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Case Report

An Incidental Discovery of Benign Fibro-Osseous Dysplasia in a 56-Year-Old Female: A Case Report

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Abstract

Benign fibro-osseous dysplasia is a slowly progressing disease where bone is replaced by hypercellular fibroblastic cells which give the surrounding bone a thickened opaque appearance. Differing clinical and radiographic presentations which can hinder an accurate diagnosis and treatment for dental patients. Long term management can only be performed effectively if dentists and other specialists collaborate to ensure an accurate diagnosis for patients that present with benign fibro-osseous lesions. This case report presents an incidental discovery of benign fibro-osseous disease during a routine dental screening of a middle-aged African American female.

Keywords: Benign Fibro-Osseous Dysplasia; Hypercellular Fibroblastic; CEMENTO-Osseous Dysplasia

Introduction

Benign fibro-osseous dysplasia (BFOD) is an umbrella terminology that includes several disease processes that include fibrous dysplasia, ossifying fibroma, and cemento-osseous dysplasia [1]. Benign fibro-osseous dysplasia is commonly seen in African American women [2] and cellular examination from a lesion of benign fibro-osseous dysplasia presents with stromal cells containing hypercellular fibroblastic growths and calcifications [3,4]. These disease processes can present with varying similarities and differences and pose a challenge to dental clinicians in their diagnosis. For example, fibrous dysplasia primarily affects the skulls of children and young adults, often presenting with a characteristic "ground glass" appearance on radiographs [5,6]. On the other hand, ossifying fibroma and cemento-osseous dysplasia are more commonly found in middle-aged African American women [2]. Ossifying fibromas are considered neoplastic which can contribute to their potential for rapid growth [7] and the need for proper treatment planning. Ossifying fibromas originate from bone-forming cells and typically occur in the jawbones or other craniofacial bones [8]. These conditions collectively involve calcifications and overactive fibroblasts within marrow tissues [9].

Fibrous dysplasia results from mutations in the GNAS gene [10], leading to bone malformation that typically affects young adults. This malformation can present as a painless swelling that ultimately displaces involved teeth from their original position. Root resorption has also been seen, though rare [11]. In cemento-osseous dysplasia, 86% of cases occur in the mandible, averaging about 1.5cm in size; 62% of these patients are asymptomatic [4]. When fibrous dysplasia is seen clinically in the oral cavity, the lesions appear around the roots or apices of the involved teeth. Pulp vitality testing is a valuable method to rule out endodontic issues for these involved teeth. Ossifying fibroma often presents as a unilocular lesion, though multifocal cases exist. The multifocal cases reported were very few [12]. Tooth displacement is a characteristic feature aiding in differential diagnosis [11]. The clinical presentation of "shelling-out," where a lesion has a well-defined border that appears to be separated from the surrounding bone, can help differentiate other conditions from cemento-osseous dysplasia. This feature is not typically observed in cemento-osseous dysplasia, aiding pathologists in ruling it out as a diagnosis [13].

Radiographically, ossifying fibromas, like other fibro-osseous lesions, can exhibit various patterns, including radiolucency, radiopacity, or a mixed appearance [7]. These distinct radiographic features, along with clinical presentation, assist in accurately diagnosing and managing these conditions. Surgical excision is often the primary treatment for ossifying fibromas, especially if the lesion is large or causing significant symptoms. In some cases, tissue reconstruction may be necessary following excision, particularly if

there is extensive bone involvement. With complete excision, the prognosis for ossifying fibromas is generally a positive one. To be noted, lesions falling into the category of fibrous dysplasia often have a benign course, and many patients do not require surgical treatment, especially if the condition is asymptomatic [1].

However, surgical intervention may be pursued for patient preference, cosmetic reasons or in the event lesions cause disruptions in function of surrounding structures and the teeth involved. Effective communication and collaboration among dental clinicians and other specialists are crucial for achieving an accurate diagnosis and facilitating appropriate management of BFOD lesions [1]. This interdisciplinary approach ensures that patients receive optimal care tailored to their specific condition and needs.

