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The Dental Absces: Epidemiological, Clinical and Therapeutic Aspects at the Dental Office of the Prefectoral Hospital of Siguiri in 2021 in the Republic of Guinea

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Abstract

Introduction: A dental abscess is a collection of pus located in the tissues surrounding the tooth roots. The aim of this work is to describe the epidemiological, clinical and therapeutic aspects of dental abscess in order to contribute to the management of patients suffering from this pathology at the dental office of the Siguiri Prefectural Hospital. **Methods:** This was a retrospective descriptive study lasting 2 months carried out on the registers of patients received between October 2017 and October 2020 at the dental office of the Siguiri prefectural hospital. **Results:** 4690 patient files were identified during the study, of which 546 met our selection criteria, *i.e.* a frequency of 11.64%. During our study, we found 51.83% female compared to 48.17% male, *i.e.* a sex ratio of 1.07. 54.21% of our patients resided in rural communes compared to 45.76% for the urban commune. The age group most affected was that of 16 - 25 years old or 33.69%. Swelling, pain and functional discomfort were the reasons for consultation in all patients followed by other associated reasons in 41.21%. The premolar-molar group was the most represented, *i.e.* 86.70%. 80.04% of our patients presented an acute

abscess compared to 19.96% of chronic cases. Antibiotic, analgesic, and mouthwash were prescribed in all patients during the study followed by 96.37% of cases prescription of steroidal anti-inflammatory drugs. 93.04% of causal teeth were extracted followed by 6.78% of cases of conservative treatment in our study. In our study, 80.95% of our patients had a good post-therapeutic outcome. **Conclusion:** This study highlights the need for prevention and early management of dental abscesses.

Keywords

Dental Abscess, Epidemiological, Clinical, Therapeutic

1. Introduction

A dental abscess is defined as a collection of pus located in the tissues surrounding the tooth root, due to the proliferation of aerobic and anaerobic germs present in the oral flora, most often the cause of dental caries [1]. In the absence of early treatment, it can progress towards a rupture of the wall of the abscess and fistulization or even destruction of the bone which surrounds the tooth which can lead to its possible loss. The infection can also spread to neighboring structures (the tongue, throat, sinuses, or even to the brain in the event of spread through the bloodstream. Ultimately, the infection can reach (the heart, lungs, kidneys, the digestive system as well as the joints) [1]. Dental abscess is very painful and disabling for the patient. It's the emergency [2]. Comparative studies make it possible to clarify the place of antibiotic therapy in the treatment of dental abscess. On the basis of the natural evolution of abscesses and clinical experience, antibiotic therapy cannot replace the act therapeutic dental treatment (conservative or radical). The addition of antibiotic therapy to the dental procedure may be considered in certain cases, depending on the type of dental abscess [3]-[7] and in Guinea [8] have shown that dental abscess is a very frequently encountered pathology with a diverse clinical aspect and that the management is related to its etiology which depends on several factors. Thus, it follows from all this work, a very high prevalence of this pathology in certain countries and that the Prefectural Hospital of Siguiri is not spared. To this are added their serious complications which require a more specialized and adapted therapeutic table depending on the terrain. The objective of this work is to identify the different epidemiological, clinical and therapeutic aspects of dental abscess in order to adapt and improve its management in the dental office of the Prefetoral Hospital of Siguiri.

2. Material and Methods

2.1. Types and Duration of Study

This is a retrospective study of a descriptive type which took place in the

prefecture of Siguiri over a period of two (2) months carried out on the registers of patients received between October 2017 and October 2020 at the dental office of the Siguiri Prefectural Hospital.

2.2. Sampling Technique

We carried out an exhaustive recruitment of the files of 546 patients suffering from dental abscess among the 4690 who came for consultation at the dental office of the Prefectural Hospital of Siguiri and all the information collected was reported on a pre-established survey form. During the study period, all patient files recorded in the dental office register for dental abscess and for which treatment was provided were included in our study. Other files of patients with other pathologies besides dental abscess, lost files, patients without files and those who presented a diagnosis of dental abscess, but did not benefit from support were excluded.

2.3. Operational Definition of Variables

The different study variables described were quantitative (age and frequency of dental abscesses) and qualitative (sex, profession, residence, reason for consultation, Diagnosis, Types of dental abscesses, causal teeth, drug treatment, surgical treatment and evolution).

