

Clinical Aspects of Mandibular Osteitis at the Sominé Dolo Hospital in Mopti (Mali) from 2017-2022

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Abstract

Original Research Article

Infectious osteitis is often of dental origin and is caused by negligent or desocialized patients. Its chronic form is a public health problem due to its health and economic consequences. The objective of this work was to describe the clinical aspects of mandibular osteitis at the Sominé Dolo hospital in Mopti, Mali. From 2017 – 2022, we conducted a descriptive cross-sectional study on cases of mandibular osteitis who were seen in maxillofacial surgery consultations at the Sominé Dolo hospital in Mopti. This hospital is located in Sevaré and is the largest reference center in the 5th region of Mali. All patients were questioned and examined by a maxillofacial surgeon and additional examinations were carried out (BCN, blood sugar, serum creatinine, transaminases, SRV, TPHA/VDRL, mandibular radiography). During the study period, 47 cases of mandibular osteitis were included out of a total of 710 patients seen in maxillofacial surgery consultations, representing a hospital frequency of 6.6%. The ages of the patients ranged between 5 and 70 years with an average age of 17 years. The gender is divided into 25 men (53.2%) and 22 women (46.8%), i.e. a sex ratio of 1.1. The consultation time before 6 months was 71.5%, it was 11.9% between 6 and 12 months and 16.6% after 12 months. The osteitic lesions were located: the left horizontal branch (42.5%), the right horizontal branch (25.5%), pan-mandibular (14.3%), the left ascending branch (10.6%), the right ascending ramus (10.6%) and the mandibular symphysis (2.4%). The osteitis of our patients was of origin: post-traumatic (6.3%), periodontal (4.3%), dental (89.4%). Traditional treatment was done by 36.1% of our patients before the medical consultation. Regarding treatment: five patients were treated medically (10.6%) and 42 were operated on (89.3%). Knowledge of this condition allows early treatment, which obviously avoids complications sometimes responsible for aesthetic and functional after-effects that are difficult to repair, especially in children.

Keywords: Mandibular osteitis, Sominé Dolo hospital, Mopti, Mali.

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INTRODUCTION

Infectious osteitis is often of dental origin and is caused by negligent or desocialized patients. Its chronic form is a public health problem due to its health and economic consequences. In Europe, the frequency of this condition has decreased significantly due to the use of antibiotics and better oral health education among populations [1]. However, in under-medicalized countries, osteitis of the mandible of dental origin remains relatively frequent [2, 3]. However, osteitis of the jaws in its classic serious form still exists in Africa. Their attack seems more frequently to interest female subjects. The age of patients varies, with a peak before

20 years and another after 50 years [3]. Its frequency is higher in children and the elderly. Serious osteitis requiring surgical procedures or long-term antibiotic treatments is currently rare (less than 1% of patients hospitalized in a maxillofacial surgery department) [4]. It is a serious condition because of the aesthetic and functional after-effects it causes. In Mali, there is little data on mandibular osteitis, which is why this work was initiated. Since the work of Diombana ML et al in 1986, more than 3 decades, to our knowledge no publication on this pathology has seen the light of day in Mali. Under these conditions, better knowledge of the frequency and clinical picture can help improve the quality and performance of health establishments, in order to

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motivate healthcare providers. The objective of this work was to describe the clinical aspects of mandibular osteitis at the Sominé Dolo hospital in Mopti, Mali.

METHODS AND PATIENTS

From 2017 – 2022, we conducted a descriptive cross-sectional study on cases of mandibular osteitis who were seen in maxillofacial surgery consultations at the Sominé Dolo hospital in Mopti. This hospital is located in Sevaré and is the largest reference center in the 5th region of Mali. All patients were questioned and examined by a maxillofacial surgeon and additional examinations were carried out (BCN, blood sugar, serum creatinine, transaminases, SRV, TPHA/VDRL, mandibular radiography). Was defined as a case of osteitis, the existence of one or more of these clinical signs and reassured by radiographic images

Clinical signs

- ✓ Mandibular pain continues
- ✓ Mandibular swelling with or without trismus
- ✓ Cutaneous fistula with or without discharge of pus
- ✓ The presence of dental caries in question or fracture site in question

Radiographic signs

- ✓ Bone rarefaction with irregular contours on radiography
- ✓ The opaque radio image surrounded by clear radio border

Any patient who meets the case definition was included. The data were collected using a standard individual questionnaire developed for this purpose. Our sources of information were the operative report registers, the consultation registers and the patients' medical-surgical files. The variables studied were:

- Socio-demographic data: age, gender, origin, profession,
- Clinical data: Consultation time, reason for consultation, treatment undertaken, topography, etiology, complication, comorbidity
- Radiographic data: Low face x-ray, maxilla devolved, Scanner

- Biology: CBC, blood sugar, serum creatinine, transaminases, SRV, TPHA/VDRL
- Therapeutic data: The type of treatment, the surgical techniques used.

