were not placed in hospital for observation, but were sent home and only returned a few days or weeks later for follow-up with the oral specialist. The head and neck CT-scans does not give detailed results on the dental lesions present as does orthopantomogram or dental retro alveolar film.

Furthermore, 72.09% of our participants had extra-oral head and neck injuries, mainly caused by road traffic accidents (95.71%), which is contradictory to other studies that found a higher prevalence in falls, followed by assaults, and then road traffic accidents [12,14,15]. This may be explained by the fact that most motorbike accident victims had the head as their landing point first before other parts of the body. Approximately 75.96% of the participants had suffered involuntary oral trauma injuries (MVA 54.26%, fall 20.16%, sports injuries 1.56%) while 24.04% had suffered voluntary oral trauma injuries (assault/direct trauma). Also, the participants had a mean TTD of 21.97 days ±17.47 days (0-45 days). In our study, participants had a mean TTD of 21.97 days ±17.47 days (0-45 days). These results correlate with those of the ICF framework [16]. A large number of our participants (83.72%) did not receive a forensic certificate and 92.25% received it 48 hours after the trauma. This may be because trauma victims are late in meeting with oral doctors, who prescribe radiological examinations to better assess the injuries. Sometimes, the difficulty in obtaining the medico-legal form, which is not always available in the accredited health structures, contributes to the complexity of the procedure. [10,16,18]. Among the participants with

### Table 1: Repartition in health facility of patients presenting Traumatic Dental Injuries (N=129), Yaounde Central Hospital; 'Effoulan District Hospital; 'District Hospital of Green City; 'Byemassi District Hospital.

<table>
<thead>
<tr>
<th>Variables (N=129)</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCY</td>
<td>60</td>
<td>46.51</td>
</tr>
<tr>
<td>HDE</td>
<td>25</td>
<td>19.38</td>
</tr>
<tr>
<td>HDCV</td>
<td>10</td>
<td>7.75</td>
</tr>
<tr>
<td>HDB</td>
<td>34</td>
<td>26.36</td>
</tr>
</tbody>
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[Figure 3] (osteosynthesis with mini-plates, restraints with ligature wires), 31.01% minor surgery [Figure 4] (sutures, splints, root canal treatment, extraction, drainage, debridement, reimplantation) and 10.85% cosmetic procedures (prostheses, implants, root canal treatment, crowns). Concerning polytrauma (multiple lesions), 93 patients had other non-dental, extra-oral lesions on the head and neck (72.09%). According to the mechanism of occurrence of trauma, about 54.26% of the participants were victims of road accidents, while 24.03% (31) reported a physical assault, falls were recorded in 20.15% of cases, and finally, 1.55% of cases were sports accidents.
voluntary trauma, only 13.18% of the cases requested a forensic certificate to file a lawsuit. In the case of involuntary trauma (75.96%), very few cases had received a forensic certificate. This could be explained by the marginal level of education of this segment of the population. Nevertheless, a minority of the trauma victims with a university education (14.73%) had health insurance. Our study agrees with that of Nseme et al [19].

The pain intensity scale, ranging from 1 to 5, revealed an optimum of level 5 in 37.21% of the patients with involuntary trauma. This can be explained by the fact that MVA injuries had a large impact on the whole body. This scale was described by Selakovic et al [10].

Most of the participants had both functional and cosmetic impotence (76.74%) as a result of their traumatic injuries. This result is in agreement with the study by Simo et al who conducted a comparative analysis of disability measures in Cameroon [20]. This can be explained by the mechanisms of injury occurrence in involuntariness trauma (points of impact and reception). The majority of participants (68.97%) received a TTD of more than 30 days for involuntary trauma, while 68.00% of voluntary trauma cases had a TTD of less than 8 days. This result could be explained by the fact that people with involuntary trauma had more severe injuries than those with voluntary trauma. Patients with multiple injuries had more days of TTD than those with single injuries.

**Conclusion**

The oral trauma profile in Yaoundé is similar to many studies worldwide. Documented forensic assessment of damage to the orofacial sphere is not systematic and is mostly done at the request of the patients. More than a third of the study population had optimal pain level 5. Three quarters of the patients had a unaesthetic damage that lead to some sexual problems. Almost all participants received a temporary total disability to establish the total functional deficit.

**Conflicts of Interest**

The authors declare that no conflict of interest.

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**References**


