

Central Odontogenic Fibroma of the Mandible

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Abstract

A 16-years-old female patient with painless swelling of the right side of mandible is described. She noticed the swelling from two years ago, without painful symptoms. Axial CT imaging showed buccal expansion with intact buccal and lingual cortical bone. The report of incisional biopsy was central odontogenic fibroma. Under general anesthesia the lesion was removed after ostectomy of buccal cortical plate and inferior alveolar nerve preserved. Three-year follow-up after tumor excision relieved no recurrence.

Key Words: Odontogenic tumor, central odontogenic fibroma, mandible.

Introduction

Odontogenic fibroma originates from odontogenic ectomesenchyme which first described in 1991 by Handlers et al. (1). World Health Organization (WHO) classification explains the COF as a proliferation of odontogenic ectomesenchyme, with or without included odontogenic epithelium (2). It is a rare tumor of ectomesenchyme periodontal ligament or dental pulp that containing strands of odontogenic epithelium with collagenous stroma (3). One third of lesions are related with an impacted tooth.

There is similarity in pathologist description of this entity with other lesions, like hyperplastic follicular sac, fibromyxoma, desmoplastic fibroma and ameloblastic fibroma which clinical correlation should help, in the diagnosis of odontogenic fibromas (4). Because of low incidence of this lesion there is few information about it, so we report a case of COF in the right molar region of the mandible.

Case report

A 16-years-old male patient was referred to Ghaem hospital, Mashhad, Iran in September 2009 with 2-years' history of swelling in the right side of mandible. In intraoral examination, there was a firm swelling in vestibular region adjacent to permanent right molar teeth).this lesion lead to slight asymmetry of facial appearance when she looked from front. It was not painful and there was not any abnormal sensation at lower lip.

Occlusion was normal and the lesion did not displace the erupted permanent teeth. The overlying mucosa was normal and intact. There was no sensory loss or difficulty in chewing. Extra oral examination revealed asymmetry with facial swelling without any trouble during palpation. There was no

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lymphadenopathy in submandibular or submental region.

Panoramic radiograph showed multilocular radiolucency extending from right first permanent molar to mandibular angle area which was 3 × 2 cm in size. There was slight root resorption of first and second molar in apical third, involved teeth were not displaced by the lesion. Axial computed tomography (CT) scan demonstrated a mass of the mandible, which expanded buccal cortical plate but bone cortex were not perforated by the lesion (Fig. 1). Vitality tests were positive and there was no pain when these teeth were tabbed with end of metallic mirror. The patient therefore underwent an aspiration biopsy that was negative. Aspiration needle cannot penetrate the bone overlying the lesion. Finally incisional biopsy was done under local anesthesia, and then samples were sent for histopathological examination in 10% formalin solution (Fig. 2). The gross specimen was consisted of two pieces tissue which was 0.5 × 0.5 × 0.7 cm in size, white

in color, and firm consistency. There was not any difficulty in control of bleeding from remaining pathologic lesion and there was no need to local haemostatic agent.

Histopathologic examination revealed proliferation of stellate fibroblasts, often arranged in a whorled pattern with collagen fibrills; also myxoid change areas were clear. The histopathological diagnosis was simple type of central odontogenic fibroma (Fig. 3). The lesion was treated by enucleation. Under general anesthesia buccal cortical plate was removed by bur and inferior alveolar nerve preserved. The inferior dental canal was displaced by the lesion and after enucleation of the lesion inferior alveolar artery and nerve was not exposed. The lesion was enucleated one piece and sent for pathological examination. The lesion separated from surrounding bone easily. The specimen was evaluated and histopathology was confirmed with the incisional biopsy report. Follow-up after 3- years' showed no recurrence and lip sensation was normal.

