

Cementoblastoma in the Maxilla: A Case Report

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The cementoblastoma is a rare, benign odontogenic tumour. It is generally asymptomatic and usually occurs in young adults. It is more common in males. It is most often associated with mandibular molar teeth and has a characteristic radiographic appearance. This case report is of a young male patient who presented with a cementoblastoma associated with a maxillary second molar. The initial

presentation was to his dentist with pain, which was assumed to be of dental origin. This case highlights the importance of adequate radiographic investigation and appropriate interpretation in forming a diagnosis. It also serves as a reminder that rare odontogenic tumours may present initially in primary care and it is essential that all practitioners are aware of them.

INTRODUCTION

The cementoblastoma is an odontogenic mesenchymal tumour of cementum.¹ Although relatively rare, it is well documented in the literature. Cementoblastomas account for <1% of odontogenic tumours.² Age of presentation is commonly in the first and second decade. It is a slow-growing tumour and is generally asymptomatic. It can be aggressive but there is no record of malignant transformation.^{3,4} The typical presentation is a chance finding following routine radiographic investigation. The radiographic appearance is characteristically a radiopaque mass in continuity with the root of a tooth, surrounded by a radiolucent halo. This appearance is considered to be virtually diagnostic.¹

CASE HISTORY

The patient was a young male with no relevant medical history and good oral hygiene. He was a regular attender at his dentist. When he was 15 years old, he reported to his general dental practi-

tioner (GDP) with intermittent pain in his upper-left quadrant. A clinical examination revealed the upper-left first and second molars (6 and 7) to be vital, with no detectable caries. Bitewing radiographs confirmed both teeth to be caries free. When the pain persisted, a restoration was placed in 7 but this failed to relieve the symptoms. Over the next two years, he continued to report intermittent pain in the area, until he requested an emergency appointment at the practice complaining of severe pain, which he associated specifically with 7. The GDP noted a buccal swelling above the tooth and took a periapical radiograph and a dental panoramic tomograph, which showed a radiopaque lesion to be present. The patient was referred urgently to the oral surgery department at Liverpool University Dental Hospital.

Here, an extra-oral clinical examination did not reveal any asymmetry or cervical lymphadenopathy. Intra-orally significant buccal expansion was present high up in the sulcus in the 6 and 7 area, extending distally to the tuberosity.

There was some less obvious palatal expansion. The swelling was bony-hard and tender to palpation. The overlying mucosa was darkened in colour. Both 6 and 7 were tender to percussion. 7 was grade I mobile. Vitality tests of both teeth were positive.

Radiographically, a large radiopaque lesion was present in the upper-left quadrant, with a surrounding rim of radiolucency. This was associated with the roots of 7, which showed evidence of resorption. The 8 was unerupted and impacted (*Figure 1*). The differential diagnosis included focal sclerosing osteomyelitis, ossifying fibroma, cementoblastoma, osteoblastoma, and osteosarcoma.

The initial management was to obtain an image with a computed tomography (CT) scan and to carry out an incisional biopsy of the lesion in conjunction with extraction of the resorbing 7. The CT scan revealed a 2 cm hard tissue mass in the left maxilla extending from 6 to 8. The antral wall was intact, but the antral lining was thickened, suggesting a lesion

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Figure 1 Dental panoramic tomograph at initial consultation.



Figure 2 Dental panoramic tomograph at one year post-operatively.

of inflammatory nature. The radiographic features were consistent with a cementoblastoma or osteoblastoma. The histopathology confirmed the lesion to be a cementoblastoma and the associated [7] still contained vital pulpal tissue, which is typical of the lesion.⁵

The definitive surgical management was complete enucleation of the lesion, together with removal of the closely associated [6] and [8]. The patient was warned of the possibility of oro-antral communication and a small antral perforation was observed at the time of surgery. The patient was placed on an antral regimen and did not develop any symptoms of oro-antral communication. Histopathology confirmed complete excision of the cementoblastoma. The [6] also showed evidence of root resorption. The [6] and [8] also contained vital pulpal tissue.

Post-operative healing was uneventful. At one year post-operatively, the patient was asymptomatic. Radiographic examination showed good bony infilling and no evidence of recurrence (Figure 2).

DISCUSSION

This patient's initial presenting complaint was of intermittent pain located in the upper-left quadrant. Clinical examination did not demonstrate any obvious periodontal cause for the symptoms, caries, cracked cusps or occlusal abnormalities which could produce pulpitis pain and all teeth were vital, which

negated a potential diagnosis of periapical periodontitis. Bitewing radiographs did not demonstrate any evidence of decay or pulpal pathology. The subsequent increase in intensity and frequency of the pain, together with the specific localisation to [7], combined with lack of any other symptoms, precluded a diagnosis of sinusitis, referred pain, or central neurological causes. The pain and mobility associated with [7], with no obvious periodontal cause, and with all aforementioned causes excluded, necessitated further radiographs to enable the tooth apex to be visualised, revealing the cementoblastoma.

