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CASE REPORT

Peripheral ameloblastic fibro-odontoma or peripheral developing complex odontoma: report of a case

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Background. Peripheral (extraosseous) odontogenic tumors are rare.

Case report. This report describes a case which illustrates the clinical and histopathological features of a lesion in an 8-year-old, healthy Caucasian girl that on purely morphological grounds would seem to be an ameloblastic fibro-odontoma, but may represent a case of a peripheral developing complex odontoma.

Conclusion. Conservative surgical enucleation of the lesion was followed by unbcomplicated healing and no recurrence was seen.

Introduction

Peripheral (extraosseous) odontogenic tumours are rare. The vast majority are much rarer than their central (intra-osseous) counterpart[1]. Odontogenic fibroma and ameloblastoma seem to be the most common among peripheral odontogenic tumours[1].

The ameloblastic fibro-odontoma and the complex odontoma belong to a group of odontogenic tumours that consists of odontogenic epithelium and odontogenic ectomesenchyme with or without dental hard tissue formation ('mixed odontogenic tumours')[2]. Complex odontomas are not uncommon as intra-osseous tumours, but their location is rarely peripheral. Ameloblastic fibro-odontoma is a rare, benign and noninvasive tumour almost exclusively seen in children and young adults[2]. It has never been reported in a peripheral form[3]. The differential diagnosis of ameloblastic fibro-odontoma *versus* a developing complex odontoma is, however, difficult to establish[3]. Some authors regard complex odontomas and ameloblastic fibro-odontomas as hamartomas rather than as true neoplasias, and they consider ameloblastic fibro-odontoma to be a stage that precedes the complex odontoma[4]. In the following, we report a case that illustrates the clinical and histopathological features of a lesion that on purely morphological grounds would seem to be an ameloblastic fibro-odontoma, but may represent a case of a peripheral developing complex odontoma.

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Case report

An 8-year-old healthy Caucasian girl was referred to the Department of Pediatric Dentistry, the School of Dentistry, Aarhus, for examination of an isolated, asymptomatic soft tissue swelling of the palatal gingiva in the region of the two permanent right incisors. There was no history of trauma to the region. The swelling had been slowly growing. A year before, the upper right primary central incisor had persisted after eruption of the contralateral tooth and it was extracted with normal healing. An eruption cyst around the upper left lateral incisor was suspected, but the tooth erupted uneventfully in a slightly palate position. Three months later, a large swelling orally to the right lateral incisor was noted.

Examination of the oral cavity revealed a firm, nonulcerated, circumscribed, 1 × 1.5-cm lesion with a normal to slightly reddish colour

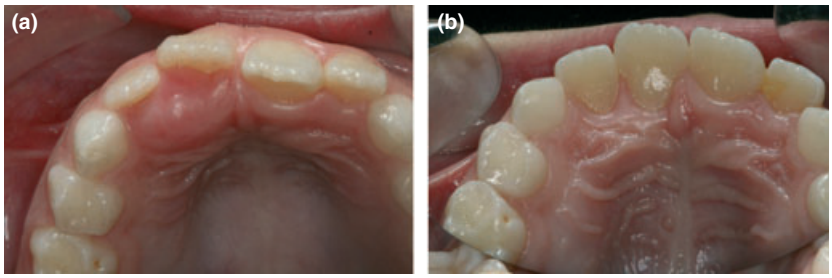

Fig. 1. Clinical picture of the upper incisor region showing the lesion palatally to the central and lateral right incisors (a) and normal healing 3 months post-operatively (b).

(Fig. 1a). The central and the lateral right incisors were labially displaced. Pseudo pockets of 5–8 mm were present palatally to the two incisors. Periapical radiographs showed no pathology.

The lesion was excised *in toto* under local anaesthesia. No bony involvement was observed at the time of its removal. Healing was uncomplicated, and after 3 months, the displacement of the two incisors was reduced spontaneously (Fig. 1b).

Histopathological examination of routinely processed demineralized sections showed a rounded specimen covered by intact oral squamous epithelium (Fig. 2). In the central part, a well-demarcated lesion was seen that was composed of immature dental papilla-like tissue and irregularly proliferating dental epithelium composed of stellate reticulum and inner and outer enamel epithelium. Sheets of tubular dentin were seen, here and there covered by enamel matrix produced by ameloblasts covering the enamel (Fig. 3). Empty spaces were prominent because of the disappearance of mineralized enamel. A few small accumulations of ghost cells were also seen. The lesion was surrounded by loose and myxomatous tissue resembling a dental follicle. Its morphology was irregular and not that of an immature tooth germ. Stepwise sections revealed no continuity of tumour tissue and surface epithelium or underlying bone. Histological diagnosis: peripheral, ameloblastic fibro-odontoma/developing complex odontoma.

Comment

Morphologically, the present lesion is an ameloblastic fibro-odontoma. It is, however, difficult to distinguish such a tumour from a developing complex odontoma. As mentioned elsewhere, some authors consider the two tumours to be part of a continuum in children.

