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Periapical cemento-osseous dysplasia in Laquintinie Hospital of Douala: a case report

Dysplasie cémento-osseuse périapicale à l'hôpital Laquintinie de Douala : cas clinique

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Cas clinique

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RESUME

Periapical cemento-osseous dysplasia is a lesion characterized by the replacement of the normal bone structure by fibrous tissue containing focal mineralized substances. It is a rare benign tumor. Authors reported a case of periapical cemento-osseous dysplasia diagnosed in a 65 years old woman, admitted at the Laquintinie hospital of Douala. Periapical cemento-osseous dysplasia was diagnosed after explorations. The interest of this case is to present the management of cemento-osseous dysplasia in a low-income country.

ABSTRACT

La dysplasie cémento-osseuse périapicale est une lésion caractérisée par le remplacement de la structure osseuse normale par un tissu fibreux contenant des substances minéralisées focales. Il s'agit d'une tumeur bénigne rare. Les auteurs rapportent un cas de dysplasie cémento-osseuse périapicale diagnostiquée chez une femme de 65 ans, admise à l'hôpital Laquintinie de Douala. La dysplasie cémento-osseuse périapicale a été diagnostiquée après explorations. L'intérêt de ce cas est de présenter la prise en charge de la dysplasie cémento-osseuse dans un pays à faible revenu.

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Introduction

Cemento-osseous dysplasia (COD) is generally considered to be the most common fibro-osseous lesion, confined to the dentous areas of the mandible and maxilla or to the alveolar processes of teeth, in which the normal bone structure is altered. This lesion is characterized by the replacement of the normal bone structure by fibrous tissue containing focal mineralized substances, which may be bone, cementum or both (1). However, the etiology and pathogenesis of this lesion are still poorly understood, but some authors consider it to be a non-neoplastic lesion that may originate in bone. In this case, it is a lesion derived from profound dysplastic changes in the structure of the periodontal ligament or medullary bone (1). In the recent 2017 WHO classification, the terminology "cemento-osseous dysplasia" was adopted to show the odontogenic origin of this lesion, particularly from the periodontal ligament (2). The diagnosis of COD is generally based on correlation between demographic information and clinical and radiological characteristics (3). Patients are mostly asymptomatic and the lesion is usually discovered incidentally during a radiographic examination such as a dental panoramic, and biopsy remains optional because of the risk of infection (4).

In most cases, the lesion is self-limiting, does not require intervention and only requires radiographic follow-up (5). The margins of COD lesions are generally well defined and often have a radiolucent margin surrounded by a band of sclerotic bone of variable width (6). The shape of the lesion is slightly irregular, roughly ovoid and centered on the root apex (6). The internal characteristics of COD lesions can vary from radiolucent to mixed or radiopaque, depending on the stage of maturation of the lesion (7). The diagnosis of COD often relies on the clinical and radiological features without the need for biopsy. Biopsy may be required only in atypical cases in which the diagnosis cannot be clearly established (8). All subtypes of COD have a similar histopathological appearance, containing a combination of interwoven bone and cement-like particles within a connective tissue stroma (9). Classically, the lesion progresses through 3 stages: osteolytic, mixed and mature osteogen (9). It should be noted that COD generally presents with only or no osteoblastic border (1). COD does not generally require treatment, unless the lesions become complicated by infection and osteomyelitis. Periodic follow-up with clinical and radiographic examination every two or three years is therefore sufficient (10).

Case report

A 64-year-old woman came to our clinic with swelling of the mental region associated with mild to moderate pain. She had no specific history. On clinical examination, we found facial asymmetry due to swelling of the mental region. The skin opposite the swelling was fair and free of fistulae. Palpation was slightly painful and revealed a tumour that was at one with the bone, immobile in relation to the deep and superficial planes. The mass was firm and woody. There was no palpable cervical adenopathy. On endobuccal examination, we found a swelling in the symphyseal region of the mandible. It was covered by a mucous membrane leaking a lemon-yellow liquid. On palpation, the mass was firm, with a renitent consistency and clean, regular margins. The base was soft, the shape oval and the base slightly erythematous. The tumour was painful on palpation, with a slight crepitus sensation. The panoramic dental radiograph showed an opaque ‘ground-glass’ image from 34 to 44. The lesion was oval in shape with regular margins and in places surrounded by a radiolucent peripheral border. There was an appearance of floating root teeth on the surface of the tumour. There was a blowout with thinning of the external cortex, without rupture of the mandibular basilar margin (**Figure 1**).

