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Case Report

Undiagnosed Focal Cemento-osseous Dysplasia: A Case Report

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Abstract

Focal cemento-osseous dysplasia (FCOD) typically unilaterally, predominantly affecting the posterior mandible within tooth-bearing areas of the jaws. The condition exhibits a higher prevalence among females and is frequently diagnosed between the third and fifth decades of life. The aim of this case report is to present an incidentally diagnosed case of FCOD in an unusual localization. A 49-year-old female patient referred to the doctors for prosthetic treatment. During the routine examination, panoramic radiograph showed that a well-defined radiopaque lesion located at the apices of the right maxillary second molar tooth. Notably, the tooth exhibited vitality in the electric pulp test and remained asymptomatic upon percussion. Subsequent Cone-Beam Computed Tomography (CBCT) imaging was conducted, and upon reviewing the patient's historical radiographs, FCOD was diagnosed. This case underscores the significance of panoramic examinations in identifying asymptomatic lesions and preventing potential complications.

Keywords: Early diagnosis; Incidental findings; Panoramic.

Introduction

Focal Cemento-osseous Dysplasia (FCOD) typically presents unilaterally, predominantly affecting the posterior mandible within tooth-bearing areas of the jaws [1]. It exhibits a higher prevalence among females, particularly among individuals of Black and Asian descent. Diagnosis typically occurs in the third to fifth decades of life [2].

Despite an unknown etiology, FCOD is commonly regarded as a reactive lesion with a probable origin in the periodontal ligament, characterized by the presence of fibrous connective tissue, cementum-like material, and/or abnormal bone, necessitating careful differentiation from ossifying fibroma [3].

Radiographically, FCOD manifests in distinct stages:

- Stage 1: Entirely radiolucent
- Stage 2: Radiopaque cemento-osseous masses within a radiolucent background

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- Stage 3: A radiopaque image featuring a rim of radiolucency with well-defined borders

Typically, benign, and asymptomatic, FCOD is often incidentally discovered during radiographic examinations in the absence of secondary infections. Biopsy is contraindicated due to the associated risk of osteomyelitis [1]. With limited growth tendencies, FCOD generally does not necessitate active treatment [4]. Awareness of these characteristic features and clinical considerations is paramount for accurate diagnosis and appropriate clinical management. The aim of this case report is to present an incidentally diagnosed case of FCOD in an unusual localization.

Case report

A 49-year-old female patient presented for prosthetic treatment, exhibiting indications of periodontal disease, caries, and missing teeth upon intraoral examination. Panoramic radiography disclosed a distinct radiopaque lesion located at the apices of the right maxillary second molar tooth (Figure 1). Subsequent periapical radiography revealed dentin caries and a radiopaque image with a rim of radiolucency at the tooth's apices (Figure 2). Despite the radiographic findings, the tooth exhibited vitality in the electric pulp test and remained asymptomatic upon percussion. The provisional diagnosis suggested condensing osteitis.

Figure 1: During the examination, the panoramic radiograph revealed the presence of a well-demarcated radiopaque lesion situated at the apices of the right maxillary second molar.

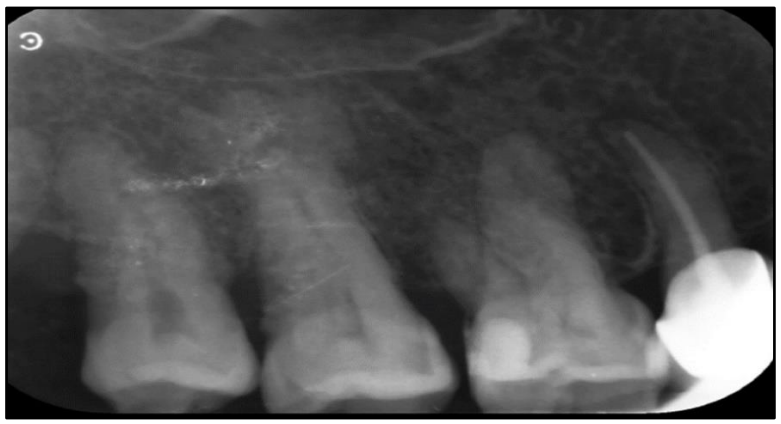

Figure 2: Periapical radiography from the relevant region, revealed dentin caries and a radiopaque image with a rim of radiolucency at the vital right maxillary second molar apices.

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To further investigate, a cone-beam computed tomography (CBCT) scan was performed, revealing a well-defined radiopaque lesion with similar bone density and a narrow radiolucent border. Noteworthy, there were no signs of root resorption or cortical bone expansion/thinning (Figure 3). In a comprehensive anamnesis, it was discovered that the patient had visited various dental clinics over the past years, undergoing panoramic radiographs, yet remaining unaware of the identified lesion.

