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Odontogenic tumours—An update

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Summary Teeth develop from oral cavity lining epithelial cells and cranial neural crest-derived ectomesenchymal cells. In a sequence of interactive processes, these cells develop into enamel-forming ameloblasts and dentine-producing odontoblasts. Odontogenic tumours are derived from these tooth-forming tissues, either the epithelial or the ectomesenchymal or both. Their behaviour varies from neoplastic to hamartomatous. Recently, the classification and nomenclature of odontogenic tumours has been updated. These new views will be incorporated in this article where appropriate.

Introduction

Teeth develop from epithelial cells lining the oral cavity and cranial neural crest-derived ectomesenchymal cells. In a sequence of interactive processes, these cells develop into enamel-forming ameloblasts and dentine-producing odontoblasts.[1] Odontogenic tumours are derived from these tissues, either the epithelial or the ectomesenchymal or both. Their behaviour varies from neoplastic to hamartomatous. Recently, the classification and nomenclature of odontogenic tumours has been reviewed and updated (Table 1)[2] and a number of new terminologies and entities have been added. This paper will review the pathology of the most frequently encountered odontogenic tumours and will take account of the changes in the new classification.

Odontogenic tumours—epithelial

Ameloblastoma

Ameloblastomas consist of epithelial strands or islands. The former pattern is called *plexiform*, the latter *follicular*.[2] Peripheral cells are columnar, while cells lying more centrally are fusiform to polyhedral and are loosely connected to each other. In the follicular type, in particular, an increase in intercellular oedema may cause cysts that coalesce to form large cavities. In the plexiform type, cavity formation arises through stromal degeneration (Fig. 1). The tumour infiltrates the adjacent cancellous bone, whereas cortical bone and periosteum usually expand but will not be perforated.[3] Spread into soft tissues is highly unusual. *Acanthomatous*, *granular cell* and *basal cell* (*basaloid*)

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Table 1 Histological classification of odontogenic tumours (based on the new WHO classification).[2]

Benign tumours	Malignant tumours
Odontogenic epithelium with mature, fibrous stroma without odontogenic ectomesenchyme	*Odontogenic carcinomas*
Ameloblastoma, solid/multicystic type	Metastasising (malignant) ameloblastoma
Squamous odontogenic tumour	Ameloblastic carcinoma
Calcifying epithelial odontogenic tumour	Primary intraosseous squamous cell carcinoma
Adenomatoid odontogenic tumour	Clear cell odontogenic carcinoma
Keratocystic odontogenic tumour	Dentinogenic ghost cell carcinoma
Odontogenic epithelium with odontogenic ectomesenchyme, with or without hard tissue formation	*Odontogenic sarcomas*
Ameloblastic fibroma	Ameloblastic fibrosarcoma
Ameloblastic fibrodentinoma	Ameloblastic fibrodentino–and fibro-odontosarcoma
Ameloblastic fibro-odontoma	*Bone-related lesions*
Odontoma	Ossifying fibroma
Odontoameloblastoma	Fibrous dysplasia
Calcifying cystic odontogenic tumour	Osseous dysplasias
Dentinogenic ghost cell tumour	Central giant cell lesion (granuloma)
Mesenchyme and/or odontogenic ectomesenchyme with or without odontogenic epithelium	Cherubism
Odontogenic fibroma	Aneurysmal bone cyst
Odontogenic myxoma/myxofibroma	Simple bone cyst
Cementoblastoma	*Other tumours*
	Melanotic neuroectodermal tumour of infancy

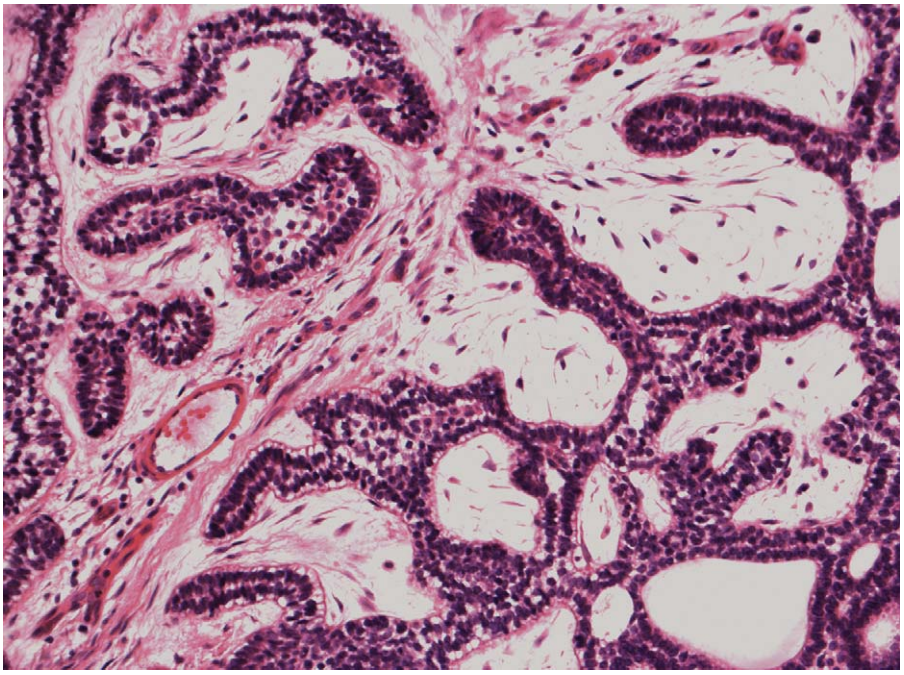

Figure 1 Photomicrograph showing ameloblastoma. Both the follicular pattern consisting of nests and the plexiform pattern of strands are present.