Ameloblastoma — a diagnostic problem

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A 50-year-old female was referred by her dental practitioner. She had a periapical radiolucency associated with the lower right second premolar tooth. The tooth was root treated and subsequently apicected. Tissue curetted at the time of surgery was shown to be a solid ameloblastoma which was managed initially by marginal excision. Histopathological examination of the resection specimen demonstrated tumour at the inferior margin. A segmental resection of the mandible with an immediate reconstruction using a free tissue transfer of the iliac crest was therefore performed. The case shows the need for vigilance in dealing with periapical pathology and underlines the importance of sending all tissue specimens for histopathological analysis.

The ameloblastoma is the most common neoplasm arising from odontogenic epithelium. The origin of the tumour is thought to be from sources that include: residual epithelium of the tooth forming apparatus such as the epithelial cell rests of Malassez; epithelium of odontogenic cysts; basal cells of the surface epithelium; epithelium of the enamel organ; and heterotopic epithelium from extra-oral sites such as the pituitary gland.¹

The ameloblastoma is divided into three clinicopathological groups. These are: solid or multicystic; unicystic; and peripheral (extraosseous). The distinction between these variants of ameloblastoma is important clinically. The solid or multicystic ameloblastoma is the most common form of the lesion — it makes up 86% of all cases.² The behaviour of the solid or multicystic ameloblastoma is markedly distinct from its counterparts. It has a tendency to be more aggressive and has an increased incidence of recurrence. A review of the biological behaviour of this tumour was published by Gold in 1991.³ Histopathologically, the solid or multicystic ameloblastomas show a

In brief

- This paper emphasises the need for practitioners to send all tissue removed during surgery for histology.
- Those radiographic features that are suspicious when evaluating periapical lesions are indicated.
- The aggressive nature of the solid or multicystic ameloblastoma and the surgery required to control it are demonstrated.

tendency to undergo cystic change and are divided into follicular and plexiform patterns. These classifications do not have any prognostic significance.

The unicystic ameloblastoma was first described in 1977 by Robinson and Martinez.⁴ This variant has a large cystic cavity with either luminal or mural proliferation

of ameloblastic cells. It has been shown that this type of ameloblastoma has a low recurrence rate. Ackermann advocated simple enucleation for cystic ameloblastoma, with more aggressive surgery if the connective tissue of the wall was shown to have invasive islands of ameloblastomatous epithelium.⁵

The peripheral ameloblastoma was first reported by Stanley and Krogh in 1959 and has a histopathological appearance similar to the solid ameloblastoma.⁷ It is an uncommon lesion usually presenting as a painless, non ulcerated sessile or pedunculated gingival or alveolar lesion. The lesion shows an innocuous clinical behaviour and is treated with local excision.

The solid or multicystic and unicystic ameloblastomas may present to the dental surgeon as an asymptomatic radiographic finding. The most typical feature of the solid or multicystic ameloblastoma is that of a multilocular ('soap bubble' or 'honey-combed') radiolucency. Resorption of the roots of teeth adjacent to the tumour is common. In many cases an unerupted tooth, most often a mandibular third molar, is associated with the defect. Solid ameloblastomas may also present as unilocular radiolucent defects that may mimic almost any type of cystic lesion. If looked at closely however the margins of these radiolucent lesions often show scalloping. The unicystic variant by definition presents with a single cystic cavity which is in many cases surrounding the crown of an unerupted mandibular third molar. The radiolucency is usually more sharply defined than that associated with solid ameloblastomas.

Fig. 1 Orthopantomogram showing periapical radiolucency

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Fig. 2
Histology demonstrating a solid ameloblastoma with a follicular pattern

Fig. 3
Orthopantomogram showing segmental resection and reconstruction

The case report shows a solid ameloblastoma presenting as a periapical radiolucency. As this was associated with a non vital tooth it was initially thought to be a radicular cyst.

Case report

A 50-year-old female was referred by her dental practitioner with a periapical radiolucency associated with a non vital lower right second premolar tooth (Fig. 1). The patient's complaint was of discomfort in the area and tenderness when biting on the tooth. Examination revealed no caries in the tooth and minimal buccal expansion. The tooth was non vital to electric pulp

testing and no sensory disturbance in the region of the mental nerve could be elicited. In view of the clinical findings it was thought that the area was related to the non-vital premolar tooth. However it was noticed that there was some resorption of the lower first molar mesial root. Root treatment was performed by her dental practitioner prior to apicectomy and enucleation of the lesion. Histopathology of the lesion demonstrated a solid ameloblastoma with a follicular pattern (Fig. 2). In view of this finding a marginal resection of the mandible was performed. This specimen showed invasion of the

inferior margin and the patient subsequently underwent a segmental resection. A free tissue transfer of the iliac crest based on the deep circumflex iliac artery was used to reconstruct the mandible (Fig. 3). This gives good bone volume for osseointegrated implants at a later date. Further histological examination of the resected mandible showed clear margins and the patient continues to be disease free.

Discussion

Ameloblastoma may present diagnostic difficulties for the dental practitioner. This may be particularly so if the presentation mimics other common clinical situations, as in this case. When evaluating periapical lesions radiographically, care must be taken in looking for scalloped margins and root resorption as these should be viewed with suspicion. When performing surgical management of any lesion all tissue should be sent for histopathological analysis. This simple measure would avoid more unusual conditions being missed and enable appropriate treatment to be instigated early.

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