The patient was managed surgically, with removal of the tumour under general anaesthetic. The patient was supine and under nasotracheal intubation. We made a transvestibular incision with a scalpel blade from 34-43 with a vertical counterincision (**Figure 2**). We, then, performed a mucoperiosteal detachment with Molt's rugin, exposing the tumour (**Figure 2**).

A mallet and chisel osteotomy was performed to remove the tumour in several blocks. Extensive curettage and lavage of the cavity allowed removal of all resected tissue (**Figure 3**).

Separate sutures using absorbable thread were used to close the surgical site (**figure 4**). The operative part has been removed in several fragments (**figure 5**).
Anatomo-histopathological examination confirmed the diagnosis of cemento-osseous dysplasia.

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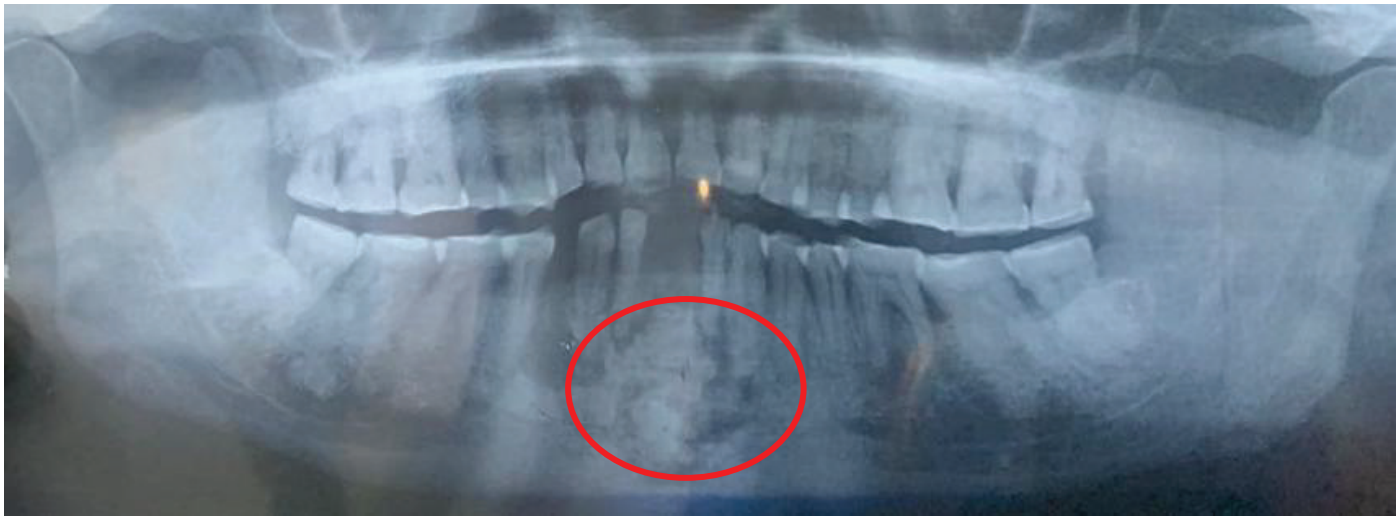

Figure 1 : *panoramic radiograph showing an opaque 'ground-glass' image from 34 to 44*

