DENTO-ALVEOLAR AND BONE TRAUMA IN ADULTS

(Epidemiological investigation)

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Abstract

The face is most exposed to trauma. His injuries include both soft tissue, bone architecture and teeth.

In severe trauma, we must first address the vital respiratory and circulatory emergencies. In case of poly trauma and other emergencies should also be sought and treated. The management of maxillofacial trauma requires a methodical clinical examination and a thorough radiologic provided mostly by CT.

The repair of soft tissue is delicate and requires a fine material and adapted. The treatment of bone fractures varies depending on their location and importance.

Dental injuries have multiple forms, this one among the total dislocation requiring rapid relocation.

The objectives of my work will be mainly:

-The description of common and specific protocols that govern the trauma and dento alveolar bone.

-The study of the prevalence of injuries occurring in adults

-The study of the distribution of injuries by using different variables (circumstances of onset, treatment, type of trauma), according to two factors, age and sex.

MESH :

Trauma dental, Alveolar, Basal bone, Epidemiological investigation.

Introduction

Facial trauma is defined as the set of lesions, which can involve the structures of the face located between the capillary line at the top and the tip of the chin below; his lesions affect the soft tissues, bone architecture and teeth. It is a particular pathological entity characterized by its disparity linked to both:

-To many types of lesions that can affect the different tissues and anatomical structures of the face.

-To the diversity of its therapy, including the prospecting of vital emergencies and subsequently functional precedes the maxillofacial care proper. **(1, 2, 3).**

The essence of facial trauma is a double-edged sword, which depends on:

-The variety and severity of their after-effects, both aesthetically and functionally, because the face is a provider of a person's identity; knowing that a number of loss of substance and unsightly scars can generate serious psychological disorders, as well as repercussions on speech, a real social passport. **(3, 4, 5, 6).**

-The immediate benignity, sometimes very impressive, despite the spectacular side of these traumas.

Although these traumas are an integral part of surgical emergencies, they are very rarely life-threatening, being limited to:

- Respiratory congestion, either by asphyxiation by a blood clot or by inhalation of a tooth fragment.

-The cataclysmic hemorrhage, massive by the plausible presence of facial wound, rhinorrhea, fracture of the middle 1/3 of the face, not causing major collapse despite their abundance; except for the possibility of internal bleeding, the research of which is not negligible at first glance

-Associated lesions, for example damage to the cervical spine, cerebral contusion, etc. **(7, 8, 9).**

The objectives of our work will be essentially:

-The study of the prevalence of trauma occurring in adults.

-The study of the distribution of trauma using different variables (circumstance of occurrence, treatment, type of trauma), depending on two factors, age and sex.

1. MATERIAL AND METHOD

1.1. Choice of survey type

This is a retrospective and descriptive study, extending from 01/01/2018 to 12/31/2018 in patients who present following dento-alveolar trauma and bone bases treated in the consultation service and emergency.

1.2. Study objectives

The main objective of this retrospective study was to identify the epidemiological profile of traumatic emergencies in the emergency department and dental care consultations of the Ibn Rochd University Hospital in Casablanca.

The secondary objective having been to allow an analysis of the different types of maxillofacial trauma according to certain variables such as age and sex.

The tertiary objective has been to establish the levels and priorities that govern the therapy of facial trauma, as well as to highlight an accurate diagnosis common and / or specific to the various trauma.

1.3. Target population

The study will be of interest to adult patients who have consulted in the CCTD's consultation and emergency department, following dentoalveolar trauma and bone bases.

1.4. Sampling

The parameters which governed the choice of our sample are the following indications:

-Inclusion criteria :

Any adult patient aged 15 and over received urgently for facial trauma, having consented to be part of this investigation.

-Exclusion criteria :

Despite the fact that a majority of the young population is primarily affected by facial trauma, children under 15 will not be included in our sample.

-Sample size

It is represented by a set of 200 patients who consulted during the year 2018 (from **01/01/2018 to 31/12/2018.**

1.5. Investigation support

-Inquiry sheet

A questionnaire was duly designed in French, in the form of different tables, thereby facilitating much more circumscribed and rapid filling, including the various variables essential to our study.

It has the following criteria::

-The civil status which specifies the personal information, namely (name, first name, age, phone number) and administrative, ie (file number, date of first consultation)

-The patient's history (reason for consultation, circumstance of occurrence, medical history ...

-The clinical and radiological examination which essentially comprises: a clinical examination proper, namely an exo-oral and endo-oral examination.

- Variables used

This study has two types of distribution, being:

-A socio-demographic, according to two values, one quantitative relating to the age of the patient and the other qualitative relating to the patient's sex, either male or female.

-A clinical nature, correlated with various variables treated in the attached chapter results, such as the circumstances of occurrence, depending on the location, the general condition of the patient, the presence of facial wound ...

1.6. Statistical method

-Means of description

They were the object of a computerized exploitation by means of a software specialized in the treatment of statistical data "SPSS" and the functions of pivot tables of Microsoft Excel, which allowed us to obtain the results below.

2. RESULTS

2.1. Distribution of trauma within the sample

-Global results:

The study showed that a number of 197 adult patients between 15 and 70 years of age consulted for facial trauma during 2010, at a rate of 8,200 patients who all consulted the SCUD for emergencies; which represents a prevalence of 2.4%.

