

CASE REPORT

The trouble with ectopic maxillary canines – a cautionary tale of two casesA. Akram¹ & R.M. Kerr²¹Orthodontic Department, Royal Devon & Exeter NHS Trust, Exeter, UK²Department of Oral & Maxillofacial surgery, Royal Devon & Exeter NHS Trust, Exeter, UK**Key words:**

complication, cyst, impacted, pathology

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Abstract

Two cases are presented in whom extensive cystic change occurred around ectopic unerupted maxillary canines. These cases highlight the importance of long-term follow-up where ectopic canines are left *in situ*.

Clinical relevance

No guidelines exist as to how frequently radiographic checks should be carried out for ectopic maxillary canines that are left *in situ*. These two cases highlight the importance of long-term review where unerupted canines are left *in situ*. Cystic change can develop around ectopic maxillary canines, leading to damage to adjacent teeth.

Introduction

The maxillary canine is second only to the mandibular third molar in its frequency of impaction. The frequency varies from less than 0.8 to 2.8%^{1,2}. Ectopic canines are more than twice as common in girls as in boys³. Canine impaction is palatal to the arch in 85% of cases and buccal in 15% of cases⁴.

The aetiology of ectopic canines remains unclear but is likely to be polygenic and multifactorial. Arch length discrepancy (crowding and spacing) is implicated in the aetiology of the ectopic canine⁵. A space deficiency may result in the tooth erupting buccally or its impaction,

and excessive space in the canine area may lead to palatal impaction⁵. There is evidence that palatally ectopic canines occur more frequently than expected among family members⁶. There may also be an association with absent or diminutive lateral incisors⁷.

The management options for ectopic maxillary canines are

- Accept and monitor
- Orthodontic alignment
- Transplantation
- Surgical removal

Surgical removal is appropriate if the position of the canine is such that either orthodontic alignment or transplantation is not appropriate, or alternatively if the patient does not wish to undergo orthodontic treatment. For this group of patients most authors advise that there are some instances where the canine can and should be left *in situ*.

Current speciality guidelines recommend that severely displaced ectopic canines can be left *in situ*, particularly if the canine is remote from the dentition⁸. The guidelines recommend that if the canine is left *in situ*, the practitioner providing care for the patient should carry out a careful clinical examination of the

patient on a regular basis to ensure the unerupted canine does not present a risk to the patients' well-being. However, no guidelines currently exist as to how frequently radiographic checks should be carried out.

The main risk from ectopic canines is root resorption of adjacent teeth. It has been estimated that 0.6–0.8% of children in the 10- to 13-year age group have permanent incisors resorbed as a result of canine ectopia⁴. With the advent of cone beam computed tomography, resorption has been detected in 66% of lateral incisors⁹. It has been suggested that root resorption of incisors by palatally ectopic canines rarely starts after the age of 14 years. Other complications include cystic change around the ectopic canine, the frequency of which is unknown¹⁰. Resorption of the coronal aspect of the canine root can also occur, with quoted frequencies of about 14%⁸.

We present a report of two cases, which presented as emergencies with extensive cystic change around ectopic unerupted maxillary canines. These cases highlight the importance of long-term monitoring for canines that are left *in situ*.

Case reports

Case 1

A 71-year-old man, K.B., was referred by his general dental practitioner to the Oral and Maxillofacial Surgery Department. K.B.'s presenting complaint was the presence of loose teeth in the upper-right anterior region and an asymptomatic right-sided facial swelling, which he had noticed about 6 months ago. Past medical history included two previous strokes and hypertension. K.B. was currently on clopidogrel (anti-platelet agent) and anti-hypertensive medication.

