

Ameloblastic Fibro–Odontoma

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Abstract A case of an ameloblastic fibro–odontoma affecting a 15 year-old girl will be discussed. The characteristic radiologic and histologic features of the entity will be described.

Keywords Ameloblastic fibro-odontoma · Maxilla · Impacted teeth · Radio-opacities · Odontogenic epithelium · Stroma

History

A 15-year old female presented to her dentist for a routine appointment. A swelling of the left anterior maxilla was noted during clinical examination, which the patient recalled noticing for the past 5 to 6 months. She denied pain and there was no history of trauma or infection. Intraoral examination revealed the absence of the left maxillary first and second molars.

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Radiographic Features

Computed tomography (CT) of the head revealed a well-defined unilocular radiolucent lesion of the anterior maxilla measuring 2.9 cm in greatest dimension. The lesion was notable for radio-opacities that ranged from delicate and flake-like to larger dense aggregations (Fig. 1). The first and second molar were impacted and intimately associated with the lesion (Fig. 2).

Diagnosis

Histological examination of hematoxylin and eosin stained slides revealed a biphasic tumor which consisted of narrow islands and cords of odontogenic epithelium in a myxoid cellular stroma. The epithelial islands show peripheral columnar cells surrounding a looser collection of spindle cells while the stroma is cellular, composed of stellate and spindle shaped cells (Fig. 3). Throughout the lesion the products of odontogenesis were readily identified: mature tubular dentin and enamel matrix (Fig. 4).

Discussion

Ameloblastic fibro–odontoma (AFO) is defined by the World Health Organization (WHO) as a neoplasm consisting of odontogenic ectomesenchyme resembling the dental papilla, epithelial strands and nests resembling dental lamina and enamel organ in conjunction with the presence of dentin and enamel [1]. AFO is a mixed odontogenic tumor and shares features with ameloblastic fibroma (AF) and odontoma. Some have suggested that these lesions are in fact one entity identified at different



Fig. 1 Computerized tomography (CT) shows a radiolucent defect of the *left* maxilla with small to medium sized areas of calcification



Fig. 2 The axial view shows the same characteristics with the impacted molar identified in the posterior part of the tumor

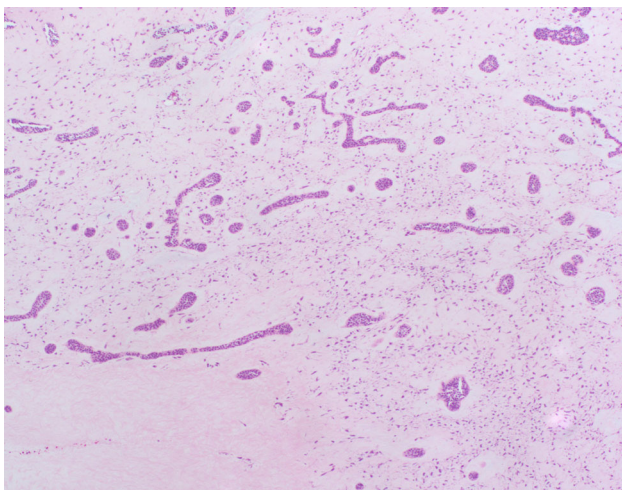


Fig. 3 Long, narrow cords of odontogenic epithelium in a cellular stroma

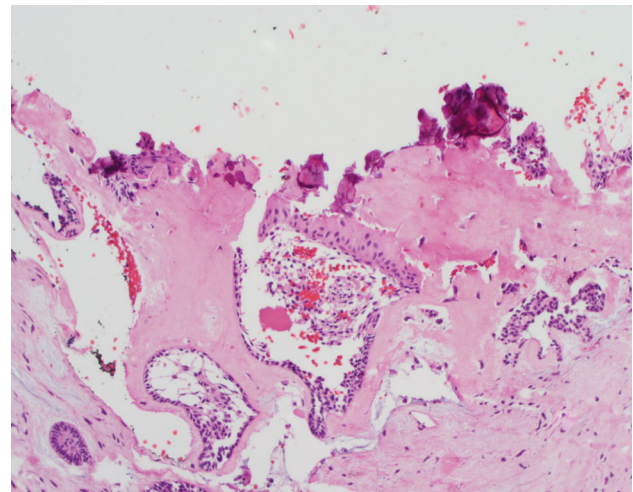


Fig. 4 The soft tissue component of the tumor intermixed with the calcified products of odontogenesis

stages of development: an ameloblastic fibroma becomes an AFO as it matures and in turn, it may develop into an odontoma. However, as AFO presents, on average, in a younger age group than a patient with AF, this suggestion can be refuted. Despite histologic similarities these tumors should be considered different and distinct entities.

The AFO is a rare benign tumor representing approximately 3 % of all odontogenic tumors. It usually occurs in the first two decades of life, with an average age of 9 years [2]. No gender predilection has been identified [3]. Patients commonly present with a painless, slow growing swelling and/or failure of tooth eruption [3–5]. There is no predilection for the mandible or maxilla, although it tends to favor the posterior areas.

Imaging generally shows a well-defined radiolucency with variable amounts of randomly distributed radioopaque material. Ameloblastic fibro-odontomas are frequently associated with unerupted teeth, occasionally causing dramatic displacement [5]. Smaller lesions may be incidental findings on routine dental radiographs.

Histologically, AFOs are composed of islands, cords and strands of distinctive odontogenic epithelium in a cellular stroma, its components resembling stages of the developing tooth. The epithelium is characterized by peripheral palisading of columnar cells that surround loose spindled epithelium, resembling stellate reticulum. The epithelial component shares many features of ameloblastoma however, the stroma is strikingly different. The stroma is a cellular ectomesenchyme made up of spindle-shaped cells that resemble the dental papilla. The presence of dentin and enamel matrix (mature enamel is lost during processing) is the feature that separates the AFO from ameloblastic fibroma. The amount of mineralized products of odontogenesis may vary, from being easily seen on grossing to requiring serial sectioning to identify dentin and enamel matrix microscopically.

The treatment of AFO is enucleation or curettage since it is considered a non-aggressive lesion. AFO are reported to recur only rarely [5]. Unlike ameloblastic fibroma, AFO is not generally associated with a malignant transformation to ameloblastic fibrosarcoma [6]. This difference in malignant potential further supports the separation of these two tumors.

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