-According to gender (Table 1):

Sexe	Effectif	%
Féminin	40	20,30%
Masculin	157	79,70%
Total	197	100%

Tableau 1 : Répartition des traumatismes selon le sexe

-According to age (Table 2):

Age	Effectif	%
[15-25[	93	47%
[25-40[	63	32%
[40-70]	26	13%
Non précisé	15	8%
Total	197	100%

Tableau 2 : Répartition des traumatismes selon l'âge

2.2. Distribution of injuries according to the circumstances of occurrence
-Global results (Table 3):

The study showed that out of all 197 patients who consulted, the majority of traumas that occurred were distributed as follows:

+ Aggression is the cause of the trauma in 93 patients, or 51.7%
+ The road accident is the cause of the trauma in 56 patients, or 31.1%
+ Shock is the cause of trauma in 26 patients, or 14.4%
+ The fall is the cause of the trauma in 18 patients, or 10%
+ The work accident is the cause of the trauma in 4 patients, or 2.2%.

Circonstance de survenue	Effectif	%
Accident de travail	4	2,2%
Agression	93	51,7%
AVP	56	31,1%
Choc	26	14,4%
Chute	18	10%
Total	197	100%

Table 3: Distribution of injuries according to the circumstances of occurrence

-According to gender (Table 4):

Circonstance de survenue	Sexe						Total	
	Féminin			Masculin				
	Effectif	% Par / au sexe	% Par / au Total	Effectif	% Par / au sexe	% Par / au Total	Effectif	%
Accident de travail	0	0%	0%	4	3%	2%	4	2,2%
Agression	15	38%	8%	78	50%	40%	93	51,7%
AVP	13	33%	7%	43	27%	22%	56	31,1%
Choc	4	10%	2%	22	14%	11%	26	14,4%
Chute	8	20%	4%	10	6%	5%	18	10%
Total	40	100%	20%	157	100%	80%	197	100%

Table 4: Distribution of injuries according to the circumstances of occurrence according to sex.

-According to age (Table 5):

Circonstance de survenue	Âge				
	[15-25[	[25-40[	[40-70[	Non renseigné	Total
Accident de travail	2%	1%	0%	0%	2%
Agression	25%	14%	5 %	4%	47%
AVP	14%	9%	3%	3%	28%
Choc	4%	7%	3%	0%	13%
Chute	4%	2%	2%	2%	9%
Total	47%	32%	13%	8%	100%

Table 5: Distribution of injuries according to the circumstances of occurrence according to age

2.3. Distribution of trauma according to the radiographic examination indicated:
-Global results (Table 6):

Out of all 197 patients who consulted, it turned out that panning is used regularly, even systematically during any trauma, knowing that:

+ Use of panoramic only in 37.56% of cases.
+ Use of panoramic associated with retro-alveolar in 36.55% of cases.
+ Single use of the retro-alveolar in 25.38% of cases.

Knowing that the use of radiography has been indicated predominantly in males, including:

+ The indication amounts to 79.70% of male patients
+ The indication is 20.30% of female patients.

Somme des Effectifs

Radiographie indiquée	%
aucune	0,51%
panoramique	37,56%
panoramique et RA	36,55%
RA	25,38%
Total	100,00%

Table 6: Distribution of trauma according to the radiological examination indicated

-According to gender (Table 7) :

Somme des Effectifs	sexe		
Radiographie indiquée	féminin	masculin	Total
aucune	0,00%	0,51%	0,51%
panoramique	3,05%	34,52%	37,56%
panoramique et RA	9,64%	26,90%	36,55%
RA	7,61%	17,77%	25,38%
Total	20,30%	79,70%	100,00%

Table 7: Distribution of trauma according to the radiological examination indicated according to the gender factor

-According to age (Table 8):

Somme des Effectifs	âge2				
Radiographie indiquée	[15-25[	[25-40[	[40-70]	Non renseigné	Total
aucune	0,00%	0,51%	0,00%	0,00%	0,51%
panoramique	15,74%	13,71%	3,55%	4,57%	37,56%
panoramique et RA	20,81%	9,64%	4,57%	1,52%	36,55%
RA	10,66%	8,12%	5,08%	1,52%	25,38%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 8: Distribution of injuries according to the radiological examination indicated according to the age factor

2.4. Breakdown of trauma by type of trauma:

-Global results (Table 9):

The breakdown revealed the presence of:

+ 56.85% of dentoalveolar trauma.
+ 20.81% trauma to the bone bases.
+ 14.21% dental trauma.
+ 4.57% of dentoalveolar trauma and associated bone bases.
+ 2.03% of alveolar trauma
+ 1.02% of soft tissue lesions
+1 case of ATM dislocation.

Somme des Effectifs	
Type de lésion	**%**
Lésion des parties molles	1,02%
Luxation de l'ATM	0,51%
Trauma alvéolaire	2,03%
Trauma dentaire	14,21%
Trauma dento alvéolaire	56,85%
Trauma dento alvéolaire et bases osseuses	4,57%
Trauma des bases osseuses	20,81%
Total	100,00%

Table 9: Distribution of trauma by type of trauma

-According to age (Table 10) :

Somme des Effectifs	sexe		
Type de lésion	féminin	masculin	Total
Lésion des parties molles	0,00%	1,02%	1,02%
Luxation de l'ATM	0,00%	0,51%	0,51%
Trauma alvéolaire	1,02%	1,02%	2,03%
Trauma dentaire	3,55%	10,66%	14,21%
Trauma dento alvéolaire	12,69%	44,16%	56,85%
Trauma dento alvéolaire et bases osseuses	0,51%	4,06%	4,57%
Trauma des bases osseuses	2,54%	18,27%	20,81%
Total	20,30%	79,70%	100,00%