2.4. Collection of Data

Data was collected manually using a well-established survey form for this work. The data were entered, analyzed and presented with EPI info in version 7.2 and using the software: Word, Excel and Power Point from the 2013 office pack.

2.5. Data Analysis

We conducted a descriptive analysis of the sample characteristics using the median for quantitative variables and the proportion for qualitative variables.

2.6. Ethical and Administrative Considerations

The protocol of this study was approved by the scientific committee of the department of odontology of the Faculty of Health Sciences and Techniques of the Gamal Abdel Nasser University of Conakry and registered under number 016/UGANC/2023 of the Rectorate. Informed consent from each patient or patient's parent was obtained before data collection.

3. Results

In 4 years, out of a number of 4690 patients received, 546 cases of dental abscesses were recorded in the dental department of the Siguiri prefectural hospital, representing a frequency of 11.64% (**Figure 1**). In our study, dental abscess was observed at all ages, but mainly in adolescents and young adults with a frequency of 33.69% in the age group of 16 - 25 years with extreme ages 6 and 75 years (**Table 1**).

Females represented 64.7% of cases compared to 35.3% males. The sex ratio was F/M = 1.07 (Figure 2). The majority of patients resided in rural communes, *i.e.* 54.21% compared to 45.76% for the urban commune (Figure 3). Pain, abscess/swelling and functional discomfort were reported in all patients, *i.e.* 100% respectively (Table 2). Mandibular involvement was the most represented site in 52.93% of cases (Figure 4). The premolar-molar group was the most affected with 86.70% of cases (Table 3). Out of 546 patients, none underwent systematic paraclinical examinations during treatment (Text 1). The most common type of abscess was acute, *i.e.* 80.04% (Figure 5). The antibiotic, analgesic and mouthwash were prescribed in all patients. *i.e.* 100% (Table 4) and the most commonly practiced surgical treatment was incision + drainage + extraction *i.e.* 93.04% (Table 5). As for the evolution, the patients who had the good prognosis were predominant, *i.e.* 80.95% (Table 6).

Text 1. Distribution of patients with dental abscess according to type of paraclinical examination at the dental office of the Siguiri Prefectural Hospital between 2017-2020: In our study, systematic paraclinical examinations were not associated with the management of dental abscesses.

