

Maxillary Dentigerous Cyst in a Cat

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Summary:

*A dentigerous cyst was diagnosed in the right rostral maxilla of a 6-month-old Siamese cat affecting the maxillary right canine tooth. The deciduous maxillary right canine tooth was extracted and the dentigerous cyst wall was curetted. The permanent tooth was not removed, however it was mobile following the surgical procedure. Examination 6-months following surgery indicated appropriate development of the tooth with no mobility or periodontal pocket formation. The maxillary right canine tooth had an abnormal shape but was functional with an acceptable appearance. *J Vet Dent* 20 (1); 28 - 30, 2003*

Introduction

Dentigerous cysts in humans and other species are usually diagnosed in young adults.¹ Such lesions are diagnosed in horses that are less than 3-years-old.² In dogs, dentigerous cyst should be a primary differential diagnosis in patients having an oral swelling in an edentulous area.³ Dentigerous cysts have also been diagnosed in goats and sheep, with the incisor area most commonly affected in sheep.^{4,5}

Dentigerous cysts are sub-classified as eruption or follicular cysts. Eruption cysts are a dilation of the normal follicular space around the tooth during eruption of the crown. Treatment is usually not necessary. Follicular cysts are lined by epithelium and form around tooth remnants including supernumerary, impacted, malformed, and fragmented teeth.^{1,2,6,7} The characteristic feature

of the cyst is its epithelial attachment to tooth remnants at the region of the cemento-enamel junction, with the crown extending into the cyst.^{1,2,6,7} The cyst develops secondary to retention of the reduced-enamel epithelium. Fluid accumulates between the crown of the tooth and the epithelium.⁶ The cyst lining is generally composed of stratified squamous epithelium with the potential for localized areas of ciliated or mucus-producing epithelium.^{1,8,9} *En bloc* resection of the entire lesion is recommended unless the result would be particularly mutilating.¹⁰

This case report describes conservative management of a rostral maxillary dentigerous cyst resulting in maintenance of the permanent maxillary canine tooth.

Case Report

A 6-month-old Siamese cat was presented for a mass of the deciduous maxillary right canine (504) tooth region (Fig. 1). The owner noticed the lesion for a few days before presentation. Physical examination was normal except for a right maxillary fluctuant mass and grade II mobility of 504. The patient was premedicated with acepromazine^a (0.1 mg/kg IM) and meperidine^b (5.0 mg/kg IM). General anesthesia was induced using propofol^c (5.0 mg/kg IV). Following intubation, general anesthesia was maintained with isoflurane^d (1-2 %) and oxygen. Intraoral dental radiographs showed an extensive radiolucent area centered over 504 (Fig. 2). The tentative diagnosis

Figure 1

Oral photograph of the maxilla in a 6-month-old Siamese cat with a mass of the right maxilla in the area of the deciduous maxillary right canine (504) tooth. Note the small fluctuant area (arrow) dorsal to 504.

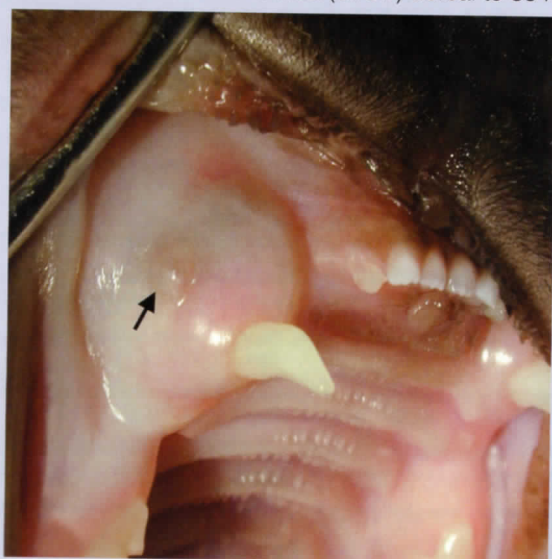


Figure 2

Intraoral dental radiograph of the right maxilla in a 6-month-old Siamese cat. The radiolucent area is centered over the deciduous maxillary right canine (504) tooth (white arrow). Note the crown of the permanent maxillary right canine (104) tooth (black arrow) extending into the cyst at the level of the cemento-enamel junction.

