

Gingival enlargement associated with a partially erupted mandibular molar

Catherine M. Flaitz, DDS, MS

Dr. Flaitz is professor, Oral and Maxillofacial Pathology and Pediatric Dentistry, Department of Stomatology, University of Texas at Houston Health Science Center Dental Branch. Correspond with Dr. Flaitz at cflaitz@mail.db.uth.tmc.edu

Abstract

Odontogenic lesions may present as enlarged opercula and result in the delayed eruption of teeth. This case report describes the clinical and microscopic features of a peripheral odontogenic fibroma in a 13-year-old boy that involved the overlying gingiva of a partially erupted, mandibular second molar. A differential diagnosis and treatment for lesions presenting as gingival enlargements in the molar region are discussed. (Pediatr Dent 23: 435-437, 2001)

The peripheral odontogenic fibroma (POdF) is defined as a relatively rare tumor that occurs exclusively in the soft tissues covering tooth-bearing areas of the jaws. It is considered to represent the soft tissue counterpart of the central odontogenic fibroma that occurs in bone.¹ Confusion exists regarding this gingival entity because it has been referred to by a number of different names, has a debatable histogenesis, and is often mistaken for the relatively common reactive lesion, the peripheral ossifying fibroma. This case report describes the clinical and microscopic features of a POdF in an adolescent that was associated with incomplete eruption of a mandibular molar. This entity is compared to other gingival lesions that may occur at this site, in addition to discussing treatment recommendations.

Case history

A healthy, 13-year-old African-American boy was referred for evaluation of a fibrous overgrowth overlying a partially erupted, mandibular second molar. The child was unaware of the gingival enlargement, but he did favor the contralateral side when eating. Intraoral examination revealed a dome-shaped, firm tumescence arising from the posterior lingual gingiva and retromolar pad. The sessile enlargement was nontender, covered by a smooth, pinkish-gray surface and measured 2 cm by 1.5 cm at its greatest dimensions (Figure 1). Although it was asymptomatic, the markedly enlarged operculum was delaying the complete eruption of the mandibular second molar. In addition, the maxillary second molar was displaced lingually and in crossbite as a result of occluding on the soft tissue overgrowth.

A periapical radiograph demonstrated normal root development of the second molar with open apices. Radiographic evidence of lesional involvement of the alveolar bone was not observed and there were no opacities within the soft tissue mass. Significant extraoral findings included multiple hypertrophic scars and keloids on the arms and legs. Based on the clinical



Fig 1. Dome-shaped gingival enlargement interfering with the eruption of the mandibular second molar

findings, an excisional biopsy was recommended to obtain a definitive diagnosis and to promote the eruption of the underlying molar.

The histopathologic findings included a well vascularized and cellular fibrous connective tissue interspersed with bands of myxoid tissue. The stromal cells varied from slender, spindled-shaped cells to plump, oval cells with scattered, stellate-like, multinucleated giant cells. Numerous islands and cords of odontogenic epithelium were dispersed throughout the connective tissue (Figure 2). Some of these islands exhibited squamous metaplasia. There was no evidence of a calcified product within the stroma. The mucosal epithelium was orthokeratinized stratified squamous epithelium with mild epithelial hyperplasia. A patchy chronic inflammatory infiltrate was found in the lamina propria. A diagnosis of peripheral odontogenic fibroma was rendered based on these microscopic findings.

Excision of the gingival overgrowth allowed for the eruption of the molar, although the delayed eruption was a probable contributing factor in the development of occlusal caries (Figure 3). Ten months after the removal of the tumor, there was no evidence of recurrence and there was self-correction of the single tooth crossbite.