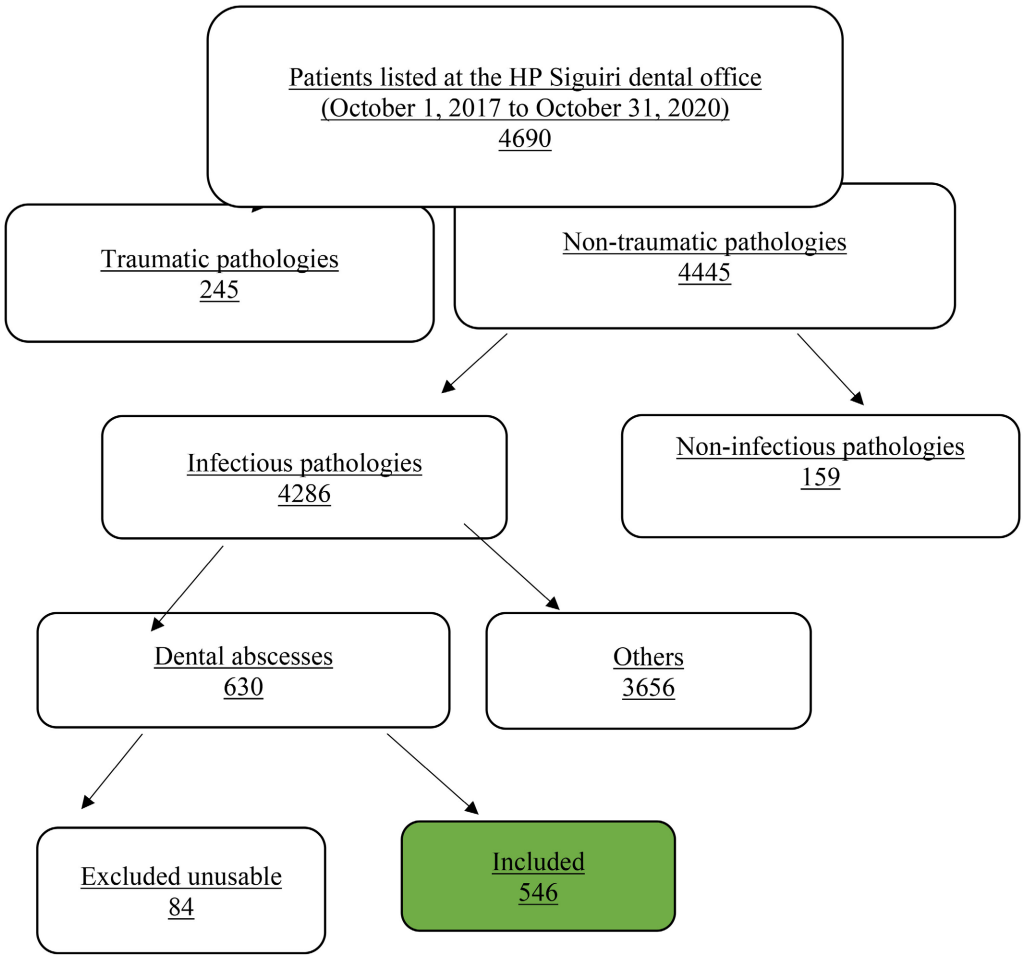

Figure 1. Patient flow chart included.

Table 1. Distribution of patients with dental abscess according to age in the dental office of the Siguiri Prefectural Hospital between 2017-2020.

age range	Effective	Percentage
6 - 15	87	15.93%
16 - 25	**184**	**33.69%**
26 - 35	153	28.02%
36 - 45	71	13.01%
46 - 55	30	5.49%
56 - 65	16	2.9%
66 - 75	5	0.92%
TOTAL	**546**	**100.00%**

Average age 28 ± 10 years extremes: 6 and 75 years.

Table 2. Distribution of patients with dental abscess depending on the reason for consultation at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

Pattern	Frequency	Percentage
Swelling	546	100
Pain	546	100
Functional discomfort	546	100

Table 3. Distribution of patients with dental abscess according to the causal tooth group at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

Causal tooth group	Effective	Percentage
Incisive-canine	72	1:30 p.m.
Premolar-molar	**477**	**86.70**
TOTAL	**546**	**100**

Table 4. Distribution of patients with dental abscess according to medical treatment at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

Medicine	Effective	Percentage
Amoxicillin + Clavulanic acid	**546**	**100**
Analgesic	**546**	**100**
Mouthwash	**546**	**100**
AIS	527	96.37
Class of Imidazoles	494	90.48

Table 5. Distribution of patients with dental abscess depending on surgical treatment at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

Surgical procedure	Effective	Percentage
incision + drainage + extraction	**508**	**93.04**
incision + drainage + conservative care	37	6.78
TOTAL	**546**	**100.00%**

Table 6. Distribution of patients with dental abscess according to the evolution at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

Evolution	Effective	Percentage
Favorable	**536**	**97.99**
Unfavorable	10	2.01
TOTAL	**546**	**100**

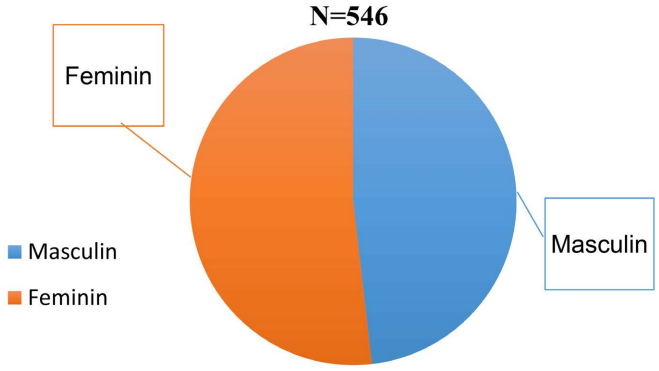

Figure 2. Distribution of patients with dental abscess according to gender at the dental office of the Siguiri Prefectural Hospital between 2017-2020. Sex-ratio F/M = 1.07.