Case Report

A 56-year-old African American female presented with a chief complaint of an unspecified, intermittent pain in the area of the anterior mandible to the Howard University Dental Clinic in Washington, DC. Her medical history yielded the following information: a year before she was under the care of a general physician for check-ups, was diagnosed as anemic and had not been taking iron supplements as recommended by the general physician. She stated the physician had given her a prescription of 500 mg Amoxicillin, to be taken twice daily for 7-10 days to address her dental pain. The patient had taken it for three days at the time of her presentation to the clinic. Her other medical history was non-contributory with no systemic diseases or comorbidities present. The physician had recommended a dental examination to address the pain she was having in the anterior mandibular area which prompted making an appointment for a dental examination. The patient to date was asymptomatic except in the anterior mandibular region of her mouth. A panorex radiograph, four bitewings and three maxillary and mandibular periapicals were taken.

Clinical findings

A complete dental examination was performed which included an extra oral examination with cancer screening and an intraoral examination of her soft tissues and dentition. The lymph nodes of the head and neck were palpated: preauricular, postauricular, occipital, cervical and finally the submandibular and mental. The triangles of the neck and midline structures were also examined with the patient turning her head left, right, chin up and chin down. Lymphadenopathy was not present in any of these areas; the mental area was well palpated and checked for deformities, fluctuant masses and lumps that could preclude malignancy as per the patient's chief complaint of pain in this area. The extraoral examination yielded non-significant results. No pain was reported from extraoral palpation and no swelling or lumps were palpated or visible.

An intraoral examination revealed open margins on two all-ceramic crowns on #4 and #5. Both teeth were endodontically treated and had been completed within the last five years. Additionally, a bone spicule presented in the lower left quadrant in an edentulous area distal to first lower left molar in the mandible. Closer inspection of her anterior mandibular area with a dental explorer with a sharp tine revealed mesio-disto-incisal lesions (MID) on teeth #23 and #24, and mesio-facio-incisal (MIF) lesions on #25, #26, #27. A gingival assessment was performed by "walking" a periodontal probe within the free gingival margins of the anterior mandibular teeth due to the patient's chief complaint and also around maxillary and mandibular posterior teeth for thoroughness to rule out an acute periodontal diagnosis. This general examination revealed bleeding on probing in the maxillary right and mandibular left quadrants. In the anterior areas, teeth #23 and #24 presented with bleeding on probing interproximally in the mesial areas. There were no boney, hard eminences of the facial or lingual bone that were palpated that indicated the lesions had expanded out facially or lingually; no impairment to function was observed from surrounding structures from the lesions.

Radiographic findings

Assessment of periapical radiographs of teeth #22 to #27 showed carious lesions in #23, #24, #25, #26, #27. The carious lesions appeared 1-3mms in length gingivoincisally and had encroached the dentinoenamel junction (DEJ). These teeth did not show pulpal involvement radiographically. During cold testing, the patient reported quick, sharp tingles when Pac-Dent Vital Ice Pulp Vitality Spray was used to establish the pulpal status of these teeth. Additionally, the patient reported short, sharp tingles when a monopolar EPT probe was placed close to the incisal third of each tooth; a false-positive resulted for #25 and suggested calcification. The test was repeated and yielded a score of 3 for each tooth, which led to the diagnosis of a positive vitality for teeth #23, #24, #25, #26 collectively.

Further periapical radiographic inspection of the apices showed unilocular opacities at the apices of #23, #24, #25 and #26. There was a radiolucent area around the root distally with tooth #24 that was mixed in presentation. Teeth #23, #24 #25 and #26 presented with a dense circular opacities at the apices of their roots. Panoramic evaluation showed the same mixed areas around #24 and #26 and dense opaque areas around #23, #25 and #26.