Discussion

The POdF is an uncommon gingival tumor that histologically is similar to the central odontogenic fibroma that is found in

Received August 13, 2001 Accepted September 15, 2001

bone. Controversy exists as to whether this lesion represents a true neoplasm, hamartoma, or a reactive hyperplasia. In the past, many of these lesions were referred to as the odontogenic gingival epithelial hamartoma, hamartoma of dental lamina rests or peripheral ameloblastic fibrodentinoma.^{2,3} The age range for this lesion is wide, with the youngest example occurring in a two-year-old. Close to 20% of the reported cases have been diagnosed in children under the age of 20, but this is likely to be an underestimation because enlarged opercula are not always submitted for histopathologic examination.² Only a slight female predilection has been described with no increase in risk based on race or ethnicity.

Clinically, this lesion presents as a sessile, firm enlargement with a pink, smooth, nonulcerated mucosal surface.¹ It is asymptomatic and slowly increases in size, ranging from 0.5 cm to 3.5 cm in diameter. The POdF is found throughout the dental arches with a predilection for the buccal gingiva of the mandible. Although displacement of teeth may be an associated finding, interference with eruption of a tooth is not a described complication, as illustrated in the present example. Typically, a solitary lesion—a clinical variant of POdF with a multifocal distribution—has been reported.⁴ Radiographically, some cases exhibit a soft tissue shadow with or without flecks of calcification and no extension into the underlying bone. Conservative surgical excision is the treatment of choice for the POdF. Although the prognosis is excellent, the behavior of this entity is not well documented. Except for a recent study,² that showed a recurrence rate of 38% when follow-up information was available, the recurrence rate is considered to be low. Typically, recurrent lesions develop 1 to 4 years after surgical removal. When there is a recurrence within the first year, it is likely that this represents incomplete removal of the lesion.

Microscopically the POdF has a variable appearance that has led to some confusion in the diagnosis.³ A key feature is the presence of multiple nests and strands of odontogenic epithelium in a cellular and fibrovascular stroma that often has myxoid areas interspersed. Dysplastic dentin and cementum-like calcifications are found in some lesions, but these are not consistent findings. An unusual feature of the present case is that several bizarre multinucleated stromal cells were scattered throughout the tumor. These same cells have been diagnosed in the pericoronal tissues and opercula of molars that exhibit

delayed eruption without an obvious clinical or radiographic reason for this anomalous finding.^{5,6}

Differential diagnosis

Reactive hyperplastic, hamartomatous, and neoplastic lesions should be considered in the differential diagnosis of a gingival tumescence in the retromolar region. Focal fibrous hyperplasia (irritation fibroma), pericoronal hamartoma, peripheral ossifying fibroma and, rarely, other peripheral odontogenic neoplasms may develop at this location. The most common gingival enlargement overlying a molar is focal fibrous hyperplasia of the operculum. This entity usually develops in the residual distal or lingual portion of the operculum, overlying a partially erupted mandibular molar. Usually it presents as a thickened, triangular flap of gingiva that is aggravated by constant masticatory trauma or an eruption sequestrum.

This small amount of hyperplastic tissue is unlikely to contribute to the delayed eruption of a molar, but may increase the risk for acute operculitis, localized periodontal defect, or occlusal caries. Although some enlarged opercula eventually regress spontaneously, gingival recontouring may be necessary to improve plaque control, allow for the placement of a sealant, or to restore a carious lesion.

The peripheral ossifying fibroma is a benign reactive gingival lesion that arises from the periodontal ligament. In addition, a hormonal influence has been suggested because of the strong female predilection, even in children.^{1,7} Most peripheral ossifying fibromas are diagnosed in teenagers and young adults with a peak incidence in the second decade.⁷ These lesions present as sessile or pedunculated nodules with a smooth to cauliflower-like surface that ranges from pink to red in color. Although focal ulceration is a common finding, most lesions are nontender. These firm enlargements are usually less than 2 cm in size and develop within the interdental papillae.