All included patients gave consent and anonymity was guaranteed. The data were entered and analyzed using Epi info 6.0 VF software.

RESULTS

During the study period, 47 cases of mandibular osteitis were included out of a total of 710 patients seen in maxillofacial surgery consultations, representing a hospital frequency of 6.6%. The ages of the patients ranged between 5 and 70 years with an average age of 17 years. The age groups were distributed as follows: the age group of 0-17 years represented 54.8%, that of 18-60 years represented 38.1% and that of over 60 years represented 7.1%. The gender is divided into 25 men (53.2%) and 22 women (46.8%), i.e. a sex ratio of 1.1. The professions of our patients were distributed as follows: Preschoolers (6.3%), students (34.0%), workers (15.0%), housewives (21.3%), farmers (12.8%) and traders (10.6%). The consultation time before 6 months was 71.5%, it was 11.9% between 6 and 12 months and 16.6% after 12 months. Concerning the reasons for patient consultation: Mandibular swelling and cutaneous fistulas represented 83.3% and 81% of cases respectively. The osteitic lesions were located: the left horizontal branch (42.5%), the right horizontal branch (25.5%), pan-mandibular (14.3%), the left ascending branch (10.6%), the right ascending ramus (10.6%) and the mandibular symphysis (2.4%) (Table 1). The osteitis of our patients was of origin: post-traumatic (6.3%), periodontal (4.3%), dental (89.4%) (Table 2). Traditional treatment was done by 36.1% of our patients before the medical consultation. Anemia was found in 51.5% (17 cases) of patients with osteitis. Two patients had AS hemoglobinopathy (6.1%) and AC hemoglobinopathy (6.1%). There were no positive cases of HIV. Regarding treatment: five patients were treated medically (10.6%) and 42 were operated on (89.3%). The operating techniques performed were: Dental extraction + curettage (28.5%), Sequestrectomy + Dental extraction (50.0%), Interrupter sequestrectomy (16.7%), Hemi-mandibulectomy (4.8%) (Table 3).



Figure 1: Osteitis with right mandibular swelling and cutaneous fistula



Figure 2: left mandibular osteitis



Figure 3: Low face x-ray



Figure 4: Operating wound LEFT



Figure 5: result after one year of post-operative follow-up

Table 1: Distribution of patients according to the site of osteitic lesions

Topographic diagnosis	Effective	Percentage (%)
Osteitis left horizontal branch	20	42.5
Osteitis right horizontal branch	12	25.5
Pan-mandibular osteitis	6	14.3
Osteitis left ascending branch	5	10.6
Osteitis right ascending branch	5	10.6
Osteitis Mandibular Symphysis	1	2.4

Table 2: Distribution of patients according to etiological diagnosis

Etiological diagnosis	Effective	Percentage (%)
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Post-traumatic osteitis		3	6.3
Osteitis of periodontal origin		2	4.3
Osteitis of dental origin (42 cases)	Lower left molar	12	25.5
	Lower right molar	10	21.2
	Lower left premolar	6	13
	Right lower premolar	4	8.5
	Polycaria	10	21.2
Total		47	100

Table 3: Distribution of patients according to surgical procedures performed

Operating technique	Effective	Percentage (%)
Tooth extraction + curettage	12	28.5
Sequestrectomy + Tooth extraction	21	50.0
Interrupting sequestrectomy	7	16.7
Hemi-mandibulectomy	2	4.8
Total	42	100