Table 10: Distribution of trauma by type of trauma according to gender factor

-Acording to gender (Table 11):

Somme des Effectifs	âge2				
Type de lésion	[15-25[	[25-40[	[40-70]	Non renseigné	Total
Lésion des parties molles	0,51%	0,51%	0,00%	0,00%	1,02%
Luxation de l'ATM	0,51%	0,00%	0,00%	0,00%	0,51%
Trauma alvéolaire	0,51%	0,51%	1,02%	0,00%	2,03%
Trauma dentaire	7,61%	4,57%	2,03%	0,00%	14,21%
Trauma dento alvéolaire	27,41%	17,77%	8,63%	3,05%	56,85%
Trauma dento alvéolaire et bases osseuses	3,05%	1,02%	0,00%	0,51%	4,57%
Trauma des bases osseuses	7,61%	7,61%	1,52%	4,06%	20,81%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 11: Distribution of trauma according to the type of trauma according to the age factor.

2.5. Distribution of trauma according to the number of traumatized teeth
-Global results (Table 12):
The breakdown revealed the presence of:

+ In 2 3.86% of cases, the number of teeth affected is 2 teeth.
+ In 16.24% of cases, the number of teeth affected is 4 teeth.
+ In 12.18% of cases, the number of teeth affected is 3 teeth.
+ In 13.71% of cases, the number of affected teeth is one tooth.
+ In 4.57% of cases, the number of teeth affected is 6 teeth.
+ In 2.54% of cases, the number of teeth affected is 5 teeth.
+ In 1.52% of cases, the number of teeth affected is 8 teeth.
+ In 1.02% of cases, the number of teeth affected is 7 teeth.
+ No tooth is affected in 24.37% of cases.

Somme des Effectifs	
Nombre de dents traumatisées	%
1dent	13,71%
2dents	23,86%
3dents	12,18%
4dents	16,24%
5dents	2,54%
6dents	4,57%
7dents	1,02%
8dents	1,52%
aucune	24,37%
Total	100,00%

Table 12: Distribution of trauma according to the number of traumatized teeth.

-Acording to gender (Table 13):

Somme des Effectifs	sexe		
Nbre de dts traumatisées	féminin	masculin	Total
1dent	2,03%	11,68%	13,71%
2dents	8,12%	15,74%	23,86%
3dents	2,03%	10,15%	12,18%
4dents	4,06%	12,18%	16,24%
5dents	1,02%	1,52%	2,54%
6dents	0,51%	4,06%	4,57%
7dents	0,00%	1,02%	1,02%
8dents	0,00%	1,52%	1,52%
aucune	2,54%	21,83%	24,37%
Total	20,30%	79,70%	100,00%

Table 13: Distribution of trauma according to the number of traumatized teeth according to sex factor.

-According to age (Table 14) :

Somme des Effectifs	âge2				
Nbre de dts traumatisées	[15-25]	[25-40]	[40-70]	Non renseigné	Total
1dent	7,61%	5,08%	0,51%	0,51%	13,71%
2dents	9,14%	7,61%	5,08%	2,03%	23,86%
3dents	7,11%	2,54%	2,03%	0,51%	12,18%
4dents	8,12%	4,57%	3,05%	0,51%	16,24%
5dents	1,52%	0,51%	0,51%	0,00%	2,54%
6dents	2,03%	2,54%	0,00%	0,00%	4,57%
7dents	1,02%	0,00%	0,00%	0,00%	1,02%
8dents	1,02%	0,51%	0,00%	0,00%	1,52%
aucune	9,64%	8,63%	2,03%	4,06%	24,37%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 14: Distribution of trauma according to the number of traumatized teeth according to the age factor.

2.6. Distribution of trauma according to the type of traumatized teeth

-Global results (Table 15):

The distribution in Table 30 revealed the presence of:

+Involvement of the antero superior sector in 42.64% of cases.
+Involvement of the antero inferior sector in 6.60% of cases.
+Associated involvement of the superior and inferior antero sector in 12.69% of cases.
+No dental damage in 24.37% of cases.
+Unitary involvement of the upper incisor in 9.64% of cases.
+Unitary involvement of the lower incisor in 3.05% of cases.
+Involvement of the posterior sector in 1.02% of cases, or 2 patients.

Somme des Effectifs	
Type de dents traumatisées	Total
aucune	24,37%
Incisive inférieure	3,05%
Incisive supérieure	9,64%
Secteur antéro inférieur	6,60%
Secteur antéro supérieur	42,64%
Secteur antéro supérieur et inférieur	12,69%
secteur postérieur	1,02%
Total	100,00%

Table 15: Distribution of injuries according to the type of teeth injured.

-Acording to gender (Table 16) :

Somme des Effectifs	sexe		
Type de dents traumatisées	féminin	masculin	Total
aucune	2,54%	21,83%	24,37%
Incisive inférieure	0,51%	2,54%	3,05%
Incisive supérieure	1,52%	8,12%	9,64%
Secteur antéro inférieur	2,54%	4,06%	6,60%
Secteur antéro supérieur	11,17%	31,47%	42,64%
Secteur antéro supérieur et inférieur	2,03%	10,66%	12,69%
secteur postérieur	0,00%	1,02%	1,02%
Total	20,30%	79,70%	100,00%

Table 16: Distribution of injuries according to the type of traumatized teeth according to the sex factor.

