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The fatality of Cervico-facial cellulites from dental origin at, Kinshasa University Hospital, Kinshasa, Democratic Republic of the Congo (Between January 2000 and December 2014)

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Abstract
Cervicofacial cellulitis of dental origin remains a concern due to the fatality they cause. The current fatality rate due to this pathology remains unavailable in our environment, henceforth the need to determine this pathology fatality frequency. We carried out a documentary and descriptive study at the Kinshasa University Hospital, Kinshasa between January 2000 and December 2014 which involved 34 deceased patients and we recorded 13% of deaths versus 67% of cure of which 6 deaths were due to cellulite and 28 deaths were due to diffuse cellulitis (phlegmons), males were the most affected (65%) and the most affected age group was 17-26 years. AINS were the main contributing factors (94.5%), tooth decay along with its complications was the main determinants (88.2%) of deceased and the septic shock was the leading cause of death. Cervicofacial cellulitis of dental origin are serious and severe infections that can be life-threatening, thus the use of self-medication for AINS and unsuitable antibiotics promotes these infections as well as a poor care.

Keywords: Cellulitis of dental origin, fatality, Kinshasa University Hospital, Kinshasa, Democratic Republic of the Congo

1. Introduction
Cervicofacial cellulitis of dental origin are infections of the cellulo-fatty spaces of the head and neck [1] which evolve rapidly in the absence of adequate care and sometimes involve the vital prognosis of patients [2, 3]. In most African countries, cervicofacial cellulitis of dental origin is still a public health problem due to the ignorance and / or negligence of oral diseases in our countries [4] along with the poor quality of care [5]. As a result, the high rate of cellulitis fatality due to high case fatality rate due to cervicofacial cellulitis from dental origin ranges between 10% and 18% in some countries [6].
In the Democratic Republic of Congo, data on the fatality rate due to cervicofacial cellulitis from dental origin are old [7, 8], henceforth the need to conduct this study in order to awaken practitioners' awareness as well as the population on the need to take care of this pathology in time which in the lack of proper care might cause dramatic consequences.
The main goal of this survey was to determine the fatality frequency of cervicofacial cellulitis of dental origin in the Department of Oral Surgery and Stomatology of Kinshasa University Hospital, Kinshasa between January 2000 and December 2014 in order to raise the awareness of the population as well as the health personnel about the danger of this pathology, to improve the care and to reduce the occurrence of these complications.

2. Material and methods
This retrospective survey covered a period of 14 years (between January 2000 and December 2014). The socio-demographic and clinical data analyzed concerned 34 cases of patients hospitalized in the department of stomatology and maxillofacial surgery for cervicofacial cellulitis of dental origin and who succumbed further to complications related to this disease.

The considered variables of interest were demographic (age, sex) and clinical (anatomo-clinical form, determining factors, factors favoring, and causes of death) of cellulitis. In total, 266 patients were admitted to the Department of Odonto-Stomatology of Kinshasa University Hospital, Kinshasa for dental cellulitis during the study period. Of these 266 patients, 2 cases of non-dental origin were excluded, reducing the number to 264. Of these 264 cases of dental cellulitis retained, we noted 34 cases of death.

2.1. Data analysis

The collected data were recorded using Epi Info 2005 software, the analysis of our data is expressed in percentage and mean ± standard deviation.

3. Results

In total, 266 patients were admitted in the hospital at Odonto-Stomatology department of Kinshasa University Hospital, Kinshasa for cervicofacial cellulitis of dental origin during the study period. Out of these 266 patients, 2 cases of non dental origin were excluded, thus the total number of patients was reduced to 264 patients.

Table 1: Frequency of deaths due to cellulitis of dental origin

	Cure n (%)	Death n (%)	Total n (%)
Confined cellulitis	61(23)	6(2)	67(25)
Diffuse cellulitis (Phlegmons)	169(64)	28(11)	197(75)
Total	230(87)	34(13)	264(100)

n= total number of patients %: percentage

Of 264 cases of cervicofacial of dental origin selected, we noted 34 cases of deaths i.e. a case fatality of 13% of which 6 deaths due to circumscribed cellulites and 28 deaths were due to phlegmons (diffuse cellulitis) (table 1).

Table 2: Distribution of deceased patients according to sex

	Male n (%)	Females n (%)	Total n (%)
Confined cellulitis	3(9)	3(9)	6(18)
Phlegmons (Diffuse cellulitis)	19(56)	9(26)	28(82)
Total	22(65)	12(35)	34(100)

n= total number of patients %: percentage

Males were the most represented group (65%) or 22 cases because of 3 cases of circumscribed cellulites and 19 cases for phlegmons (diffuse cellulitis) and females represented 35% or 12 cases because of 3 cases of circumscribed cellulites and 9 cases for phlegmons (diffuse cellulitis) (table 2).