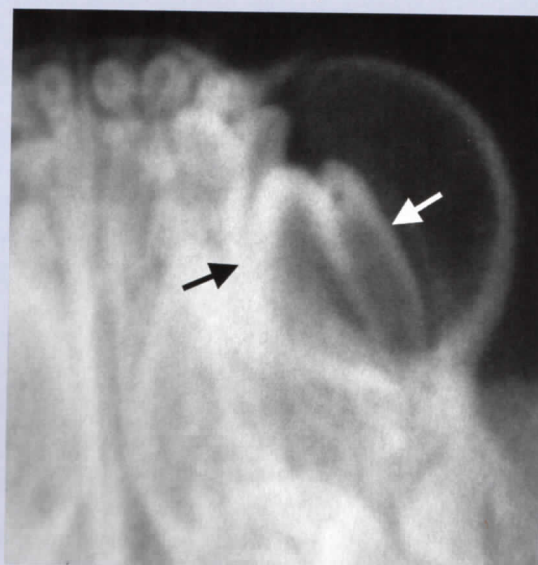


Figure 3

Intraoperative photograph showing the extracted deciduous maxillary right canine (504) tooth.

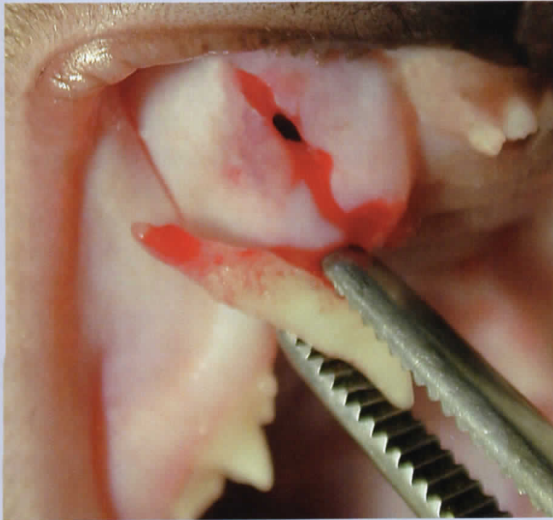


Figure 4

Intraoperative photograph showing the permanent maxillary right canine (104) tooth in the cystic cavity.



Figure 5

Oral photograph of the permanent maxillary right canine (104) tooth showing measurement of the gingival sulcus using a periodontal probe 3-months following surgery.



based on oral and radiographic examination was dentigerous cyst. The 504 was extracted with a dental elevator and forceps using gentle technique (Fig. 3). The cyst was disrupted and transparent fluid was evacuated.

The crown of the developing permanent maxillary right canine (104) tooth was observed in the dorsal aspect of cyst (Fig. 4). Although immature, the tooth seemed intact and minimally attached to alveolar bone. The bone around 104 seemed to be normal based on visual and radiographic examination. Therefore, the cyst lining was curetted without disturbing 104. Sutures were not placed in order to allow an unimpeded eruption pathway for 104 and drainage of any remaining cystic fluid. The owner was given a guarded prognosis for development and eruption of 104. Unfortunately, the diagnosis was not confirmed using histopathologic methods.

Ketoprofen[®] (1.0 mg/kg PO SID X 4 days) was administered for analgesia. The surgical area was lavaged using chlorhexidine[®] (0.12 % QID X 10 days). The patient's normal, dry food was moistened. The 10-day postoperative examination indicated that 104 was protected by alveolar bone and gingiva, yet had grade III mobility. The patient had a normal appetite and no clinical signs of pain. By 3-months following surgery, 104 had less mobility (grade I), likely secondary to improved attachment to alveolar bone. Periodontal probing of the gingival sulcus was 0.5 mm (Fig. 5). The patient was administered general anesthesia 6-months following surgery using the same protocol as described previously. The eruption process of 104 seemed completed and the tooth had no signs of mobility. The depth of the gingival sulcus remained 0.5 mm. Intraoral dental radiographs indicated that 104 had an intact lamina dura and closed apex (Fig. 6). However, it did not appear to have fully erupted. Morphologically, 104 had an abnormal shape of the cervical 1/3 root. The tooth and pulp cavity were more narrow compared with the maxillary left canine (204) tooth (Fig. 7).

Discussion

Dentigerous cysts are uncommonly diagnosed in small animals, especially cats.⁵ Generally, the lesion will be indicated by an oral swelling or mass leading to a differential diagnosis that includes other cystic lesions that do not contain teeth, infectious processes (abscess), and tumors of abnormal dental structures (odontomas).¹¹ Pressure resulting from expansion of the cystic mass can cause bone or tooth resorption. Cyst walls attached to lamellar bone can cause periodontal or periosteum displacement. Clinical signs of dentigerous cyst are different based on the location of the lesion.² For example, nasal discharge may be secondary to dentigerous cysts of the maxilla that grow into the nasal cavity causing obstruction.⁷ Distortion of the maxilla and mandible may be apparent clinically.⁷ The case of dentigerous cyst reported here did not present with clinical signs referable to the mass effect of the cyst.