-According to age (Table 17) :

Somme des Effectifs	âge 2				
Type de dts traumatisées	[15-25[	[25-40[	[40-70]	Non renseigné	Total
aucune	9,64 %	8,63 %	2,03 %	4,06%	24,37%
Incisive inférieure	1,02 %	1,02%	0,51%	0,51%	3,05%
Incisive supérieure	5,58 %	4,06 %	0,00 %	0,00%	9,64%
Secteur antéro inférieur	2,54 %	1,52%	2,54%	0,00%	6,60%
Secteur antéro supérieur	19,29 %	12,69 %	7,61 %	3,05%	42,64%
Secteur antéro supérieur et inférieur	8,12 %	4,06 %	0,51 %	0,00%	12,69%
secteur postérieur	1,02 %	0,00%	0,00%	0,00%	1,02%
Total	47,21%	31,98 %	13,20%	7,61%	100,00%

Table 17: Distribution of injuries according to the type of teeth traumatized according to the age factor.

2.7. Distribution of mandibular trauma

2.7.1 depending on the type of fracture

-Global results: (Table 18):

The distribution described in Table 34 revealed the presence of:

+ The absence of a fracture in 58.38% of cases.
+ Fracture of the toothed portion in 28.43% of cases.
+ The double fracture occurs in 9.64% of cases.
+ The triple fracture occurs in 1.52% of cases.
+ ATM dislocation in 1.02% of cases.
+ Craniofacial disjunction was seen in 0.51% of cases, or only one case of the 197 patients who consulted.

Somme des Effectifs	
LE TYPE DE FRACTURE	%
Absence	58,38%
Double fracture	9,64%
Dysjonction crânio faciale	0,51%
Fracture de la portion dentée	28,43%
Fracture de la portion non dentée	0,51%
Luxation de l'ATM	1,02%
Triple fracture	1,52%
Total	100,00%

Table 18: Distribution of mandibular trauma according to the type of fracture

-Acording to gender (Table 19) :

	sexe		
LE TYPE DE FRACTURE	féminin	masculin	Total
Absence	15,74%	42,64%	58,38%
Double fracture	0,51%	9,14%	9,64%
Dysjonction crânio faciale	0,51%	0,00%	0,51%
Fracture de la portion dentée	3,55%	24,87%	28,43%
Fracture de la portion non dentée	0,00%	0,51%	0,51%
Luxation de l'ATM	0,00%	1,02%	1,02%
Triple fracture	0,00%	1,52%	1,52%
Total	20,30%	79,70%	100,00%

Table 19: Distribution of mandibular trauma according to the type of fracture according to the sex factor.

-According to age (Table 20) :

	âge2				
LE TYPE DE FRACTURE	[15-25[	[25-40[	[40-70]	Non renseigné	Total
Absence	27,41%	18,78%	9,64%	2,54%	58,38%
Double fracture	5,08%	3,05%	0,51%	1,02%	9,64%
Dysjonction crânio faciale	0,51%	0,00%	0,00%	0,00%	0,51%
Fracture de la portion dentée	12,18%	9,64%	2,54%	4,06%	28,43%
Fracture de la portion non dentée	0,51%	0,00%	0,00%	0,00%	0,51%
Luxation de l'ATM	1,02%	0,00%	0,00%	0,00%	1,02%
Triple fracture	0,51%	0,51%	0,51%	0,00%	1,52%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 20: Distribution of mandibular trauma according to the type of fracture according to the age factor.

2.7.2 According to displacement

-Global results (Table 21):

The distribution described in Table 42 revealed:

+ the presence of travel in 70.05% of consulting patients.
+ The absence of travel in 29.95% of consulting patients.

Somme des Effectifs	
LE DEPLACEMENT	%
Absence	70,05%
Présence	29,95%
Total	100,00%

Table 21: Distribution of mandibular trauma according to their displacement.

-Acording to gender (Table 22) :

Somme de Effectif	sexe		
LE DEPLACEMENT	féminin	masculin	Total
Absence	16,24%	53,81%	70,05%
Présence	4,06%	25,89%	29,95%
Total	20,30%	79,70%	100,00%

Table 22: Distribution of mandibular injuries according to their displacement according to the sex factor

-According to age (Table 23) :

Somme des Effectifs	âge2				
LE DEPLACEMENT	[15-25[	[25-40[	[40-70]	Non renseigné	Total
Absence	33,50%	21,32%	11,68%	3,55%	70,05%
Présence	13,71%	10,66%	1,52%	4,06%	29,95%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 23: Distribution of mandibular trauma according to their displacement according to the age factor.

2.7.3 Depending on the headquarters:

-Global results (Table 24):

The distribution described in Table 24 revealed:

+ The absence of a fracture in 58.38% of cases.

+ An alveolar fracture in 12.69% of cases.
+ A para-symphyseal fracture in 9.14% of cases.
+ An angular fracture in 5.58% of cases.
+ A double angular and symphyseal fracture in 5.08% of cases.
+ A symphyseal fracture in 3.55% of cases.
+ A double symphyseal and condylar fracture in 1.52% of cases.
+ A dislocation of the ATM in 1.02% of cases, or 2 patients
+ A single case of associated symphyseal and coronoid fracture.
+ Two cases of triple associated symphyseal, angular and condylar fractures.
+ A single case of triple associated angular, symphyseal, and coronoid fracture.
+ A single case of fracture of the ramus.
+ Only one case of maxillary fracture occurred during the study year.