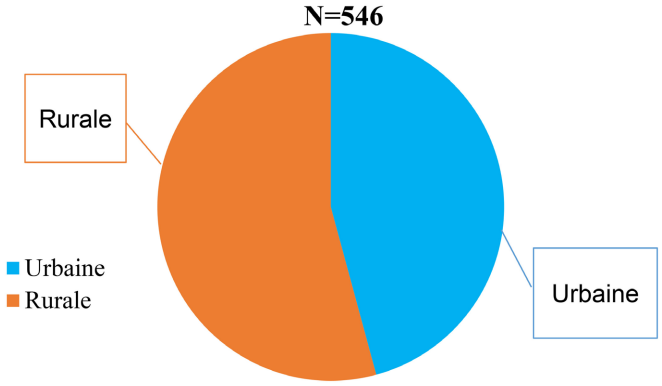

Figure 3. Distribution of patients with dental abscess depending on residence at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

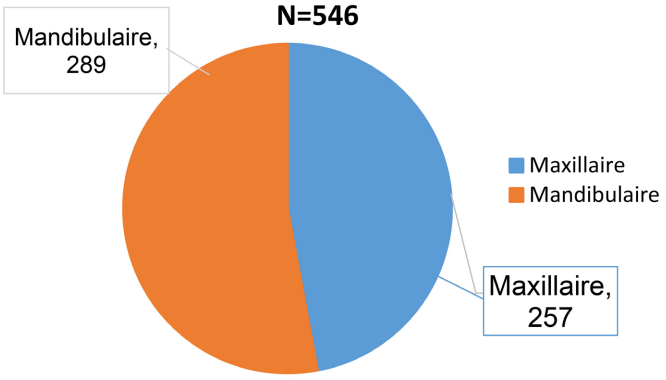

Figure 4. Distribution of patients with dental abscess depending on the site of the lesion at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

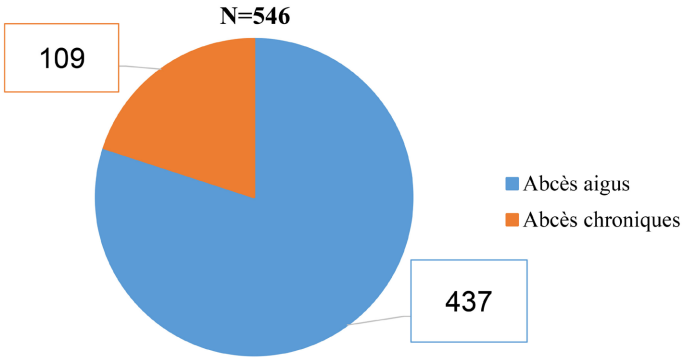

Figure 5. Distribution of patients with dental abscess depending on the type of abscess at the dental office of the Siguiri Prefectural Hospital between 2017-2020.

4. Discussion

This was a retrospective study of descriptive type lasting 2 months. It was carried out on the registers of patients received for consultation between October 2017 and October 2020 at the dental office of the Siguiri prefectural hospital. Our study had the merit of focusing on patients who were treated for dental abscess in the said department during the study period. However, we encountered constraints hindering the smooth running of the work. These multiple and varied constraints exist at several levels. But we highlight a few which are among others: incomplete, poorly completed registers and the absence of important paraclinical data, however, the results remain useful for subsequent studies with a high level of scientific proof. In 4 years, out of a staff of 4690 patients received, 546 cases of dental abscesses were recorded in the dental department of the Siguiri prefectural hospital, *i.e.* a frequency of 11.64%. This result is relatively weak compared to that of Kane AST *et al.* [9] in Mali during a cross-sectional descriptive study of 182 cases admitted to the odontology department of the Military Hospital of Bamako in 2018 which reported 18.68% cases of dental abscess. The absence of adequate dental structures in rural communities and the fear associated with late consultation would justify this figure. In our study, dental abscess was observed at all ages, but mainly in adolescents and young adults with a frequency of 33.69% in the age group of 16 - 25 years with extreme ages 6 and 75 years old. This could be explained by the fact that this age group corresponds to the period of multiple life-determining concerns which risk relegating dental care to the background. This age also corresponds to the period when parents have practically no influence in ensuring good oral hygiene. This result is close to that of Ngapeth E. *et al.* [10] during a retrospective study of 161 cases admitted to the Central Hospital of Yaoundé in 2007, the age groups affected by dental abscess were those 20 - 29 years old (30.43%). Females represented 64.7% of cases compared to 35.3% males. The sex ratio was F/M = 1.07. Our result is contrary to that of Bengondon M. *et al.* [11] in Cameroon who noted a male predominance of 64.8%. For our part, as for all these authors, sex does not discriminate in the occurrence of dental abscesses and no theory could justify the attack of one gender compared to the other. The