Intra-oral examination revealed a 4 cm right-sided maxillary buccal swelling extending from the midline to the upper-right second premolar region (UR5). The swelling was bluish in colour and was tender and fluctuant on palpation. There was no discharge from the swelling. His UR1/2/4/5/6 were all grade III mobile and surprisingly tested positive to testing with ethyl chloride. Radiographic examination revealed a large well-defined radiolucency associated with the unerupted upper-right canine (UR3) (Figs. 1 and 2). Using the principle of vertical parallax, the unerupted canines appeared to be palatal¹¹. This had the appearance of a dentigerous cyst. The roots of the UR1/2/4/5 showed evidence of external resorption. The upper-left canine (UL3) was also unerupted and the roots of UL1 and UL2 appeared to be resorbed. These teeth, however, did not exhibit mobility.



Figure 1 Orthopantomogram showing the unerupted canines and the radiolucency associated with the upper right canine. Resorption is evident around the roots of all teeth in the upper-right quadrant as well as the upper-left central and lateral incisor.

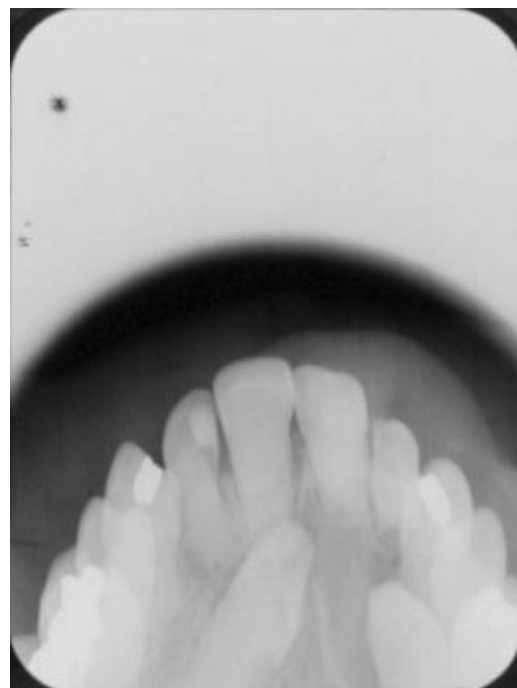


Figure 2 Upper standard occlusal showing the angulation of the unerupted canines.

It was decided to remove the unerupted canines and enucleate the cyst associated with the UR3 under a general anaesthetic. A decision was made to leave the mobile teeth in the upper-right quadrant in place, with the expectation that they would become firmer once bony in-fill started in the cystic defect. In view of K.B.'s complex medical history, this was carried out on an inpatient list. Recovery was uneventful. Histology revealed a dentigerous cyst associated with the UR3. K.B. was reviewed 6 weeks post-operatively. Healing

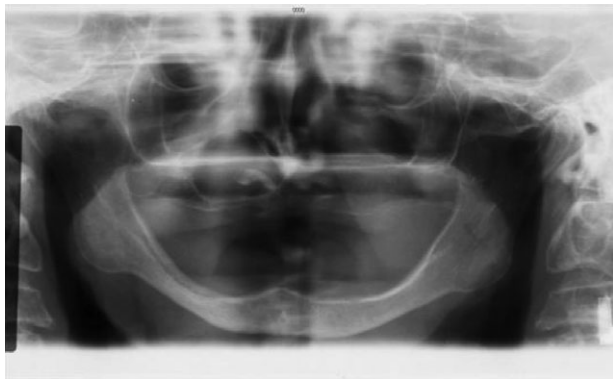


Figure 3 Orthopantomogram showing the unerupted canine in a well-defined radiolucent cavity.

was progressing well, although the teeth in the upper-right quadrant were still mobile.

Case 2

An 85-year-old woman, B.M., was referred by her general dental practitioner to the oral and maxillofacial surgery department. B.M.'s presenting complaint was the presence of a swelling, which fluctuated in size, in her upper-right jaw. She had been aware of this for about 12 months. Past medical history included osteoporosis for which B.M. was taking oral alendronic acid (bisphosphonate).