Somme de Effectif siège du trauma mand	%
Alvéolaire	12,69%
Angulaire	5,58%
branche montante	0,51%
maxillaire	0,51%
Para symphysaire	9,14%
Symphysaire	3,55%
Symphysaire et angulaire	5,08%
Symphysaire et condylienne	1,52%
symphysaire et coronoïde	0,51%
Symphysaire, angulaire et cond	1,02%
Symphysaire, angulaire et coroné	0,51%
absence	58,38%
Luxation de l'ATM gauche	1,02%
Total	100,00%

Table 24: Distribution of mandibular trauma according to their site.

-According to gender (Table 25) :

Somme des Effectifs	sexe		
siège du trauma mand	féminin	masculin	Total
Alvéolaire	1,52%	11,17%	12,69%
Angulaire	0,51%	5,08%	5,58%
branche montante	0,00%	0,51%	0,51%
maxillaire	0,51%	0,00%	0,51%
Para symphysaire	1,52%	7,61%	9,14%
Symphysaire	0,00%	3,55%	3,55%
Symphysaire et angulaire	0,00%	5,08%	5,08%
Symphysaire et condylienne	0,51%	1,02%	1,52%
symphysaire et coronoïde	0,00%	0,51%	0,51%
Symphysaire, angulaire et cond	0,00%	1,02%	1,02%
Symphysaire, angulaire et coroné	0,00%	0,51%	0,51%
absence	15,74%	42,64%	58,38%
Luxation de l'ATM gauche	0,00%	1,02%	1,02%
Total	20,30%	79,70%	100,00%

Table 25: Distribution of mandibular injuries according to their site according to the sex factor.

-According to age (Table 26) :

Somme des Effectifs	âge2				
siège du trauma mand	[15-25]	[25-40]	[40-70]	Non renseigné	Total
Alvéolaire	6,60%	4,57%	1,02%	0,51%	12,69%
Angulaire	2,03%	3,55%	0,00%	0,00%	5,58%
branche montante	0,51%	0,00%	0,00%	0,00%	0,51%
Le Fort	0,51%	0,00%	0,00%	0,00%	0,51%
Para symphysaire	4,06%	1,02%	1,52%	2,54%	9,14%
Symphysaire	1,02%	1,52%	0,00%	1,02%	3,55%
Symphysaire et angulaire	3,05%	1,02%	0,00%	1,02%	5,08%
Symphysaire et condylienne	0,51%	0,51%	0,51%	0,00%	1,52%
symphysaire et coronoïde	0,00%	0,51%	0,00%	0,00%	0,51%
Symphysaire, angulaire et cond	0,51%	0,00%	0,51%	0,00%	1,02%
Symphysaire, angulaire et coroné	0,00%	0,51%	0,00%	0,00%	0,51%
absence	27,41%	18,78%	9,64%	2,54%	58,38%
Luxation de l'ATM gauche	1,02%	0,00%	0,00%	0,00%	1,02%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 26: Distribution of mandibular injuries according to their site according to the age factor.

2.8. Distribution of alveolar trauma

-Global results (Table 27):

The breakdown described in Table 27 revealed:

+ The absence of alveolar trauma in 42.64% consultant patients.
+ The presence of extrusion in 17.26% of consulting patients.
+ The presence of subluxation in 15.23% of consulting patients.
+ The presence of lateral dislocation in 12.18% of consulting patients.
+ The presence of expulsion in 10.15% of consulting patients.
+ The presence of intrusion in 2.03% of consulting patients.
+ The presence of a concussion case.

Somme de Effectif	
Traumatisme alvéolaire	%
Absence	42,64%
Concussion	0,51%
Expulsion	10,15%
Extrusion	17,26%
Intrusion	2,03%
Luxation latérale	12,18%
Subluxation	14,72%
subluxation sup	0,51%
Total	100,00%

Table 27: Distribution of alveolar trauma.

-According to gender (Table 28) :

Somme des Effectifs	sexe		
Traumatisme alvéolaire	féminin	masculin	Total
Absence	7,11%	35,53%	42,64%
Concussion	0,51%	0,00%	0,51%
Expulsion	2,03%	8,12%	10,15%
Extrusion	4,57%	12,69%	17,26%
Intrusion	0,51%	1,52%	2,03%
Luxation latérale	2,03%	10,15%	12,18%
Subluxation	3,05%	11,68%	14,72%
subluxation sup	0,51%	0,00%	0,51%
Total	20,30%	79,70%	100,00%

Table 28: Distribution of alveolar trauma according to sex factor.

-According to age (Table 29) :

Somme des Effectifs	âge2				
Traumatisme alvéolaire	[15-25[	[25-40[	[40-70]	Non renseigné	Total
Absence	19,80%	14,21%	4,57%	4,06%	42,64%
Concussion	0,51%	0,00%	0,00%	0,00%	0,51%
Expulsion	6,09%	2,03%	1,52%	0,51%	10,15%
Extrusion	9,64%	5,08%	2,03%	0,51%	17,26%
Intrusion	0,51%	1,52%	0,00%	0,00%	2,03%
Luxation latérale	4,57%	5,08%	1,52%	1,02%	12,18%
Subluxation	6,09%	4,06%	3,05%	1,52%	14,72%
subluxation sup	0,00%	0,00%	0,51%	0,00%	0,51%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

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Table 29: Distribution of alveolar trauma according to age factor.