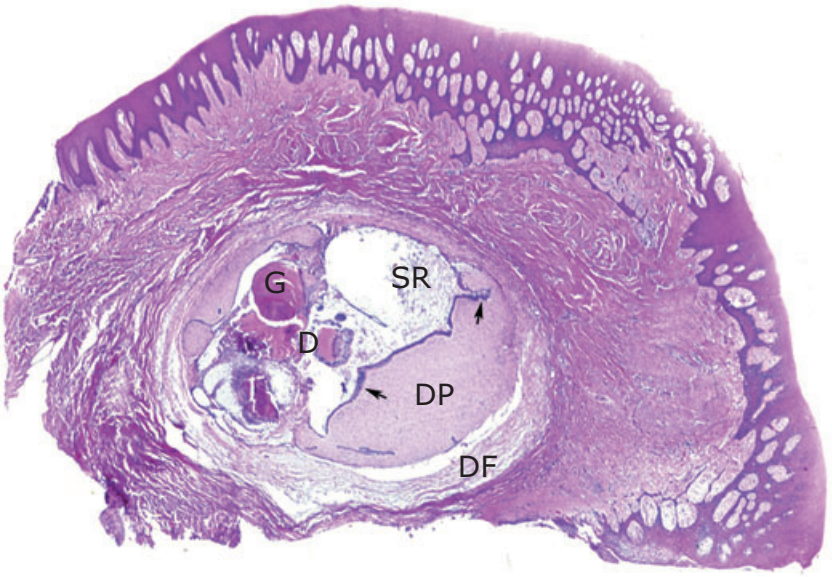

Fig. 2. Photomicrograph showing rounded lesion in the gingival connective tissue. D, dentin, DF, dental follicle-like tissue, DP, dental papilla-like tissue, G, ghost cells, SR, stellate reticulum. Arrows are pointing at dental epithelium (inner enamel epithelium). (Haematoxylin and eosin ×5).

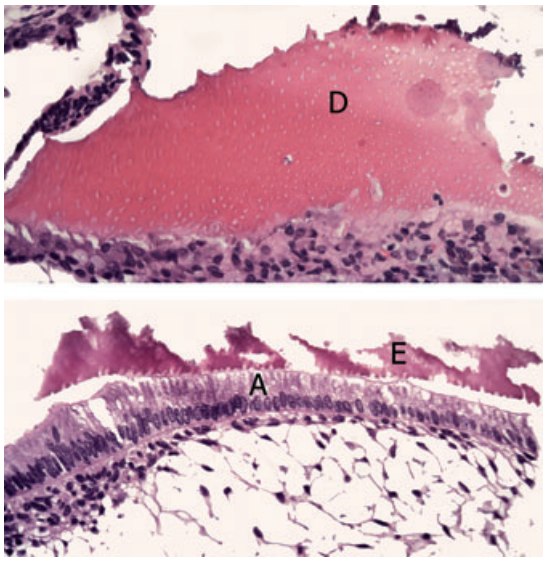

Fig. 3. Details showing tubular dentin (upper) and ameloblasts secreting enamel matrix (lower). (Heamatoxylin and eosin ×200). D, dentin, E, enamel matrix, A, ameloblasts.

Thus, in children, the first stage is a non-neoplastic type of ameloblastic fibroma (consisting of odontogenic epithelium and odontogenic ectomesenchyme) in which dentin (ameloblastic fibro-dentinoma) and thereafter enamel (ameloblastic fibro-odontoma) are formed. At the end stage, it forms a complex odontoma almost entirely consisting of dental hard tissues[4]. As indicated earlier[3,5] referring to intraosseous lesions, factors favouring a developing complex odontoma are, among others, a regular oval- or ball-shaped lesion and a relation to the occlusal surface of an impacted tooth. The present lesion was ball shaped, and at an earlier stage, it may have been related to the crown of the upper right primary central or lateral incisor. It, therefore, possibly represents a developing complex odontoma.

The aetiology of odontogenic tumours is unknown. The origin undoubtedly are remnants of the dental lamina residing in the gingiva. Tooth buds of the permanent dentition develop lingually to those of the primary teeth. This is in accordance with the localization of the present lesion, assuming that it has developed from epithelial remnants of dental epithelium giving rise to the right central or lateral incisor.

Conservative surgical enucleation is the treatment of choice in cases of ameloblastic fibro-odontoma/complex odontoma, and recurrence is rarely, if ever, seen.

What this case report adds

- Information on the clinical picture and histopathology of a rare Odontogenic tumour.
- Discussion of the differential diagnosis of Odontogenic tumours.

Why this case report is important to paediatric dentists

- It illustrates the variety of lesions, which the paediatric dentist can encounter in the oral cavity of children and adolescents.
- It illustrated the importance of collaboration with Oral Pathologists in the diagnosis of such lesions.

References

1 Buchner A, Merrell PW, Carpenter WM. Relative frequency of peripheral odontogenic tumors: a study of 45 new cases and comparison with studies from the literature. *J Oral Pathol Med* 2006; **35**: 385–391.

2 Barnes L, Eveson JW, Reichart P, Sidransky D (eds). *World Health Organization Classification of Tumours. Pathology and Genetics of Head and Neck Tumours*. Lyon: IARC Press, 2005; Chapter 6.

3 Prætorius F. Odontogenic tumors. In: Barnes L (ed.). *Surgical Pathology of The Head and Neck*. NY: Informa Healthcare, 2009: 1248–1258.

4 Philipsen HP, Reichart PA, Prætorius F. Mixed odontogenic tumours and odontomas. Considerations on interrelationship. Review of the literature and presentation of 134 new cases of odontomas. *Oral Oncol* 1997; **33**: 86–99.

5 Odell EW, Morgan PR. *Biopsy Pathology of the Oral Tissues*. London: Chapman & Hall, 1998: 365–439.