On examination, she had an obvious extraoral swelling in her right cheek and extending to the base of the nose. Intra-oral examination revealed a 3 cm firm swelling expanding her right maxillary alveolus. B.M. was edentulous. Radiographic examination revealed the presence of an unerupted resorbed palatally ectopic canine sitting within a well-defined radiolucency (Figs. 3 and 4). This had the appearance of a dentigerous cyst, which was extending close to her maxillary sinus and nasal cavity.

It was decided to remove the unerupted canine and enucleate the cyst under a general anaesthetic. B.M. was warned of the possibility of oroantral/nasal complications developing post-operatively as well as the possibility of osteonecrosis due to the oral bisphosphonates. She was given a date for the operation, but decided not to undergo the procedure in view of the potential complications. It was decided to keep B.M. under regular review

Discussion

In some cases it is preferable to carry out no active treatment for unerupted canines. No active treatment should be recommended if¹⁰:

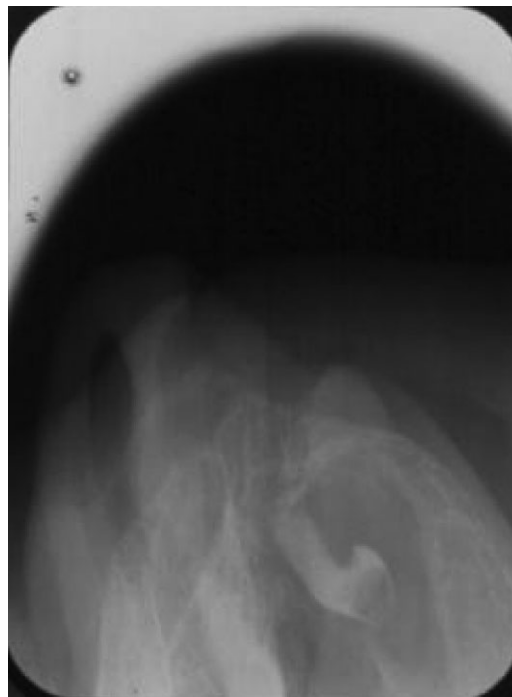


Figure 4 Upper standard occlusal showing the unerupted tooth with evidence of external root resorption.

- The patient does not want treatment
- There is no evidence of resorption of adjacent teeth or any other pathology
- There is good contact between the lateral incisor and first premolar or good prognosis for the deciduous canine
- The permanent canine is severely displaced with no evidence of pathology

The results of a recent survey showed that there was significant variation between UK consultant orthodontists as to the preferred management for unerupted canines in those patients where no orthodontic treatment was planned¹². Most consultants stated that they would advise radiographic monitoring because of the possible risks of incisor root resorption, but less importance was ascribed to cystic change of the canine follicle. There was much less agreement with regard to the length of time that monitoring should be undertaken, with the majority suggesting that this should be indefinite or alternatively not making any specific recommendation.

Long-term prospective follow-up of patients where ectopic canines are left *in situ* is required to ascertain the true incidence of complications, such as cystic change developing. Current evidence suggests that there is low incidence of serious complications developing in older age groups⁸.

For patients who are likely to be at risk for complications, because of canine angulation that is more mesial position of the canine, removal of the unerupted canine can be considered. Older patients are likely to have greater comorbidities and therefore, the risks of undergoing a general anaesthetic are likely to be higher¹³. Older patients tend to have denser, more sclerotic bone compared with younger patients. Therefore, the surgical difficulty is also increased in an older patient and recovery from surgery tends to take longer¹⁴.

Current speciality guidelines recommend that severely displaced canines that are remote from the dentition can be left *in situ* if there is no evidence of pathology⁸. As stated earlier, on the other hand, if the canine is judged to be at high risk, due to canine angulation or crown position, and closely related to the incisors then consideration should be given to removing the canine at an early age as surgery is likely to be easier with low risk of complications. The guidelines recommend that if canines are left *in situ*, the practitioner providing care for the patient should carry out a careful clinical examination of the patient on a regular basis to ensure the unerupted canine does not present a risk to the patients' well-being. These two cases are a reminder of the importance of this recommendation.

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