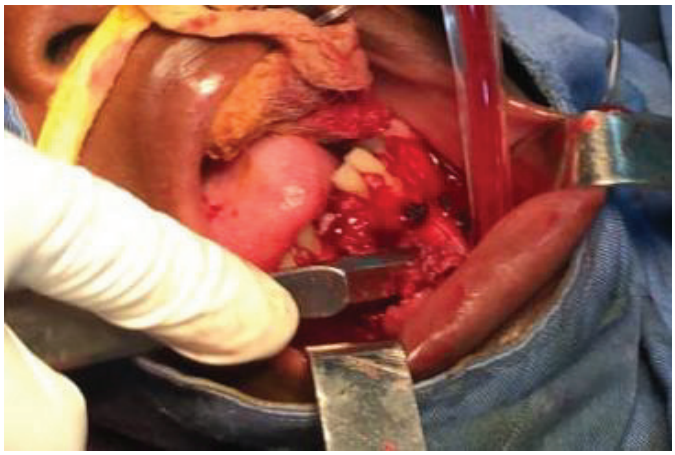

Figure 2: *mucoperiosteal detachment with Molt's rugin*

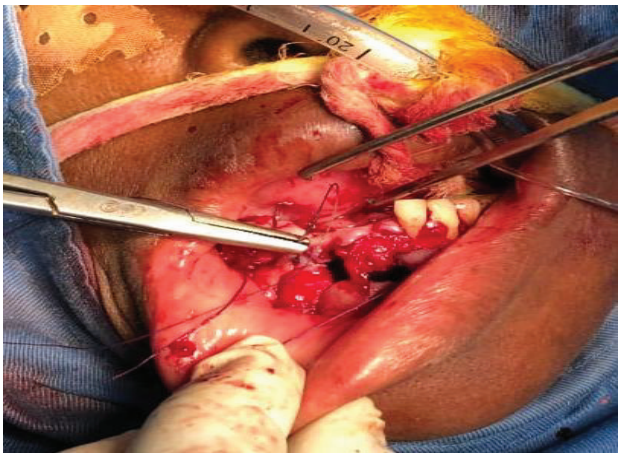

Figure 4 : *suture*

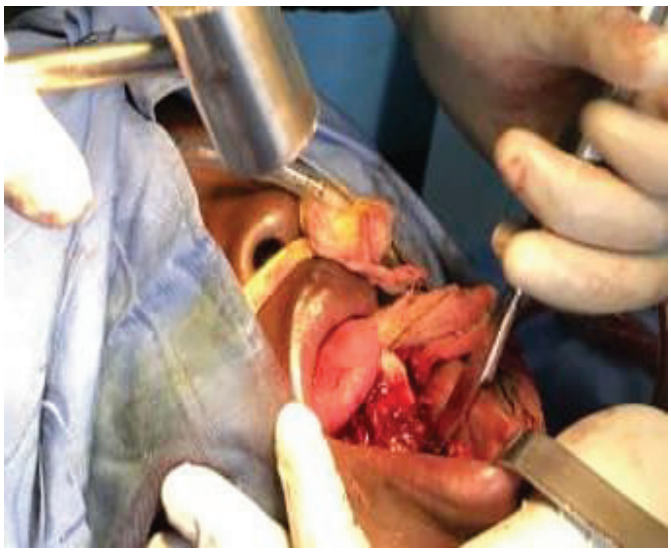

Figure 3: *A mallet and chisel osteotomy*

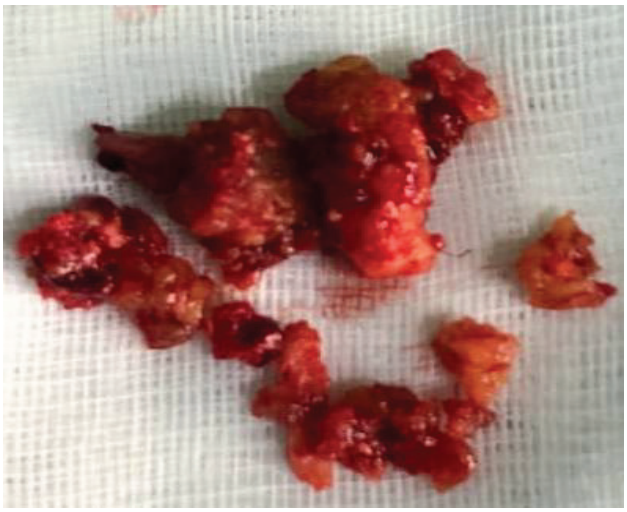

Figure 5: *operative part in several fragments*

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Discussion

Many authors have shown that cemento-osseous dysplasia predominantly affects women and is most common between the ages of 40 and 50 (11). Consistent with the identified predilection in women as described in the literature, the case we report was a woman of older age. The cause of the prevalence of COD in women is unknown, but the hypothesis of a hormonal imbalance affecting bone remodelling seems more plausible (12). DCO is the most common benign fibro-osseous lesion and occurs predominantly in the mandible (13). It can be divided into three types depending on the location of the lesion in the jaw: periapical, focal and florid. Periapical FCD is a dysplastic lesion that develops in the anterior part of the mandible. In the case reported here, the lesion was located in the anterior region of the mandible. The COD ranged from 33 to 44, which is consistent with the topography of apical cemento-osseous dysplasia. Some circumscribed lesions with limited growth are generally asymptomatic and are diagnosed incidentally during routine radiographic examinations (5). Cases showing some discomfort, such as pain, discharge and delayed healing, are generally associated with secondary infections (1). DCO is located in the dental areas of the jaws, in the periapical region of vital tooth(s) or in edentulous alveolar processes (14). The margins of COD lesions are generally well defined and often show a radiolucent margin surrounded by a band of sclerotic bone of varying width (5). Sclerotic bone indicates reactive bone associated with a slow rate of enlargement (4). The shape of the lesion is slightly irregular, roughly ovoid and centred in relation to the tooth root (5). The internal characteristics of COD lesions can vary from radiolucent to mixed or radiopaque, depending on the stage of maturation of the lesion (1).

In general, pain, suppuration and the presence of areas of osteolysis with or without bone sequestration of osteolysis with or without bone sequestration are considered indications for interventional surgery in infected DCO (7). Although bone hypovascularisation prevents antibiotics from reaching these areas in sufficient concentrations, conservative treatment with local and/or systemic antibiotics is necessary and is considered the gold standard treatment for COD (1). Curettage and excision of necrotic bone are the most recommended