majority of patients resided in rural communes, *i.e.* 54.21% compared to 45.76% for the urban commune. This proportion is close to that of Camara M. *et al.* [12] in 2020 in Siguiri (Republic of Guinea) who reported a predominance of the rural population with 57.0% compared to 42.50% in the urban area. The absence of adequate structures and qualified personnel for their care would justify this result. Pain, abscess/swelling, functional discomfort were reported in all patients. Our result corroborates with that of Doumbia I. *et al.* [7] who, during a prospective study of 102 cases in 2008, reported that pain, swelling and functional discomfort were noted in all patients. These results could be explained by the fact that pain causes functional impotence and the discovery of swelling constitutes concern and motivation for consultation. Mandibular involvement represented 52.93% of cases. Indeed, we can explain this phenomenon by the fact that the mandibular teeth are more exposed to decay than the maxillary teeth because food debris stagnates there more easily. Our result is similar to that of Doumbia I. *et al.* [7] in Bamako who also found a mandibular predominance. The premolar-molar group was the most affected with 86.70% of cases. This predominance could be explained by the occlusal anatomy of these teeth (crevices, more or less deep furrows) causing a higher risk of carious damage and, consequently, remaining subject to the action of cariogenic factors. But also, by the fact that the molars are multicanal (generally 3 canals), thus they present more overall pulp tissue, their necrosis increasing the number of bacteria inside the canal housing, and therefore the extent of the local infection. A study conducted by Dojcinovic I. *et al.* [13] in Switzerland in 2010 showed that 90% of orofacial infections were of dental origin. The remaining 10% were the consequence of problems: oropharyngeal, cutaneous and iatrogenic. Page C. *et al.* [14] in Amiens in France in 2016 concerning 22 cases with secondary brain abscesses showed that the origin was sinus in 32% of cases, otological in 32% of cases, pharyngeal or dental in 27% of cases. Another study conducted by Laure B. [15] at the Tours University Hospital in France in 2009 described an orbital abscess secondary to maxillary sinusitis of dental origin, focusing on the severity of orbital infections and the dramatic consequences of delayed treatment. Out of 546 patients, none underwent systematic paraclinical examinations during treatment. Traoré H. *et al.* [16] in Mali in 2015 reported 90% of cases of dental avulsion without resorting to radiography. This result could be explained by the negligence of practitioners associated with the lack of financial means of our patients to cover their effective care. The antibiotic, analgesic and mouthwash were prescribed in all patients, *i.e.* 100%, followed by 96.37% cases of prescription of steroidal anti-inflammatory drug and 90.48% cases of imidazole. This is explained by the fact that dental abscess is an infectious pathology of bacterial origin accompanied by severe pain, the addition of general corticosteroid therapy for its part is the subject of discussion according to the schools and should take into account whether immunocompromised or not, this high percentage of oral mouthwash could be explained by their oral antiseptic and anti-infectious properties, especially their ability to freshen breath or prevent decay. Our result is close to

that of Doumbia I. *et al.* [7] in Bamako in 2008 who reported that antibiotics and mouthwashes were prescribed to all patients. Incision + drainage + dental extraction was carried out in 93.04% of patients compared to 6.78% of cases of incision + drainage + conservative care. This high percentage of incision + drainage + dental extraction could be explained by the fact that most of our respondents had the causal teeth that were completely dilapidated or in significant coronal destruction, dental mobility and associated with infection. Our results are almost similar to those of Kampo B. [17] in 2016 in Mali who reported 99.22% cases of medico-surgical treatment (incision + drainage and extraction of the causal tooth). Regarding the score, 97.99% of our patients had a good post-therapeutic evolution and 2.01% cases had poor evolution. This fact could be explained by the effectiveness of the therapeutic regimen undertaken.

5. Conclusion

It emerges from this work that dental abscesses represent a large percentage of cases of consultations at the dental office of the prefectural hospital of Siguiri (Guinea). Its high frequency among young people deserves particular attention and the majority of our respondents resided in rural communities. It should also be noted that the dental surgeons of the dental office of the Siguiri prefectural hospital do not use paraclinical examinations during the treatment of this pathology. The diagnosis is obvious; the degree of seriousness must be correctly assessed by a vigilant oral-dental examination. This assessment will lead to the indication of an adequate therapeutic method to repair the lesion, which carried out early, will preserve the psycho-social future of the patient.