Chronic local irritation such as calculus, gingivitis, orthodontic appliances, or nonspecific injury are the suspected causes in children. Although any gingival site may be affected, the incisor-cuspid region is the favored site with less than 10% of the lesions occurring distal to the first permanent molar.⁷ Displacement of teeth and superficial erosion of the underlying alveolar bone are additional findings, but delayed eruption of a tooth is not anticipated. Excisional biopsy, along with the

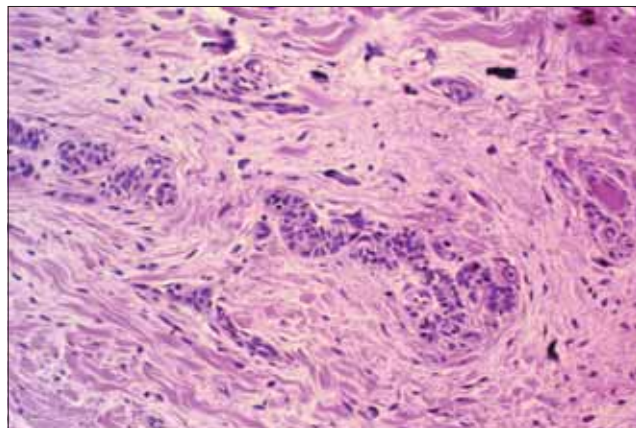


Fig 2. Photomicrograph of a peripheral odontogenic fibroma with islands and strands of odontogenic epithelium and giant stromal cells (hematoxylin-eosin, magnification 200X)



Fig 3. Eruption of the molar six weeks following the surgical removal of the gingival lesion

elimination of contributing factors, is the treatment of choice. A recurrence rate of approximately 16% is reported and examples of multiple occurrences are not uncommon.¹

The pericoronal hamartoma is a poorly understood gingival lesion that is associated with the delayed eruption of teeth.^{5,6} There is no gender predilection for these gingival lesions and the mean age of diagnosis depends on the lesion site. The average age of most children is between 9 to 10 years-old with a range from 4 to 17 years. Clinically, the overlying gingiva is smooth and the same color as the surrounding mucosa. Usually, the soft tissue is described as being clinically normal or thickened without radiographic clues for the cause of the aberrant eruption pattern. The most common sites for these pericoronal hamartomas to develop are the maxillary incisor and molar regions.⁵ The treatment of choice is excisional biopsy of the overlying gingiva to expose the crown of the tooth. Although limited studies have evaluated the prognosis of these unerupted teeth, one study reported normal eruption following excision of the gingiva in 95% of the affected molars.⁶ Microscopically, similarities exist between the pericoronal hamartoma and the PODF, which opens the possibility that these two entities may represent a clinical spectrum of the same disease, especially when it occurs in children.

References

1. Neville BW, Damm DD, Allen CM, Bouquot JE. *Oral & Maxillofacial Pathology*. Philadelphia: WB Saunders Co; 1995:374-376, 536.
2. Daley TD, Wysocki GP. Peripheral odontogenic fibroma. *Oral Surg Oral Med Oral Pathol* 78:329-336, 1994.
3. Gardner DG. The peripheral odontogenic fibroma: an attempt at clarification. *Oral Surg Oral Med Oral Pathol* 54:40-48, 1982.
4. Weber A, van Heerden WFP, Ligthelm AJ, Raubenheimer EJ. Diffuse peripheral odontogenic fibroma: report of 3 cases. *J Oral Pathol Med* 21:82-84, 1992.
5. Yonemochi H, Noda T, Saku T. Pericoronal hamartomatous lesions in the opercula of teeth delayed in eruption. *J Oral Pathol Med* 27:441-452, 1998.
6. Philipsen HP, Thosaporn W, Reichart PA, Grundt G. Odontogenic lesions in opercula of permanent molars delayed in eruption. *J Oral Pathol Med* 21:38-41, 1992.
7. Cuisia ZES, Brannon RB. Peripheral ossifying fibroma – a clinical evaluation of 134 pediatric cases. *Pediatr Dent* 23:245-248, 2001.