2.9. Distribution of dental trauma

-Global results (Table 30):

The distribution described in Table 30 revealed:

+ The absence of dental trauma in 57.87% of patients.
+ The presence of coronary radicular fracture in 17.77% of patients.
+ The presence of coronary fracture in 16.75% of patients.
+ The presence of complicated coronary fracture in 4.06% of patients.
+ The presence of a crack in 1.02% of patients.
+ The presence of radicular fracture in 1.02% of patients.
+ The presence of enamel fracture in 1.52% of patients.

Somme des Effectifs	
Traumatisme dentaire	Total
Absence	57,87%
Fêlure	1,02%
Fracture amélaire	1,52%
Fracture coronaire	16,75%
Fracture coronaire compliquée	4,06%
Fracture corono radiculaire	17,77%
Fracture radiculaire	1,02%
Total	100,00%

Table 30: Distribution of dental trauma.

-Acording to gender (Table 31) :

Somme de Effectif	sexe		
Traumatisme dentaire	féminin	masculin	Total
Absence	10,15%	47,72%	57,87%
Fêlure	0,00%	1,02%	1,02%
Fracture amélaire	0,51%	1,02%	1,52%
Fracture coronaire	4,57%	12,18%	16,75%
Fracture coronaire compliquée	1,52%	2,54%	4,06%
Fracture corono radiculaire	3,05%	14,72%	17,77%
Fracture radiculaire	0,51%	0,51%	1,02%
Total	20,30%	79,70%	100,00%

Table 31: Distribution of dental trauma according to sex factor

-According to age (Table 32) :

Somme de Effectif	age2				
Traumatisme dentaire	[15-25]	[25-40]	[40-70]	Non renseigné	Total
Absence	24,37%	18,27%	9,64%	5,58%	57,87%
Fêlure	0,51%	0,51%	0,00%	0,00%	1,02%
Fracture amélaire	1,02%	0,51%	0,00%	0,00%	1,52%
Fracture coronaire	10,15%	5,58%	0,00%	1,02%	16,75%
Fracture coronaire compliquée	1,02%	2,54%	0,00%	0,51%	4,06%
Fracture corono radiculaire	10,15%	4,06%	3,05%	0,51%	17,77%
Fracture radiculaire	0,00%	0,51%	0,51%	0,00%	1,02%
Total	47,21%	31,98%	13,20%	7,61%	100,00%

Table 32: Distribution of dental trauma according to age factor

2.10 Breakdown of injuries according to their management

-Global results (Table 33):

The distribution described in Table 33 makes it possible to note the achievement of:

+Semi-rigid retention in 34.52% of consulting patients.
+Bi-maxillary blockage in 20.80% of consulting patients.
+Semi-rigid retention associated with a composite band in 10.16% of consulting patients.
+Single maxillary blockage in 8.63% of consulting patients.
+Abstention, soft diet and medical prescription in 6.60% of consulting patients.
+Composite band in 6.60% of consulting patients.
+Reimplantation and restraint in 4.06% of consulting patients.
+Apexification in 3.05% of consulting patients.
+Extraction of the coronary fragment in 2.54% of consulting patients.
+Maxillofacial surgery in 2 patients, ie 1.02%.

Somme des Effectifs	
Prise en charge	%
Apéxification	3,05%
Abstention, alimentation molle et prescription médicale	6,60%
Bandeau de composite	6,60%
blocage bi maxillaire	20,81%
blocage mono maxillaire	8,63%
Certificat médical initial	0,51%
Chirurgie maxillo faciale	1,52%
contention et bandeau de composite	1,02%
contention semi rigide	34,52%
Contention semi rigide et bandeau de composite	9,14%
extraction du fragment coronaire	2,54%
Réduction manuelle, contention	0,51%
Réimplantation contention	4,06%
Réimplantation, contention et apéxification	0,51%
Total	100,00%

Table 33: Breakdown of injuries according to their treatment.

-Acording to gender (Table 34) :

Somme des Effectifs	sexe		
Prise en charge	féminin	masculin	Total
Apéxification	2,03%	1,02%	3,05%
Abstention, alimentation molle et prescription médicale	1,52%	5,08%	6,60%
Bandeau de composite	1,52%	5,08%	6,60%
blocage bi maxillaire	2,54%	18,27%	20,81%
blocage mono maxillaire	0,51%	8,12%	8,63%
Certificat médical initial	0,00%	0,51%	0,51%
Chirurgie maxillo faciale	0,51%	1,02%	1,52%
contention et bandeau de composite	0,00%	1,02%	1,02%
contention semi rigide	7,61%	26,90%	34,52%
Contention semi rigide et bandeau de composite	2,54%	6,60%	9,14%
extraction du fragment coronaire	0,00%	2,54%	2,54%
Réduction manuelle, contention	0,00%	0,51%	0,51%
Réimplantation contention	1,52%	2,54%	4,06%
Réimplantation, contention et apéxification	0,00%	0,51%	0,51%
Total	20,30%	79,70%	100,00%

Table 34: Breakdown of injuries according to their management according to gender factor.