Authors' Contributions

MC, ABN, FMT, LF, MD, DC, KC, MS, FMK, KPA participated in the design of the protocol. MC, FMT, ABN, LF were involved in data acquisition, analysis and interpretation. ABO, ABN MSF, MD and MAD reviewed the manuscript. All authors read, approved the final version and agreed to publication.

Data Availability

Data regarding this are available upon request to the authors.

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Conflicts of Interest

The authors declare that they have no competing interests.

References

[1] Herrera, D., Roldán, S. and Sanz, M. (2000) The Periodontal Abscess: A Review. *Journal of Clinical Periodontology*, **27**, 377-386. https://doi.org/10.1034/j.1600-051x.2000.027006377.x

[2] Laversanne, S., Guyot, L., Brignol, L. and Thiéry, G. (2011) Abcès dentaires: Diagnostic et prise en charge sur le terrain. *Médecine Tropicale*, **71**, 215-216.

[3] Partigon, L. and Hugly, C. (2001) Médicaments de l'inflammation: Abcès d'origine dentaire. *La Revue Prescrire*, **21**, 521-530.

[4] Al Asmar, G. (2016) Cohérence et intérêt de l'Antibiothérapie mise en place par les praticiens dentistes au Liban dans le contexte d'un abcès dentaire aigu ou chronique dentaire en septembre. Ph.D. Thesis, Université du Droit et de la Santé.

[5] Fofana, L., Saleh, A.S., Mahamat-Nour, A.D. and Hissein, A. (2019) Pathologies bucco—Dentaires chez les femmes enceintes, Service Diffusion et Valorisation des résultats de la recherche scientifique et technique. CNRD, Revue scientifique du Tchad—Série B, 4 p.

[6] Katie, A.L., Bakayoko, L. and Gunan, J.C. (2009) Les abcès dentaires en consultation chez l'enfant Africain à l'institut d'odontostomatologie d'Abidjan.

[7] Doumbia, I. (2008) Etude sur l'évaluation clinique et prise en charge des abcès dentaire au CHU (Centre Hospitalo-Universitaire) d'odontostomatologie de Bamako.

[8] Koulibaly, Z. (2017) Etude sur la prescription médicale en pratique quotidienne au service de la chirurgie maxillo-faciale odonto-stomatologie. Ph.D. Thesis, Université Gamal Abdel Nasser de Conakry Faculté de Médecine.

[9] Kane, A.S.T. Guirassi, M., Traore, H., Nianga, D.O. (2018) Periodontal Abscess among Children Attending the Dental Department of the Military Hospital in Bamako (MALI).

[10] Ngapeth-Etoudi, M., Itoua, E.S., Obounou, A. and Aragon, A.J. (2001) Clinical Study of Dental and Periodontal Infectious Complications Observed at the Central Hospital of Yaounde—Apropos of 161 Cases. *Odonto-Stomatologie Tropicale*, **24**, 5-10.

[11] Bengondon, M., Zeminikande, J. and Mengong, H.P. (2014) Thèse sur les urgences en pédodontie au CHU de Yaoundé. *African Journals Online*, **3**, 465-468.

[12] Camara, M. (2020) L'accessibilité aux soins bucco-dentaires des populations de la préfecture de siguiri. Master's Thesis, Université Gamal Abdel Nasser de Conakry.

[13] Dojcinovic, I., Hugentobler, M. and Richter, M. (2006) Infracondylar Abscess Formation: A Rare Complication of Local Anesthesia. *Revue de Stomatologie, de Chirurgie Maxillo-faciale et de Chirurgie Orale*, **107**, 366-369.

[14] Page, C., Lehmann, P., Jeanjean S.V. and Legars, D. (2016) Revue Intra Cranial Abscess and Empyemas from E.N.T. Origin.

[15] Allan, B.P.,x Egbert, M.A. and Myall, R.W.T. (1991) Orbital Abscess of Odontogenic Origin. Case Report and Review of the Literature. *International Journal of Oral and Maxillofacial Surgery*, **20**, 268-270. https://doi.org/10.1016/S0901-5027(05)80150-X

[16] Traore, H. (2015) Contribution à l'étude de l'extraction dentaire au CHU-OS de Bamako.

[17] Kampo, B. (2016) Les cellulites péri-maxillaires au service de Stomatologie et de Chirurgie maxillo-faciale au CHU-OS de Bamako.