Table 3: Distribution of deceased according to age

Age (years)	Confined cellulitis	Phlegmons	Total
17-26	2	11	13
27-36	1	7	8
37-46	-	1	1
47-56	-	2	2
57-66	1	3	4
67-76	2	2	4
77-86	-	1	1
87-96	-	1	1
Total	6	28	34
Average	40.6 ± 22.7 years		

n= total number of patients %: percentage

The most affected age group was 17-26 years (13 cases) with an average of 40.6 ± 22.7 years.

Table 4: Distribution of cellulitis according to favoring factors.

Favoring Factors		n	%
Self-medication to AINS	Yes	32	94.1
	No	2	5.9
Use of traditional herbs	Yes	20	58.8
	No	14	41.2
No respect of therapeutic scheme	Yes	18	53
	No	16	47
Self-medication of antibiotics	Yes	29	85.2
	No	5	14.8

n= total number of patients %: percentage

The self-medication to AINS was the main favoring factor (94.1%) of deceased patients (table 4).

Table 5: Distribution of cellulitis according to determinant factors

Determinant factors	n	%
Tooth decay and its complications	30	88.2
Trauma	3	8.8
Homeopathies	1	3
Total	34	100

n= total number of patients %: percentage

Tooth decay and its complications were the main determinant factors (88.2%) of deceased patients (table 5).

Table 6: Distribution of patients according to the cause of death

Causes	N	%
Septic shock	24	70
Respiratory distress	4	12
Cardiogenic shock	1	3
Aneamia	1	3
Mediastinitis	1	3
Meningitis	3	9
Total	34	100

n= total number of patients %: percentage

The septic shock was the most predominant cause of patient death in our study i.e. 70% of cases (table 6).

4. Discussion

In our study, the fatality rate was 13%. This result can be explained by the clinical picture which was generally severe in which patients were admitted to hospital following attempts at self-treatment and the use of traditional herbs, leading to a very late diagnosis and treatment. Despite their late consultations, most patients fail to adhere to the treatment regimen prescribed by the doctor due to poverty, therefore several patients died in a state of septic shock. Our results corroborate with those found by Souaga *et al.* at the CHU in Cocody (9), Hounkpe *et al.* in Cotonou [10] and Jel Aziz *et al.* in Morocco [11] with 15%, 13% and 18% respectively. On the contrary, a study by Rouadi *et al.* in Casablanca, Morocco gives us a fatality rate of 0%. This is justified by the fact that the patients whom presented a serious clinical picture were directly taken in charge and hospitalized in the resuscitation department [12]. Males were the most represented with 22 cases (65%) versus 12 cases of females (35%). These results go along with those found by Kpemissi *et al.* in Togo where men represented 70% of deaths due to cervicofacial of dental origin [13].

The average age of deceased was 40.6 ± 22.7 years, where the age group between 17 and 26 years was the most affected with 13 cases. Our results corroborate with Kpemissi *et al.* where the average age was 38.7 years [13]. Of the 34 deceased

in our series, 28 died for phlegmons of dental origin and the remaining 12 for the circumscribed cellulitis (confined cellulitis), and this is similar the result found by Hounkpe *et al.* [10]. This study reports that 70% of deaths were due to septic shock, which is close to the work of Rakotoarison *et al.* [14] and Diallo *et al.* [15] where septic shock was the leading cause of death.

AINS were the most widely used therapeutics in the world [16]. They are often considered as the main factors promoting cervicofacial of dental origin. Generally, they are taken alone or associated with antibiotics which are most often unsuitable [17, 18]. The notion of taking AINS was found in the majority of our cases (94.1%) followed by a self-medication with antibiotics (85.2%). However, in the Democratic Republic of the Congo, AINS are sold anywhere and anyone can buy them without a medical prescription and this is due to a non-compliance with legislation on the medicine sale. Dental caries and these complications were the main determinants of cervicofacial cellulitis of dental origin i.e. 88.2% meaning that our results corroborate those of Kpemissi *et al.* [13] and Hounkpe *et al.* [10].

5. Conclusion

Cervicofacial cellulitis of dental origin are severe and serious infections that can affect the vital prognosis of our patients. The use of self-medication of AINS and a poorly adapted antibiotic therapy promotes these infections along with a poor care.

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