Asymptomatic ossifying fibroma of the mandible: A case presentation

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Ossifying fibromas are rare benign bone-related lesions of the jaw. Early diagnosis based on clinical, radiologic, and pathohistologic findings is essential, since undetected lesions may expand and cause considerable functional and cosmetic problems. The treatment of choice is purely surgical. Periodic clinical and radiologic follow-up should be scheduled, since recurrence is possible. The present article describes the diagnostic procedures, surgical management, and follow-up of an asymptomatic ossifying fibroma in the mandible of a 21-year-old man. (Quintessence Int 2012;43:381–385)

Key words: bone-related lesion, cone-beam computed tomography, enucleation, ossifying fibroma

According to the WHO histologic classification of odontogenic tumors, the ossifying fibroma is a benign tumor in the bone-related lesion category. It is a well-demarcated lesion composed of fibrocellular tissue and mineralized material of varying appearance. To simplify the nomenclature, it is now widely accepted that all lesions formerly called ossifying fibromas, cementifying fibromas, or cemento-ossifying fibromas are referred to as ossifying fibromas.

Small lesions are often discovered incidentally, but if untreated, lesions can become large and cause considerable cosmetic and functional problems. Surgical curettage or enucleation are the treatment procedures of choice for most small ossifying fibromas. In the present case report, the diagnostic procedures and minimally invasive treatment of an asymptomatic ossifying fibroma in the mandible are described.

CASE REPORT

A healthy 21-year-old man was referred by his general dentist for evaluation and treatment of a well-defined radiolucent lesion in the mandible discovered incidentally on a panoramic radiograph apical of the mandibular left canine (Fig 1). The patient did not have any history of dental treatment besides surgical removal of his four third molars.

Extraoral examination revealed nothing suspicious. Intraorally, there were no pathologic findings with regard to the oral mucosa or teeth. Cold testing with carbon dioxide snow proved positive for the mandibular left central incisor to the second premolar.

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biopsy specimen (8 × 8 × 6 mm) was taken (Fig 3). Histologic examination revealed a diagnosis of ossifying fibroma. The specimen showed typical histopathologic features: multiple fibroblasts and fibrocytes imbedded in collagen fibers, few histiocytes, woven bone trabeculae partly being transformed to lamellar bone, and further mineralized components consisting of zones of basophilic, poorly cellular cementumlike structures. No signs of exceeding mitotic activity or invasive growth could be seen (Fig 4). One week later, the patient was free of pain and exhibited optimal wound healing.

In consideration of the clinical and histologic findings, the entire tumor was enucleated after endodontic treatment of the mandibular left canine. During the second surgical intervention, a complete enucleation of the tumor was performed. The histologic examination confirmed the diagnosis of ossifying fibroma. A follow-up examination after 1 year revealed no signs of recurrence.

**Fig 1** The panoramic view shows a well-demarcated radiolucency apical of the mandibular left canine.

**Fig 2** (a) The sagittal CBCT section shows the relationship of the lesion to the apices of the mandibular left lateral incisor, canine, and first premolar. The (b) horizontal and (c) coronal CBCT sections clarify the anatomical relationships between the lesion, apex of the canine, and mental foramen.

**Fig 3** Intraoperative aspect (a) before and (b) after removing the cortical bone during the first surgery.
Histologic findings: The dimension and amount of mineralized structures may vary in ossifying fibromas: (a) Bone trabeculae and (b) poorly cellular cementumlike spherical structures (both hematoxylin-eosin). (c) The collagen fibers are easily recognizable with the elastic van Gieson stain.

Enucleated material during the second surgery. (b) Postoperative peri-apical radiograph showing the resected apex of the mandibular left canine.

Clinical and radiologic follow-up 19 months after enucleation. (a) The clinical findings show good soft tissue healing. The (b) coronal and (c) sagittal CBCT sections exhibit reossification of the enucleated zone.

Enucleation of the lesion was performed, resecting 4 mm of the apex of the canine, as well (Fig 5). Examination with an endoscope showed a perfectly sealed canal; hence, there was no need to perform retrograde filling of the root canal. The bone defect was filled with resorbable collagen, and the flap was adapted for primary wound healing. The pathohistologic findings were identical to those of the first specimen. The various mineralized components were scattered irregularly throughout the enucleated specimen. Again, the patient showed optimal wound healing.

Clinical and radiologic follow-up examination 1 week, 6 months (clinical examination and panoramic view), and 19 months (clinical examination and CBCT; volume, 4 × 4 cm) after enucleation showed no signs of recurrence (Fig 6).
**DISCUSSION**

Ossifying fibroma of the jaw is a slow-growing benign tumor with origins in the periodontal ligament. The lesion is mainly seen in the mandible and shows more affinity to the molar and premolar region. Although it can affect patients at all ages, its peak incidence is in the 20- to 40-year age group and shows a predilection for women. In most cases, a single, well-demarcated lesion is diagnosed. Nevertheless, there have been a few cases of multiple occurrences of ossifying fibroma.

Clinically, an early ossifying fibroma is often asymptomatic. If not discovered, ossifying fibroma causes continuous expansion of the involved bone, often accompanied by swelling, pain, tooth displacement, or even eye protrusion. The lesions often cause a divergence of the involved teeth. Root resorption is an uncommon finding. The radiographic features vary from radiolucent to radiopaque. It was described that the radiopacity correlates with the stage of the lesion: The initial appearance is radiolucent, and the ossifying fibroma progressively becomes radiopaque as the stroma mineralizes. In the literature, three-dimensional (3D) radiographic characteristics of ossifying fibromas were described based only on CT scans. To the best of our knowledge, the present case report is the first to analyze radiographic preoperative and follow-up findings using CBCT scans.

Histologically, ossifying fibroma is characterized by calcified material and a fibroblastic stroma, which may be very cellular. The calcified component is usually a combination of bone trabeculae and strongly basophilic cementumlike structures with variable osteoblastic rimming. Osteoclastlike giant cells and occasional aneurysmal bone cavity components characterized by sinusoid blood spaces may be present. It is supposed that the number and stage of mineralization of bone spherules increase during tumor maturation: Older lesions contain more osseous tissue than the younger ones.

Based on clinical, 3D radiologic, and pathohistologic findings, it is possible to distinguish ossifying fibroma accurately from fibrous dysplasia, hyperparathyroidism, osteitis deformans, and diffuse sclerosing osteomyelitis. Nevertheless, radiographic signs of potential malignancy such as irregular margins and displacement of the mandibular canal have been reported in the literature. Thus, explorative surgery to establish a definite diagnosis as reported in the present case report is recommended before initiating a more aggressive surgical therapy. Furthermore, an initial 3D radiologic evaluation is of considerable help for treatment planning, especially when determining the necessity of potential endodontic treatment of the teeth involved. Once the diagnosis of an ossifying fibroma is firmly determined, the recommended therapy is surgical removal and is usually sufficient for successful treatment. Recurrences have been described in 12% of the cases. Therefore, regular clinical and radiologic follow-up visits are recommended.

**REFERENCES**