In the human literature, it has been reported that dentigerous cysts may become or be associated with ameloblastoma, carcinoma, or adenomatoid odontogenic tumor.^{10,11} However, this implied aggressive characteristic of dentigerous cysts has not been proven based on the histo-

Figure 6

Intraoral dental radiographs of the permanent maxillary left (A) and right (B) canine teeth 6-months following surgery for a right maxillary dentigerous cyst. Note the abnormal shape of the permanent maxillary right canine (104) tooth compared with the normal permanent maxillary left canine (204) tooth.

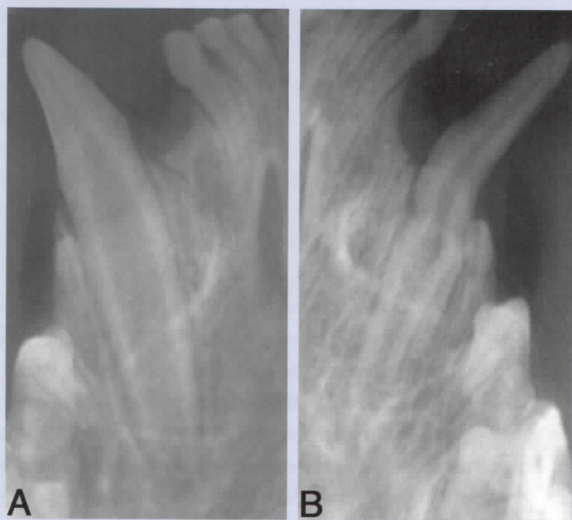
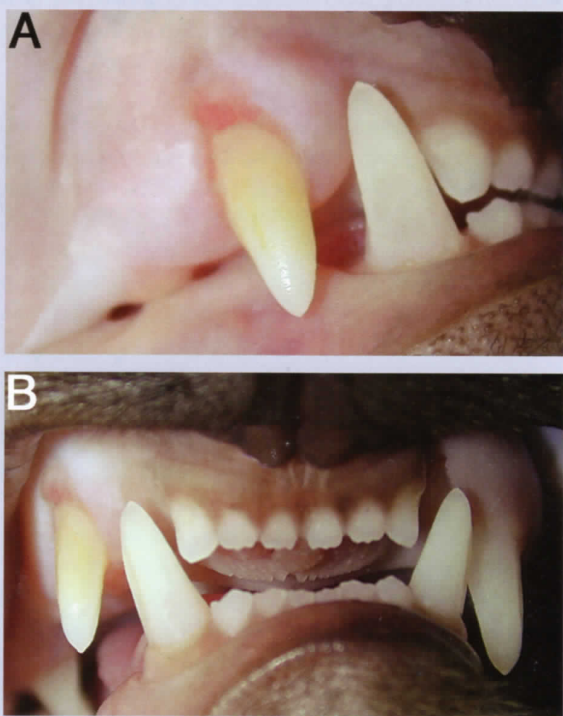


Figure 7

Occlusal lateral (A) and rostral (B) oral photographs showing the appearance of the permanent maxillary right canine (104) tooth 6-months following surgery for a right maxillary dentigerous cyst.



pathologic evaluation of many cases.⁶ Although malignant transformation of dentigerous cysts has not been documented, aggressive surgical plans are recommended including complete surgical removal of the cyst and any retained teeth. If *en bloc* resection of the dentigerous cyst is not possible, complete curettage of the cyst wall minimizes the incidence of recurrence.⁸ Further surgical recommendations include the extraction of all malformed teeth that are within the cyst.⁷

In the case reported here, we decided to maintain 104 because there were no clinical or radiographic signs that indicated a distinct impediment to tooth eruption. The general condition of the unerupted 104 seemed satisfactory at the time of surgery. There also seemed to be enough bone to support the tooth through the eruption process since the cyst was relatively limited in size, perhaps related to early diagnosis. Extraction of retained teeth and local bone graft is recommended in cases of extensive osteolysis.³

Although malformed, 104 erupted into a normal position and was functional. As reported previously, extraction of a deciduous tooth as performed in this case could have resulted in injury to the developing permanent tooth leading to retention.¹¹ If this complication had occurred, a second procedure would have been required to extract the retained 104.

^a Acepran, Univet S/A, Brasil

^b Dolosal, Cristália, Brasil

^c Propofol, Cristália, Brasil

^d Isoflurane, Cristália, Brasil

^e Ketofen, Merial, Brasil

^f Periogard, Colgate-Palmolive, Brasil

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