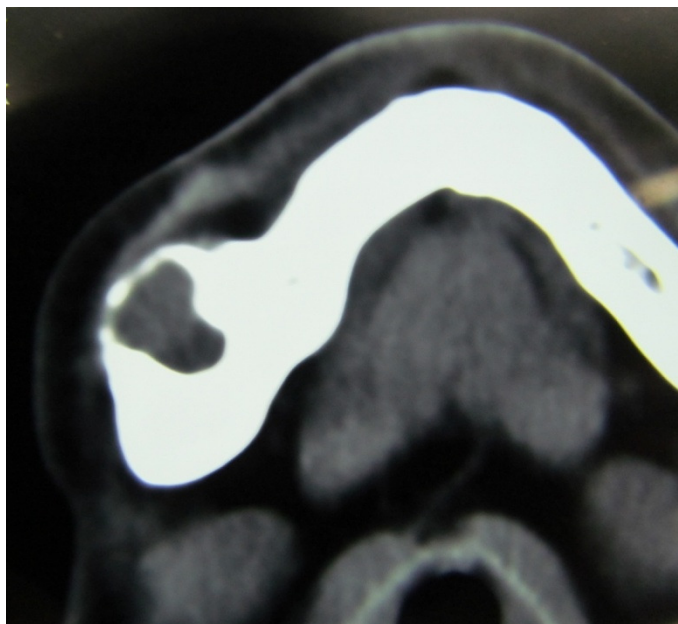


Figure 1. Axial CT scan demonstrated a mass of the mandible, which expanded buccal cortical plate but bone cortex were not perforated by the lesion



Figure 2. Enucleation of the lesion through retromolar incision and buccal bone removal.

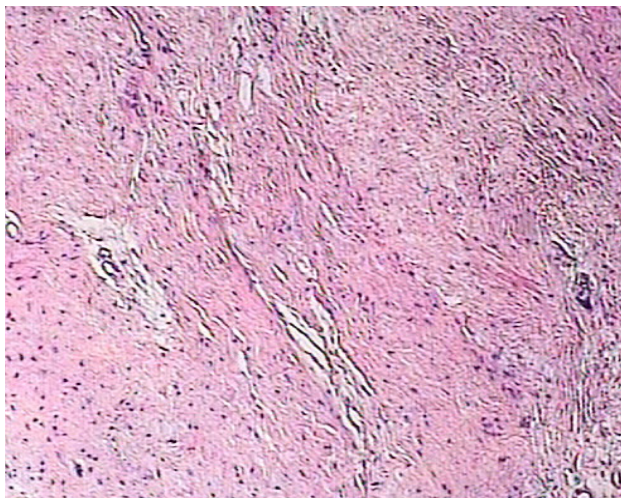


Figure 3. Benign proliferation of spindle fibroblastic cells within a collagenous background in a whorling arrangement (H & E staining, Original 400× magnification)

Discussion

COF originates from ectomesenchymal odontogenic tissues such as dental follicle and the periodontal ligament. COF constitute approximately 1.5% of odontogenic tumor. The tumor is more common in females than in males. COF are dictated during the two decade of life. Generally, COF resembles as a painless swelling with a slow growth similar to our case (5-8).

Radiographically, COFs are commonly unilocular radiolucent lesions which have well-defined borders similar to odontogenic cysts, CGCG, traumatic bone cyst, as well as ameloblastoma (9). If radiographic findings showed a multilocular radiolucent lesion involving condylar process with ill-defined borders, the differential diagnosis consist of benign lesions such as ameloblastic fibroma, odontogenic myxoma and aggressive lesions such as desmoplastic fibroma, juvenile aggressive fibromatosis or fibrosarcoma (1,7,10,11).

The majority cases of COFs that reported were small in size and associated with teeth but COFs were bigger in size may be mistaken with dentigerous cyst (8).

In histopathologic features, two patterns for COF have been shown: simple type and WHO type. The simple type of COF composed of stellate fibroblasts that arranged in whorled pattern. Odontogenic epithelium rests may be present. The desmoplastic fibroma, which is a more aggressive lesion, should be differentiated from a central odontogenic fibroma. The desmoplastic fibroma doses not have an epithelial component. The odontogenic fibromd (World Health Organization [WHO] type) has a complex pattern that consists of collagen fiber with narrow cored of odontigenic epithelium (12, 13). In some cases, cementum-like material or dentinoid have been shown. The central odontogenic fibroma generally treated by enucleation and curettage. A few recurrences have been reported but the prognosis is excellent.

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