Cementoblastomas are odontogenic tumours of cementum arising from ectomesenchyme. They were first described by Dewey (1927).⁶ They are classified by the World Health Organization as a true cemental neoplasm.⁷ There have been more than a hundred documented cases of cementoblastoma and 79.5% of these have involved the mandible, so a lesion affecting the maxilla is relatively rare. A comprehensive literature review reported that the commonest age of presentation is in the first and second decade, virtually all occur in the premolar/molar region, and the mandible is a more common site than the maxilla.⁸ The lesion is usually associated with the permanent dentition but there have been case reports associated with the primary dentition.⁹ The radiological appearance is due to the forma-

tion of sheets of cementum-like tissue forming the radiopacity, and the periphery of the mass and more active growth areas are unmineralised, producing the characteristic 'halo' periphery.⁸

Cementoblastomas associated with maxillary teeth may extend into the antrum.¹⁰ Although there was evidence of thickening of the antral lining in the case reported, this was a response to the inflammatory effect of the lesion, not direct antral involvement.

As the lesion is benign, the usual treatment is complete surgical excision, together with removal of the associated teeth. Incomplete excision may be associated with recurrence.⁸ There have been some reports of recurrence despite initial complete enucleation but this is very rare.¹¹ If the lesion is associated with multiple teeth, or teeth that it is considered desirable to retain, it is possible to enucleate the lesion and treat the involved teeth endodontically instead of extracting them.¹²⁻¹⁴

This case demonstrated a classic presentation of this lesion in terms of the age and gender of the patient, the slow onset of symptoms, the vitality of the associated teeth, and the radiographic appearance. The factors that contributed to the delay in diagnosis were the initial reliance on vitality tests and bitewing radiographs as the only investigations. The patient has fully recovered, but unfortunately has lost three molar teeth, as the degree of root resorption that had

taken place made endodontic treatment impossible. A more conservative approach could have been possible if the lesion had been identified earlier by a periapical radiograph or dental panoramic tomograph.

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Letter to the Editor

Encouraging Learning

In an editorial, 'Specialist training: a more flexible approach' (*Prim Dent Care*. 2009;**16**:83-4), the editor expressed his concern that 'the vast majority of dental specialist training has taken place in hospitals and in universities'.

Although few doubt that universities provide the most appropriate source of academic knowledge and perhaps the recognition of its acquisition by formal examination, such institutions can find it difficult to promote practical clinical 'nous'. Put simply, education is the formal teaching of established knowledge, often yesterday's knowledge, but dentists tend to be creative and practical people who prefer hands-on experience. Many years ago, I supported the establishment of the fledgling Faculty of General Dental Practice (UK) in order to satisfy the need for enthusiastic dentists to explore and extend their individual skills.

It is a natural problem that has always and will always separate the views of academics from practising clinicians. I arrived at university in the 1950s to be told 'pre-molar extractions are necessary for every patient, even if the teeth are not

crowded, to prevent later crowding'. I am not exaggerating: that was 'the accepted evidence'. A generation earlier, my father had been taught 'never extract' but 'expand to make space from the age of 4¹/₂ onwards'.

Our Faculty has an excellent record of providing additional training for those with special interests and for some time, I tried to introduce a course in orthodontics but this was strongly resisted by the British Orthodontic Society. Eventually, the orthodontists agreed to support it but, I am told, on condition that I was not allowed to contribute. I have been excommunicated since then. That is how politics works.

I applaud the current efforts by the Faculty to encourage general dental practitioners to carry out their own research but, as our new dean Russ Ladwa laments, 'Research in general practice has not taken off as well as we would like'. Certainly, I have found an undertone of resistance from established academics. For instance, 'ethical approval' is currently demanded by all publishers but on applying to a well known London hospital, I was told that private

practitioners were not eligible unless they had the support of a university department. However, I was not considered an appropriate applicant.

The format of academic research can be restrictive at times: after many years of 'empirical' dentistry we are now moving towards 'evidence-based' dentistry. What does this actually mean? There is evidence 'out there' to support almost any belief and the long lists of references published at the end of most articles may seem convincing until you realise that there is an equally long unpublished list saying the opposite. As I have often said, 'Evidence can confirm or contradict but it can never explain; only logic can do that'. For example, the evidence shows quite clearly that the faster you drive across a crossroads, the less likely you are to hit anything. As the great philosopher Karl Popper advised, you will best find the truth by the reverse process of putting up all the hypotheses and using logic to see which one fits the evidence best.

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