DISCUSSION

In our study the frequency of mandibular osteitis is 6.6%. This high frequency among us could be explained by the low socio-economic level, the lack of oral hygiene and the delay in consultation. It is higher than that found in Europe (less than 1%), according to literature data. The frequency of this condition has significantly decreased with the use of antibiotics and better oral health education of the population [1]. Nowadays, publications on mandibular osteitis in the West are rare. However, several publications describe alveolar forms of osteitis [5–8]. Similar frequencies were found in certain countries south of the Sahara: in Niamey in Niger (4.8%), in Guinea Conakry (11.16%), in Bouaké in Ivory Coast (33.3%) [2, 3, 9]. This could be explained by the fact that these countries belong to the same geographical area and have a certain number of cultural and religious practices in common. In our study, the male gender represented 52.4% of cases, with a sex ratio of 1.1. Which corroborates with the sex of the patients in the study by Uche C et al in San Diego in America [10]. In our series the juvenile layer was the majority. This is in line with a study carried out in Ouagadougou [11] This age group is much lower than that found in San Diego [10] where the average age found was 58 years. This is explained by life expectancy which is higher in the West than in Africa. The most frequent symptoms in our study were mandibular swelling in 83.3% of cases and cutaneous fistulas in 81% of cases. The same symptomatology has been reported by other authors [9,10,12]. However, the fistulas were for Ouedrago [11]. This is because these 2 signs constitute the main symptoms of the disease. “Down face” radiography was the most requested incidence in our series with 42.9% of cases, followed by panoramic radiography with 33.3% of cases. This is because of the accessibility of this “low face” radiography to the detriment of dental panoramic in our hospital. In a southern Vietnamese study, the radiological signs essential to the diagnosis of mandibular osteitis were osteolysis, osteocondensation, bone sequestra, soft tissue abnormalities and periosteal apposition [13]. These radiological signs are the cardinal

signs supporting the diagnosis of osteitis of the jaws. We noted difficulties in isolating germs during bacteriological examination mentioned by authors [9,11]. These isolation difficulties would be inherent to several factors, among others: self-medication, sampling techniques, the time taken to transport the biological product to the laboratory and the technical platform. To overcome such difficulties, Ellouennass M *et al.* used sampling methods such as aspiration of biological fluid, sampling of bone tissue followed by culture then antibiogram [14] Thus Uche *et al.*, in America in their study, isolated 84% gram positive aerobic germs, 42% gram negative and gram positive anaerobic germs in 53% then gram negative in 27% of cases [10]. In our study, most of the mandibular osteitis was of dental origin, i.e. (89.4%) of the cases. The etiology of dental origin was also found in the study by the same author carried out at the Philadelphia Thomas Jefferson University Hospital in America. In our series, 42.5% of osteitic lesions were located in the left horizontal branch of the mandible. The same result was observed by other authors [10,11,15]. This seat predilection also described in the literature could be explained by the close relationship between the teeth and the mandible on the one hand and the structure of the mainly spongy horizontal branch on the other hand [1]. In our study, five patients (10.6%) were treated medically. Beta-lactams were the most used with 81% of cases. In the study of Diombana ML. and collar [15] in 1986 in Kati (Mali), 18.20% of patients were not operated on. In the American study, 5 patients obtained a complete cure under antibiotic therapy used in 34% of cases. Our results agree with those in the literature which demonstrate spontaneous healing or under antibiotic therapy for forms of simple osteitis [1]. We did not use honey in our series, however an Indian study conducted by Soni *et al.* [16] proves the effectiveness of treatment with honey on alveolar osteitis. Sequestrectomy associated with dental extraction was the most commonly performed surgical procedure in our study with 50%. Incision and drainage coupled with avulsion of the causative tooth with alveolar curettage were mainly carried out by Oadm *et al.* [9] Scherrer *et al.* in Germany, denote the superiority of the effectiveness of

the surgical treatment of mandibular osteitis, in particular sequestrectomy, curettage and decortication over other treatments such as hyperbaric oxygen therapy and new treatments with bisphosphates [17]. In our series, a cure without after-effects was obtained in 64.3% of cases in less than 3 months and punctuated by complications such as aesthetic and functional after-effects in 21.4% of cases, no cases of secondary cancer or death has not been recorded.

CONCLUSION

Mandibular osteitis are serious pathologies because of their aesthetic and functional after-effects. The occurrence of serious forms of osteitis would essentially be favored by the delay in consultation and treatment. Which delay in treatment would be due to a lack of knowledge of the disease, a blind belief of populations in traditional healers and poor socio-economic conditions? To do this, better awareness among populations is essential to prevent the after-effects linked to this pathology. It is therefore desirable to conduct a large-scale multicenter study on this pathology in Africa.

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