A Case of Ameloblastic Fibrodentinoma in the Posterior Mandible

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Abstract

The WHO classification defines Ameloblastic fibrodentinoma recognized as developing state of odontomas in 2017 and this tumor is rare. A case of ameloblastic fibrodentinoma in the posterior mandible region is reported. A 28-year-old man was referred to our hospital for treatment of an unclear radiolucent lesion in the right posterior mandible. Radiographic examination showed an unclear radiolucent lesion in the right molar at the mandible. The clinical diagnosis was odontogenic tumor. Conservative surgical excisions were done under the local anesthesia and sedation. Histopathological examination showed a cellular myxomatous stroma including strands of odontogenic epithelium. The final diagnosis was ameloblastic fibrodentinoma. At follow-up evaluation 2 years and 3 months after the procedure, there was no evidence of recurrence.

Introduction

Ameloblastic fibrodentinoma (AFD) is a very rare odontogenic benign tumor defined as a tumor with the features of ameloblastic fibroma (AF) (1). AFD can form dysplastic dentin without the enamel organ (1). 75% of AFD localized as an intraosseous tumor in the jaws bone, especially in the mandible. It is usually associated with developing teeth and occurs predominantly in children (2). This report describes an rare ameloblastic fibro-odontoma at the posterior mandible of a 28-year-old man discusses the histogenesis and clinical features of the lesion.

Case report

A 28-year-old man was referred to our hospital for treatment of an unclear radiolucent lesion in the right posterior mandible. There was no swelling, pain, or paresthesia. Medical and family histories were not observed. In clinically, there were no abnormal findings in the region of 48. Radiographic examination showed an unclear radiolucent lesion in the right posterior mandible (Fig. 1a,b). CT showed a marginal low absorption area, 10 x 14 mm2 in size, with clear, smooth coronal boundaries in the right posterior mandible (Fig. 1c), though mild bulging was observed in the cortical bone around the area. A provisional diagnosis was odontogenic benign tumor, and then incisional biopsy was performed. The biopsied tissue showed a specimen that was composed principally of fibrous connective tissue and a basophilic area of fibrous tissue suggesting myxoid change. A provisional diagnosis of chondromyxoid fibroma was suspected. Conservative surgical excision was performed under local anesthesia with sedation. The lesion could be easily separated from the bony walls in the mandible. A low magnification pathological image of the whole operative specimen showed that it was composed principally of fibrous connective tissue and eosinophilic dentin. The basophilic area of fibrous tissue suggested myxoid change. Sporadic small epithelial islands were similar to the enamel organ at high magnification. Thus, the lesion was finally diagnosed as an ameloblastic fibrodentinoma (Fig. 2). There were no recurrence clinically at 6-month follow-up evaluation and radiographically at follow-up at 2 years and 3 months (Fig. 3a, b).

Discussion

The origin of odontogenic tumors is to be found in the
organogenetic, embryologic bases of normal tooth development (3). Neoplastic proliferation emanates from stem cells, which originate from normal tissues. Odontogenic tumors arise from the odontogenic epithelium, ectomesenchyme, and mesenchyme (4). AFD and related lesions such as AF and AFO are defined by the WHO as proliferating odontogenic epithelium embedded in ectomesenchymal tissue that resembles dental papilla and has varying degrees of inductive change and dental hard tissue formation in 2005 (5). However, the 2017 WHO classification has emphasized that the appearance of such hard tissue formation is usually the first stage in maturation and more compatible with a developing odontoma (6). These lesions are also referred to as odontogenic tumors that usually including the AF, AFD, and AFO (7). There are 64 cases of AFD have been reported since Straith in 1936 (1, 8, 9). AFD is biologically very resemble to AFO and AF. The tumor grows slowly and is more commonly seen in male generation, and with male/female ratio of 2:1. The tumor it accounts for a lot is intraosseous in the posterior mandibular region (8), which correlates with the present case. It is sometimes caused asymptomatic and it may enlarge to the extreme size (10). Radiologically, AFDs are well delineated radiolucencies with varying degrees of radiopacities (7). Similar features were observed in the present case. Three of these, AF, AFD, and AFO, are difficult to diagnose with radiographic examination because they show similar radiographic findings, and distinction may be difficult (11). Therefore, final confirmation by pathological tissue diagnosis is necessary. The
histological findings of AFD have a very resemblance to that of AF. The histological findings of AF present ectomesenchyme tissues that similar to dental papilla and stands or islands of odontogenic epithelium which similar to the enamel organ and dental lamina (12). There is dentin formation were observed, the tumors could be diagnosed as AFD. If it observed the enamel origin formation, it could be diagnosed as AFO (7). Similar features in the present case were dentin formation in the lesion and epithelium which resembled dental lamina and the enamel organ without enamel. Many reports recommend a conservative approach to the treatment of AFD because it is benign and the recurrence rate is very low (12,13). However, Umashankara reported ameloblastic fibrodentinosarcoma, a very rare malignant odontogenic tumor that is could be arise from the malignancy transformation of the ectomesenchymal component from AFD (14). In 2017, WHO remove AFD and AFO from the classification, since they are “most likely developing odontomes” (6). However, this still remains controversial, and recognized that some of these AFD and AFO may reach large sizes and arise in age groups which are not always consistent with a odontoma (6). Chrcanovic BR (2017) suggests that the clinicopathological features of these lesions do not always support the idea of progressive maturation into odontomas and that at least some AFOs and AFDs may be true neoplasms (15). Further research should aim to obtain higher levels of evidence.

**Conclusion**

A very rare case of AFD at the posterior molar region of the jaw bone was described. Proper clinical, radiological, and histological examinations must be performed. In this present case, there is no recurrence observed after conservative surgical excision. Tissue healing was satisfactory. There is still need follow-up is required.

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