

## CASE REPORT

## Spontaneous regression of a dentigerous cyst associated with an impacted mandibular canine: a case report

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**Abstract**

Dentigerous cysts are the second most common odontogenic cyst. The most frequently affected teeth are mandibular third molars and the incidence in mandibular canines is significantly less common. The management of dentigerous cysts is usually surgical enucleation, with extraction of the associated tooth if required. Spontaneously regressing dentigerous cysts are uncommon, but have been reported in the literature. However, this is the first reported case of a spontaneously resolving dentigerous cyst affecting an unerupted lower canine. A 12-year-old male presented with a retained deciduous canine and an asymptomatic radiolucency associated with an unerupted mandibular canine. This was provisionally diagnosed as a dentigerous cyst based on radiographic appearance. Over a period of 4 years, the cyst regressed without any surgical intervention. A cone beam computed tomogram was taken which confirmed the regression of the cyst and showed that the incisal edge of the canine had perforated the labial cortex of the mandible. This case supports the theory that if an unerupted tooth with an associated dentigerous cyst perforates bone or communicates with the oral cavity then spontaneous decompression and resolution of the cyst can occur.

**Clinical relevance**

This case report aims to highlight that in rare cases, such as when a patient is non-compliant or medically unfit for surgery, surgical intervention may not be required in the management of dentigerous cysts and close radiographic monitoring may be appropriate.

However, if a patient becomes symptomatic or there is evidence clinically or radiographically indicating the cyst is increasing in size or displacing adjacent teeth, then surgical management, i.e. enucleation of the cyst and extraction of the offending tooth should be encouraged.

It also highlights the importance of early referral to specialist centres for assessment and management of delayed permanent canine eruption.

**Background**

Dentigerous cysts originate from the reduced enamel epithelium during development of a tooth and are usually associated with teeth that have failed to erupt<sup>1</sup>. They are the second most common odontogenic cyst, after radicular cysts, accounting for nearly 20% of all odontogenic cysts in adults and 30% in the paediatric patients<sup>2</sup>.

They are characterised radiographically as a radiolucency around the crown of an unerupted tooth (typically from the cemento-enamel junction) and are usually solitary. The most frequently affected teeth are mandibular third molars and the incidence in mandibular canines is significantly less common<sup>3</sup>.

The management of dentigerous cysts is most often surgical enucleation, with extraction of the associated

tooth if required. For larger cysts, marsupialisation is often required<sup>4</sup>. This can be useful when nearby structures are at high risk of injury during enucleation.

Spontaneously regressing cysts are uncommon, but a number of cases associated with unerupted mandibular molars, have been reported in the literature<sup>3,5-7</sup>. This case report presents the first documented case of spontaneous regression of a dentigerous cyst affecting an unerupted lower canine.

## Case Report

In 2013, a 12-year-old male was referred by his general dental practitioner to the joint Oral Surgery and Orthodontic outpatient clinic of a district general hospital. He was referred for an opinion regarding a retained lower right deciduous canine (LRC), which was non-mobile. The tooth was asymptomatic, but there were concerns regarding the location of his lower right canine (LR3).

The patient had a diagnosis of autism but was otherwise fit and well. Clinical examination showed a retained LRC. The LR3 was unerupted and there was no associated cortical bone expansion or displacement of adjacent teeth in the area. An orthopantomogram (OPT) radiograph (Fig. 1) showed the LR3 to be horizontally ectopic with an associated well-defined, unilocular radiolucency arising from the cemento-enamel junction, measuring 17 mm × 20 mm. A presumed diagnosis of a dentigerous cyst was made at this point based on the radiographic appearance.

The surgical and non-operative management options were discussed with the patient and his parents. It was decided that a period of surveillance would be appropriate, in view of his known difficulty in tolerating invasive procedures.

In 2014, the patient re-attended for a review appointment where a further OPT was taken (Fig. 2). The LR3 appeared to have moved inferiorly, but the



**Figure 1** OPT taken at initial presentation in 2013 showing the LR3 to be horizontally ectopic with an associated well-defined, unilocular radiolucency arising from the cemento-enamel junction.



