Peripheral Odontogenic Fibroma: A rare case report

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Abstract

Peripheral odontogenic lesions are rare, benign odontogenic tumors. These are also referred to as extraosseous or soft tissue odontogenic tumors. Peripheral odontogenic tumors share the same histopathologic characteristics as their central or intraosseous counterparts. To establish a conclusive diagnosis, the peripheral odontogenic fibroma must be differentiated histologically from peripheral ossifying fibroma, which is a reactive lesion, and from the peripheral ameloblastoma and the calcifying epithelial odontogenic tumour. In this report, we describe a case of a peripheral odontogenic fibroma in the mandible of a 12 year old girl, including its diagnosis and management.

Keywords:
fibroma, peripheral, odontogenic, tumors
Peripheral odontogenic fibroma

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Introduction

Odontogenic fibroma is a benign fibroblastic odontogenic neoplasm containing varying amounts of apparently inactive odontogenic epithelium.1 These neoplasms may be of central (within jaw bones) or peripheral (extraosseous) origin.

Peripheral odontogenic tumors are gingival or extra osseous overgrowths of the central type, usually occurring in the gingiva and jaw overlying mucosa. Peripheral odontogenic fibroma is the commonest of the peripheral odontogenic tumors, followed by other peripheral odontogenic tumors like peripheral ameloblastoma, peripheral calcifying odontogenic cyst, peripheral calcifying epithelial odontogenic tumor, etc.2

Most cases occur in the attached gingiva in the molar/premolar region with even distribution between the jaws.3 Clinically, peripheral odontogenic fibroma affects a wide age group with a slight peak in the third decade, no racial predilection and a slight female preponderance.4

The purpose of this paper is to report a case of peripheral odontogenic fibroma of mandibular anterior region, an unusual location in a 12 year old female patient.

Case report

A 12 year old healthy, female child reported to the Out Patient Clinic of the Department of Pedodontics and Preventive Dentistry, Subharti Dental College, Meerut, India with a chief complaint of the presence of a gingival mass in the mandibular, anterior alveolar region on the right side. (Figure 1) The lesion had been present since 3 months and interfered with mastication. The lesion was isolated, firm and sessile with dimensions of 25mm x 10mm. The lesion was covered with normal-colored gingival mucosa without any evidence of ulceration or inflammation. Teeth 41, 42 and 43 were displaced and mobile. Her physical status was good and medical history was non contributory. The patient could not recall any trauma to the region and there was no evidence of calculus or dental restoration or any persistent irritation in that area.

An intraoral periapical (IOPA) and occlusal radiograph was obtained to determine the presence of any underlying intraosseous lesion. (Figure 2,3) IOPA and occlusal radiograph revealed an image of soft tissue mass with a well defined border and displaced teeth 41, 42 & 43, with no underlying bony expansion or destruction.

A comprehensive explanation of treatment rationale and procedure was given to the patient and her parents and a decision was made to excise the lesion under local anesthesia. A buccal flap was raised from tooth number 41, 42 and 43 and the lesion was found to be well circumscribed. (Figure 4) The lesion was resected and the involved teeth 41, 42 and 43 were extracted. This was followed by curettage of the remaining bone bed. The specimen was sent for histopathologic examination to obtain the final diagnosis.

Histopathologic examination revealed a lesion consisting of fibrous to myxoid stromal tissue. Multiple, small scattered islands and strands of odontogenic epithelium were present with some vacuolated cells. Calcification or cementum-like material was not evident. There was no evidence of mitotic activity and necrosis either. Based on the clinical, radiographic and histopathologic
results, a diagnosis of peripheral odontogenic fibroma was made. The surgical site healed uneventfully (Figure 5).

**Figure 1:** Intra oral view of peripheral odontogenic fibroma in mandibular region

**Figure 2:** Intra oral periapical radiograph

**Figure 3:** Occlusal radiograph of mandibular anterior region

**Figure 4:** Intra operative view of surgical site

**Figure 5:** 1 month post operative view

**Discussion**

The peripheral odontogenic fibroma is a rare, benign, focal overgrowth of gingiva covered with surface epithelium. Wesley et al\(^5\) suggested criteria for diagnosis of odontogenic fibromas as follows:

1) Clinically, the lesion is central in the jaws and has a slow persistent growth that results in painless cortical expansion.
2) Radiographically, multilocular radiolucent lesions involving relatively large proportions of jaws in later stages. In few cases, they may be associated with unerupted and/or displaced teeth.
3) Histologically, most of the lesions show predominant mature collagen fibres with interspersed fibroblasts.
4) The lesion is benign with no tendency to undergo malignant transformation.

Later, Gardner\(^6\) classified odontogenic fibroma into 3 types:
1) Hyperplastic dental follicle.
2) Fibrous neoplasm with varying collagenous fibrous connective tissue containing rests of odontogenic epithelium.
3) Lesion with features of dysplastic dentin or cementum like tissue and varying amounts of odontogenic epithelium – WHO type.

The present case belongs to the odontogenic fibroma - WHO type as per Gardner’s classification. The peripheral odontogenic fibroma – WHO type is an elevated lesion that is not encapsulated. It consists of relatively cellular fibrous connective tissue in which strands and rests of odontogenic epithelium are scattered. Dentin, osteoid, cementum or bone like material may be present in some but not all cases.\(^6\)

Some of the most complex developmental interactions - the reciprocal interplay of epithelium and ectomesenchyme occur during odontogenesis.\(^7\) Such a highly complex embryonic process is prone to invite errors, resulting in an aberrant growth of odontogenic epithelium with or without inductive proliferation of ectomesenchyme.\(^7\)

The epithelial component resembles the dental lamina formed during early stages of odontogenesis. The lesion provides some evidence that it originates from a recapitulation of dental lamina, because the epithelium is capable of producing inductive changes in the connective tissue that are similar to changes in the dental lamina during odontogenesis.\(^8\)

Peripheral odontogenic fibroma may be confused with peripheral types of ameloblastoma or calcifying epithelial odontogenic tumor. The epithelial islands of the peripheral odontogenic fibroma are smaller than those of the ameloblastoma and do not exhibit such features of the basal cell layer, as hyperchromatism, intracytoplasmic vacuoles and polarization of the nucleus away from the basement membrane, as found in various degrees in that tumor. The stroma in ameloblastoma or calcifying epithelial odontogenic tumor is relatively acellular lacking the characteristic fibroblastic component and interwoven strands of peripheral odontogenic fibroma (WHO type). Additionally, hard tissues, such as dentin or cementum like are not found in the ameloblastoma, although they may not be present in all examples of peripheral odontogenic fibroma either.\(^4\)

The radiographic features are not yet completely clear, however, severe effects on the surrounding bone trabeculae are often seen, even if the borders are well defined on radiographic images.\(^9\) Kaffe et al stated that a differential diagnosis of odontogenic fibroma should be considered for all abnormal radiolucencies in the jaws, as a diagnosis of odontogenic fibroma can be difficult for a variety of reasons.\(^10\) Other reports show specific characteristics of fibromas for differential diagnosis, such as boundaries, multilocular radiolucency, root resorption, calcification, slowly growing neoplasm of bone with no tendency to recur after surgical enucleation.\(^5\)
References


Citation: Adlakha Vivek Kumar, Chandna Preetika, Singh Shamsher. Peripheral odontogenic fibroma – A Rare Case Report. Annals of Dental Research 2013; 3 (1): 10-14.