-According to age (Table 35) :

Somme des Effectifs	âge2				
Prise en charge	[15-25[	[25-40[	[40-70]	Non renseigné	Total
Apéxification	2,03%	1,02%	0,00%	0,00%	3,05%
Abstention, alimentation molle et prescription médicale	3,05 %	1,52 %	1,52 %	0,51%	6,60%
Bandeau de composite	3,55%	3,05%	0,00%	0,00%	6,60%
blocage bi maxillaire	8,12 %	7,61 %	1,52 %	3,55%	20,81%
blocage mono maxillaire	5,08 %	2,03 %	0,51 %	1,02%	8,63%
Certificat médical initial	0,00%	0,00%	0,51%	0,00%	0,51%
Chirurgie maxillo faciale	0,51 %	0,51 %	0,51 %	0,00%	1,52%
contention et bandeau de composite	0,51%	0,51%	0,00%	0,00%	1,02%
contention semi rigide	12,69 %	13,20 %	7,11 %	1,52%	34,52%
Contention semi rigide et bandeau de composite	7,11 %	1,52 %	0,51 %	0,00%	9,14%
extraction du fragment coronaire	2,03 %	0,51 %	0,00 %	0,00%	2,54%
Réduction manuelle, contention	0,00%	0,00%	0,00%	0,51%	0,51%
Réimplantation contention	2,03 %	0,51 %	1,02 %	0,51%	4,06%
Réimplantation, contention et apéxification	0,51%	0,00%	0,00%	0,00%	0,51%
Total	47,21%	31,98 %	13,20%	7,61%	100,00%

Table 35: Distribution of injuries according to their treatment according to the age factor.

2.16 Breakdown of injuries according to their complications

-Global results (Table 36):

The breakdown described in Table 36 revealed:

+ The absence of complications, a sequel in 71.07% of consulting patients.
+ The lack of follow-up in 21.32% of consulting patients.
+ The presence of gingival inflammation in 4.57% of consulting patients.
+ The need for pathological follow-up in 2 patients, ie 1.02%.
+ The presence of suppurative cellulitis in 2 patients, ie 1.02%.
+ The presence of serous cellulitis in 1 patient.

Somme des Effectifs	
Complication, séquelle	Total
Péricoronarite droite	0,51%
Absence	71,07%
Absence de suivi	21,32%
cellulite séreuse	0,51%
cellulite suppurée	1,02%
inflammation gingivale	3,55%
inflammation gingivale ant	0,51%
inflammation gingivale localisée 12	0,51%
suivi patho	1,02%
Total	100,00%

Table 36: Distribution of injuries according to their complications.

-Acording to gender (Table 37) :

Somme des Effectifs	sexe		
Complication, séquelle	féminin	masculin	Total
Péricoronarite droite	0,00%	0,51%	0,51%
Absence	15,74%	55,33%	71,07%
Absence de suivi	4,06%	17,26%	21,32%
cellulite séreuse	0,51%	0,00%	0,51%
cellulite suppurée	0,00%	1,02%	1,02%
inflammation gingivale	0,00%	3,55%	3,55%
inflammation gingivale ant	0,00%	0,51%	0,51%
inflammation gingivale localisée 12	0,00%	0,51%	0,51%
suivi patho	0,00%	1,02%	1,02%
Total	20,30%	79,70%	100,00%

Table 37: Distribution of injuries according to their complications according to the gender factor.

-According to age (Table 38) :

Somme des Effectifs	âge2				
Complication, séquelle	[15-25]	[25-40]	[40-70]	Non renseigné	Total
Péricoronarite droite	0,51%	0,00%	0,00%	0,00%	0,51%
Absence	32,99%	23,86%	9,64%	4,57%	71,07%
Absence de suivi	10,15%	5,58%	3,05%	2,54%	21,32%
cellulite séreuse	0,51%	0,00%	0,00%	0,00%	0,51%
cellulite suppurée	1,02%	0,00%	0,00%	0,00%	1,02%
inflammation gingivale	1,52%	1,02%	0,51%	0,51%	3,55%
inflammation gingivale ant	0,51%	0,00%	0,00%	0,00%	0,51%
inflammation gingivale localisée 12	0,00%	0,51%	0,00%	0,00%	0,51%
suivi patho	0,00%	1,02%	0,00%	0,00%	1,02%
Total	47,21%	31,98%	13,20%	7,61%	100,00 %

Table 38: Distribution of injuries according to their complications according to the age factor.

3. Discussion

Prior to any discussion of our results, he agrees to highlight a few aspects, which will allow a relevant estimate of the quality of our study. They will thereby spare readers any misunderstandings and thus provide answers to questions which may plague the mind of any specialist in the field.

3.1. Material and methods

3.1.1. Reliability of evaluation methods

3.1.1.1. Reliability related to the information collected

Information in terms of the quality of a certain variable can be a source of dispute, which must be taken into account when discussing our results.

The credibility of a certain variable collected during our investigation is subordinated to the subjectivity of the information provided by the patient at the time of the history.

3.1.2. Validity of the results obtained

The assessment of the merits of our results is essentially based on two values:

-Intrinsic value

The strategy for approaching the subjects of study as well as the clinical and statistical means developed to process the results eliminate any risk of calculation or methodological errors, also the difficulties and biases encountered during this study were quite tolerable and could not bias our results. So we judge our study to be of good intrinsic value.

-Extrinsic value

The usefulness of the results we obtained is that they constitute statistical evidence in the question related to the prevalence of injuries in adults aged 15 years and older.

Any comparison with a similar study must take into account the material and methods used in these studies.

3.2. Results

The results of this survey have the advantage of having been obtained from data collected in the dental consultation and emergency department in Casablanca. They are therefore representative of the local population as it is a structure consulted by the majority of adults who have suffered dental trauma.

3.2.1. Characteristics of the traumatized patient

3.2.1.1. Sex

The distribution by sex shows a strong male preponderance, knowing that at the level of our series of cases we noted 157 patients, or 79.70 against 40 patients, or 20.30% with a sex ratio of 3.9.