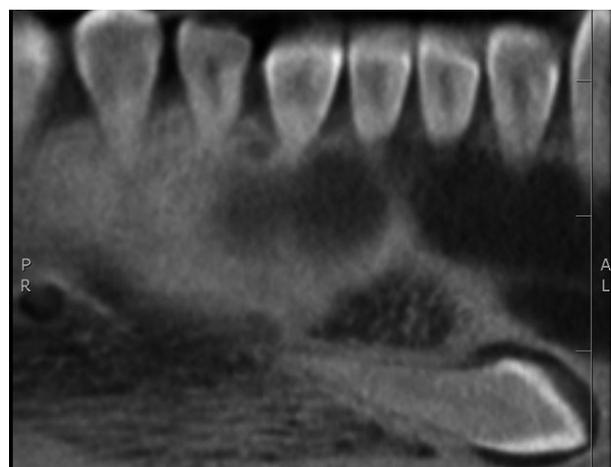
**Figure 2** OPT taken in 2014 which shows LR3 appears to have moved inferiorly, but the associated radiolucency remains unchanged.



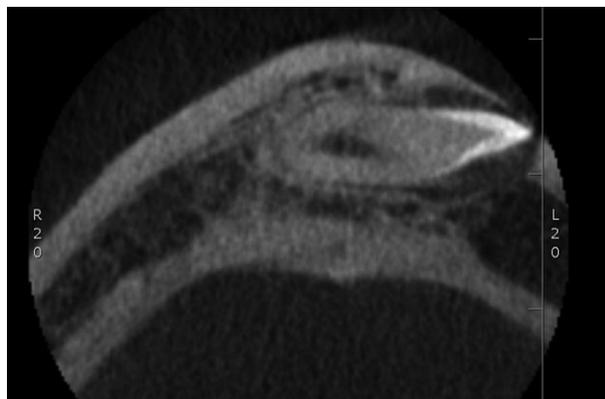
**Figure 3** OPT taken in 2017 showing no cystic features around the ectopic LR3 and a follicle that appears to be within normal limits.

associated radiolucency remained unchanged. Again, the patient and his parents opted to monitor the area in light of the fact the tooth was asymptomatic.

Unfortunately, in 2015 the patient failed to attend his follow-up appointments and was discharged. He was re-referred by his general dental practitioner in early 2017 and an OPT was taken (Fig. 3). This showed no cystic features around the ectopic LR3 and



**Figure 4** CBCT slice confirming no cystic features surrounding LR3.



**Figure 5** CBCT slice showing the incisal edge of LR3 perforating the labial wall of mandible.

the size of the follicle appeared to be within normal limits (8). A radiographic report of this OPT was obtained which recommended a cone beam computed tomography (CBCT) scan of the area was taken to confirm the change in radiographic appearance was not due to the slice of the OPT representing a different field. This investigation firstly showed no evidence of cystic involvement (Fig. 4) and secondly showed the incisal edge of LR3 perforating the labial wall of mandible (Fig. 5). There was no clinical evidence found of a communication between the LR3 and the oral cavity. As the patient was asymptomatic, they were subsequently discharged for monitoring by general dental practitioner.

## Discussion

A literature search revealed a small number of reported cases of dentigerous cysts spontaneously resolving, although these were all associated with wisdom teeth<sup>3,5-7</sup>. This, to the best of our knowledge, is the first report of a spontaneously resolving dentigerous cyst associated with an unerupted canine.

Due to the fact the cyst was not enucleated, no histopathological diagnosis can be confirmed. The diagnosis was made based on the classical radiographic appearance of a dentigerous cyst. Other differential diagnoses include ameloblastoma, adenomatoid odontogenic tumour and odontogenic

keratocyst<sup>9</sup>; however, due to the position in the mandible this is highly unlikely.

On review of this case and the other reported cases of spontaneous regression of dentigerous cysts, it appears that if the tooth perforates bone or communicates with the oral cavity then decompression of the dentigerous cyst can occur. Movement of the LR3 is evident by comparison of the OPT from 2013 and 2014. The CBCT taken confirmed that the incisal edge of the tooth had perforated the labial wall of the mandible (Fig. 5). It is likely that this communication with the oral cavity caused disruption of the cyst lining and eventual regression of the cyst.

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