Discussion

The case described in this report shows characteristics of benign fibro-osseous dysplasia lesions and led to a working diagnosis of BFOD in the anterior mandible. The patient was referred to an oral pathologist for further examination which resulted in a confirmed diagnosis of BFOD based on the dental history, clinical examination and radiographic presentation. The mixed radiolucent areas that appear disto-apically around #24 and circumferentially around the apex of #26 are characteristic for a BFOD lesion and are said to be present in one-fifth of all BFOD cases. Prior to this dental examination, the patient reported not having any pain in the area and a previous dental examination 5 years ago did not reveal any radiolucencies or opacities at the apices of her mandibular anterior teeth when radiographs had been taken. This led to a conclusion that the lesions she presented with were slow growing, another characteristic of BFOD.

As there are no known impairments to general health with BFOD, no surgical intervention was recommended with this case. Instead, regular dental examinations with clinical and radiographic monitoring of the anterior mandibular area was the plan of action. Follow-up appointments would be needed every 6 months to identify any possible changes in the anterior mandible that would indicate the BFOD lesions were changing e.g., expansion of bone in the mental area of the mandible, presentation of any displacement of the involved teeth and the appearance of any swelling of soft tissues and/or pain.

The patient was rescheduled for treatment that included extraction of the boney spicule, prophylaxis, periodontal evaluation and restorative procedures on #23, #24, #25, #26, #27; fixed indirect retainers would replace the prostheses on #4 and #5. An endodontic consult was planned with an endodontic specialist to establish the viability of her previous endodontic treatment on teeth #4 and #5 prior to restoration of those teeth.

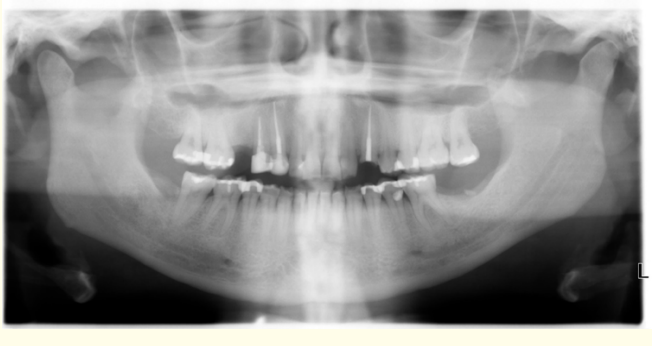

Figure a

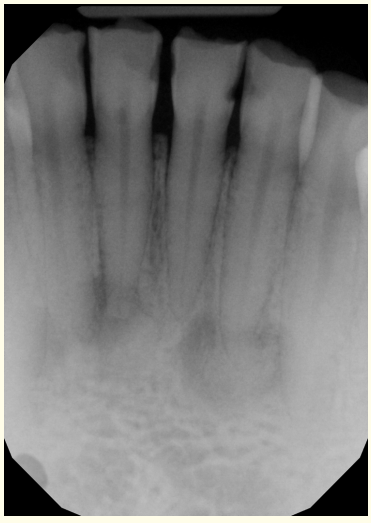

Figure b

Conclusion

Dentists in collaboration with other dental specialists such as radiologists, endodontists and oral pathologists play an integral role in the proper diagnosis of benign fibro-osseous dysplasia in dental patients. Patients are usually unaware of any changes that are progressing when lesions progress asymptomatically. Prior to her dental visit, this patient was unaware of the changes that had occurred in the mental area of her mandible over a 5-year period. The diagnosis of BFOD was purely incidental upon radiographic inspection based on the patient's chief complaint of intermittent, spontaneous pain in her anterior mandibular region and indicates the need for consistent dental examinations. As dentists work collaboratively across disciplines, lesions such as these can be properly diagnosed and the patient suitably monitored. In order to offer the best treatment options for dental patients who present with such lesions, it is necessary to give an accurate diagnosis so there can be careful management of dental cases through effective follow-up visits and a multi-disciplinary approach.

Declaration of Patient Consent

The authors of this case study certify that they have obtained all appropriate patient consent forms. In the form the patient has given consent to the use of her images and other clinical information that is reported. The patient understands that her name and initials will not be published and appropriate measures will be taken to conceal identify, but anonymity cannot be guaranteed.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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