3.2.1.2. Age

The breakdown of our patients by age group has shown that the age group most involved in trauma is between 15 and 25 years old, representing a number of 93 patients, or 47%; it is followed by the age interval between 25 and 40 years, of which the number is 63 patients, or 32%.

Our youngest patient is 15 years old and the oldest is 70 years old.

3.2.1.3. The time elapsed between the date of the trauma and the date of consultation

It was noted during this analysis that the majority of patients consulted within 24 hours of the trauma (i.e. 76.65%), which demonstrates the awareness that is proportionately evident compared to previous years, however we note all the same that 13.71% consulted in an interval of 1 to 3 days and 9.64% in a time greater than 4 days, figures which should also sound the alarm bells in the hope of reducing them to a minimum in the following years.

3.2.1.4. The place of the trauma

The podium is marked by three places which are largely highlighted in our study, the predominance of which goes to the public place either following an accident or aggression with 173 traumas to its credit (i.e. 88%), continued from home place of predilection for female traumas with a number of 20 traumas having occurred at its level (10%), finally the traumas having been suffered at work representing only 2% of the total.

3.2.1.5. The circumstances of the trauma

During this analysis, five etiologies emerged, the most frequent of which is aggression alone, representing a total of 93 traumatized (47.2%) knowing that the majority of aggressions of the female sex are of conjugal origin, followed by the AVP in 2nd place with a number of 56 cases (28.4%), in 3rd place it finds a shock with a number of 26 patients (13.2%).

Finally in last place we find falls with a number of 16 patients (9%) followed by work accidents in the number of 4 cases (2%).

3.2.2. Clinical study

3.2.2.1. Number of traumatized teeth

In total, 149 teeth are affected by traumatic lesions, namely 75.63% of our study, knowing that the maxilla is involved three times out of four compared to the mandible. This notion has also been found in the literature **(10, 11, 12, 13)**. Dento-dental relationships are a predisposing or even aggravating factor.

3.2.2.2. Type of traumatized teeth

The antero superior sector is the most affected representing more than 42.64%, followed by an associated trauma of the antero superior and inferior sectors representing 12.7% of the whole. Because indeed, as it has been described in the literature, there is a close relationship between trauma on the maxillary incisors and the presence of a significant overhang, knowing that the more important it is, the higher the risk **(14, 15, 16, 17).**

3.2.3. Radiographic study

For any type of trauma regardless of the etiology, the panoramic is systematic, The orthopantomogram is the basic examination for the mandible (isolated fractures), the CT scan for the facial 1/3 and the skull. We also note that the panoramic and retroalveolar association are most often complementary to the confirmation of a dentoalveolar diagnosis. **(17, 18)**

3.2.4. Support

The treatment given on the one hand to dentoalveolar trauma is governed by the placement of a semi-rigid retention, on the other hand to trauma to the bone bases is dominated by either a bi or mono jaw blockage.

The management of trauma is considered to be an emergency in the daily practice of the odontologist, so it must be subject most often to an early and rapid intervention.

3.2.5. Suggestions and perspectives

It should be borne in mind that a dento-alveolar trauma must be assimilated in the diagnostic and therapeutic process to a trauma of the face where a hierarchization of the lesion assessment must make a priority search for signs of neurological damage that may involve life-threatening prognosis such as unconsciousness, nosebleeds or otorrhagia **(1, 9, 19).** Dental trauma is often accompanied by damage to soft tissue and sometimes damage to bone tissue. **(10, 20),** found associated with dental trauma lacerations (32%), edemas (8%), abrasions (7%) and contusions (6%) **(21, 22).**

The simple and precise questioning should report the circumstances of the accident. A careful exo-oral and endo-oral examination, an appropriate radiological examination should help for a precise diagnosis **(23, 24).** When adequate emergency treatment must be considered, taking a photograph before and after the procedure is strongly recommended, for medico-legal purposes, as well as, systematically, the drafting of an initial medical certificate attesting to the emergency management **(24).** This document must specify the possible temporary incapacity (ITT) of the patient to work **(9, 11)** or the period of absence of a child from school. Advice should be given for an appropriate diet and updating of the vaccination record, particularly the tetanus vaccine **(25, 26).**

It must be taken that most often poly traumas occur at night for most of the time, at times when liberal consulting rooms and emergencies themselves are not very available,

hence the need for the establishment of a permanence at these late hours in order to improve the prognosis of treatment.

The odontologist will be able to do prevention by raising awareness among technical staff in clubs and sports associations, as well as at school level, especially with regard to teachers (example of first steps: conservation of avulsed teeth; transport environments; measures prevention: wearing mouthguards) **(17, 27, 28).**

Conclusion

Affecting children as well as adults with different evolutions and implications, dental and/or alveolar trauma are frequent lesions motivating the consultation of a practitioner, often urgently, then collaboration between stomatologists or maxillofacial surgeons and dentists. The difficulty lies in the need for early diagnosis and treatment (sometimes impossible to obtain in the event of multiple trauma or removal from a specialist), but is also linked to the nature of the terrain: children, vital distress associated, mediocre oral state ... Anyway, the evolution of these lesions is unpredictable and great restraint must be made, even in the event of apparent success, with the patient or his family. Considering the functional, cosmetic and financial implications in the event of treatment failure, the careful drafting of the initial medical certificate is of paramount importance. Careful monitoring is essential: weekly at the start of treatment, it will then last for several years.

All traumatic lesions of the face have significant aesthetic and functional repercussions and are best treated by the earliest possible and most complete management possible before the fractures heal.

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