Upon obtaining the patient's consent, an examination of the patient's electronic health records via Turkey's personal health record system, e-nabız, unveiled two panoramic radiographs. The 2018 image displayed well-defined radiolucencies with a broad sclerotic rim centered over the apices, accompanied by small radiopaque materials (Figure 4). Subsequent radiographs indicated a progressive increase in radiopaque material within the previously radiolucent areas over time (Figure 5).

Figure 3: CBCT images; A: Axial B: Coronal C: Sagittal. CBCT was performed, revealing a well-defined radiopaque lesion with similar bone density and a narrow radiolucent border. Noteworthy, there were no signs of root resorption or cortical bone expansion/thinning.

Figure 4: Cropped image of a panoramic radiograph obtained with the e-nabız system at another dental center in March 2018.The 2018 image displayed well-defined radiolucencies with a broad sclerotic rim centered over the apices, accompanied by small radiopaque materials.

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Figure 5: Cropped image of a panoramic radiograph obtained with the e-nabız system at another dental center in May 2018.Subsequent radiographs indicated a progressive increase in radiopaque material within the previously radiolucent areas over time.

Considering the amalgamation of clinical and radiographic evidence, the provisional diagnosis leaned towards Focal Cemento-Osseous Dysplasia (FCOD). The patient was duly informed, and referrals were made to the relevant departments for the treatment of cavities and periodontal disease. A follow-up examination was recommended after six months for further evaluation. This case underscores the significance of integrating electronic health records for a comprehensive diagnostic understanding and informed patient care.

Discussion

The identified correlation between gender and age at diagnosis aligns with established literature, particularly the work of Brody A, et al. [2], while the precise etiology of FCOD remains elusive, it is commonly theorized to be a reactive lesion originating in the periodontal ligament. A case presented by Baden E, et al. [5], draws parallels with the findings, suggesting a potential link between this lesion and chronic inflammation in the periodontal ligament associated with periodontal disease.

Moreover, a noteworthy association emerges between the age of FCOD diagnosis and the onset of menopause. The menopausal transition introduces hormonal fluctuations and an elevated susceptibility to osteoporosis [6].

In menopausal females, heightened cytokine production, inflammatory responses, oxidative stress accumulation, and cellular senescence in periodontal disease may contribute to irritation in the periodontal ligament [7].

These factors could potentially predispose individuals to the development of FCOD, although additional evidence is needded to substantiate this hypothesis. In terms of the anatomical manifestation of FCOD, the conventional posterior mandibular location, observed in 77% of cases [8], contrasts with the atypical posterior maxillary occurrence in the present case.

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This deviation may be despite the absence of mandibular posterior teeth,attributed to the presence of maxillary teeth, potentially exposing the periodontal ligament to increased irritation. FCOD typically exhibits limited growth and seldom necessitates intervention. In the context of infected FCOD cases, as per existing literature, surgical intervention is often necessary. However, any form of interference, particularly surgical excision following tooth extraction, may elevate the risk of osteomyelitis development in cemento-osseous dysplasia. A thorough consideration of potential complications is imperative in determining the appropriate course of action for infected FCOD cases. However, during the initial osteolytic phase, FCOD presents radiolucent images, resembling periapical lesions and occasionally leading to misdiagnosis and unnecessary treatments, such as root canal procedures or extractions [4].

Heightened awareness of this diagnostic challenge is paramount for precise clinical management. The delayed diagnosis in the early stages of this lesion in the patient introduces several potential factors. Errors in patient positioning during radiography or suboptimal conditions during radiological examinations may impede accurate assessment. Additionally, the panoramic radiograph's broad perspective may lead dentists to focus solely on the region of complaint, potentially overlooking asymptomatic cases.

Proficiency in interpreting radiographs and lesion data is crucial, as highlighted by Ahsan-Mohammed A, et al. [9], study comparing diagnostic confidence among specialists, dental and maxillofacial radiologists, and recently qualified dentists.

The study revealed a significant lack of confidence among newly qualified dentists, emphasizing the critical importance of early detection and prompt preventive measures to mitigate unnecessary procedures and complications associated with undiagnosed lesions.

Conclusion

In conclusion, the implementation of routine examinations, systematic radiographic evaluations under optimized conditions, and the involvement of various dental professionals, particularly radiologists, can serve as valuable tools for the detection of asymptomatic pathologies and the early diagnosis of such lesions.It is very important for dentists to be familiar with different bony lesions to avoid complications because of undiagnosed incidental findings.

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