surgical approaches when there is an operative indication for COD; this can be performed under local or general anaesthesia. The patient in our study underwent excision of her lesion combined with curettage. This management is consistent with that described in the literature. On macroscopic examination, the submitted specimen generally takes the form of brown, granular, haemorrhagic tissue fragments (15). Periapical COD has a combination of woven bone and cement-like particles within a connective tissue stroma (9). In the osteolytic stage there is a vascular fibrous stroma containing osteoid and some basophilic cementoid structures. As it matures, the stroma becomes more fibrous and more prominent osteoid trabeculae form, with the appearance of thicker curvilinear bone trabeculae with a characteristic 'ginger root' pattern and the possible presence of distinct cementoid masses (9).

Conclusion

Periapical cemento-osseous dysplasia is a rare benign tumour located in the anterior sector of the jaws. We report the case of a 65-year-old woman who underwent tumour removal under general anaesthesia and in whom histopathological examination revealed periapical cemento-osseous dysplasia. The difficulty in managing this pathology lies in the indication and appropriateness of surgery.

Declarations

Ethics approval and consent to participate: The research protocol was submitted to the Institutional Ethics and Research Committee of the Faculty of medicine and pharmaceutical sciences of Douala-Cameroon, which issued us an ethical clearance and a research authorization (permit number: 247/UD/FMSP/VDRC/DAASR/ CSD and approval date of May 16, 2023). Informed consent to participate was taken from the patient reported in this study. We respected the confidentiality and anonymity of the data collected.

Conflict of interest: The authors declare no conflict of interest.

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Institutional Review Board Statement: The study was conducted in accordance with the guidelines of the Declaration of Helsinki and approved by the Institutional Ethics and Research Committee of the Douala's Faculty of medicine and pharmaceutical Sciences-University of Douala (permit number: 247/UD/FMSP/VDRC/DAASR/ CSD and approval date of May 16, 2023).

Authors' contributions:
Lucie Nankam **: data analysis, writing and correction of manuscripts,** Tonye Simon, Biboum Franck**: protocol drafting and management,** Messina Ebogo**: choice of subject and draft manuscripts,** Mpessa Maurice**: drafting of the manuscripts,** Essomba Noel**: correction of the manuscript and general supervision.** All authors have read and accepted the published version of the manuscript**.**

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