

# Bilateral dentigerous cysts treatment from the rostral mandible using platelet-rich fibrin and synergy

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## Presenting Issues

Peterpan is a six-year-old neutered male boxer initially presented for COHAT at a primary care veterinary practice. During the examination under general anaesthesia, missing 305 and 405 were noted. Intraoral radiographs were taken for the investigation of missing teeth, which showed large radiolucent cystic lesions occupying the left and right rostral mandibles.

## Possible Causes

Dentigerous cysts are the most common odontogenic cyst found in dogs [1] and are associated with an unerupted, impacted tooth. If untreated, the cystic lesion can slowly and progressively increase in size, leading often to pathological fracture of the jaw. Certain brachycephalic dog breeds, including boxers, Shih Tzus and Pugs, are predisposed to developing dentigerous cysts and are often associated with the unerupted first premolar tooth [2].

## Diagnosis

Dental Radiology (IM3; CR7-VET) is often diagnostic for cystic structures associated with an unerupted tooth. However, a definitive diagnosis should be made by sending the epithelial lining of the cyst for histopathological analysis.

## Treatment

Surgical debridement and removal of all cyst lining, and extraction of an unerupted tooth are indicated. Teeth affected with external resorption and associated with the expansion of the dentigerous cyst should also be extracted. After administration of nerve block (intraoral caudal mandibular nerve block), large, envelope mucoperiosteal flaps were made from the distal border of the third premolar canine to the mesial border of the rostral mandible. A small amount of crestal alveolar bone was removed to access and clearly visualise the cystic lesions. The impacted 305 and 405 were extracted, as well as the resorbing 306 and 406.

The defects were then thoroughly debrided with a bone curette (IM3). A copious amount of sterile saline was used as an irrigation agent. The large bony defects were subsequently filled with Synergy (Synthetic Bone Graft: IM3) and with Platelet-Rich-Fibrin (PRF). PRF can be fabricated by using the patient's whole blood in a plain tube (without anticoagulant), immediately placed in a centrifuge and centrifuged at 3000 RPM for 10 minutes [3]. The Synergy and PRF mixture was placed and packed gently in the defect. A PRF membrane was placed over this bone graft mixture and then tension relieving incisions were made at the base of both the labial and lingual mucoperiosteal flaps.

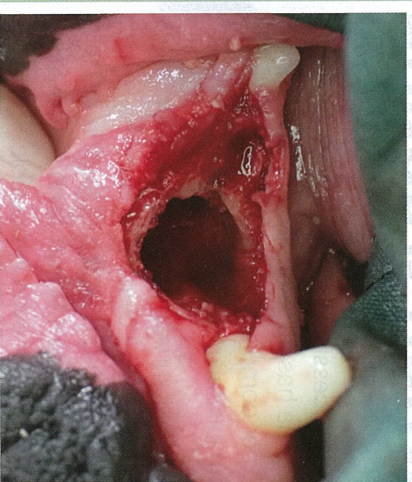
The labial and lingual flaps were then sutured tension-free with an simple interrupted suture pattern using 4/0 poliglecaprone 25 (Monosyn). A simple continuous suture pattern was then placed over the simple interrupted sutures.

## References

1. Shope, B.H. Mitchell, P.Q., and Carle, D. (2019). Developmental pathology and periodontology in *Wigg's Veterinary Dentistry: Principles and Practice*, 63-79, Hoboken NJ: John Wiley & Sons.
2. Versuraete, F.J., Zin, B.F., Kass P.H., and cox D.P. (2011). Clinical signs and histologic findings in dogs with odontogenic cysts: 41 cases (1995–201). *J Am Vet Med Assoc* 239: 1470-1476.
3. Feigin, K., and Shope, B. (2019). Use of Platelet-Rich Plasma and Platelet-Rich Fibrin in dentistry and oral surgery: Introduction and review of the literature. *J. Vet. Dent*, 36: 109- 123.



Diffused swelling at Q4 dentigerous cyst site



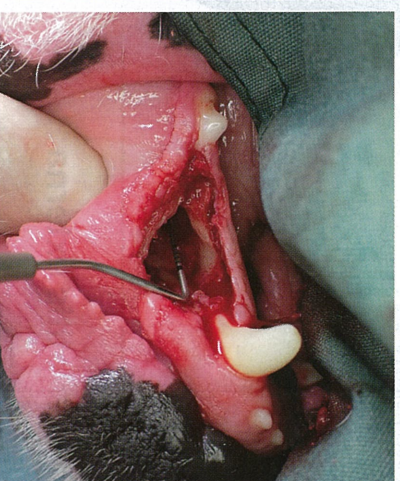
Q4 cyst opening



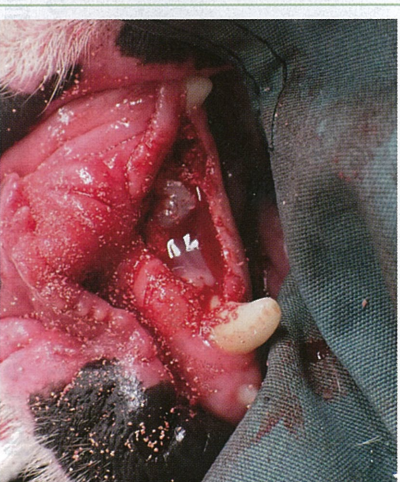
Impacted 305 with cyst opened



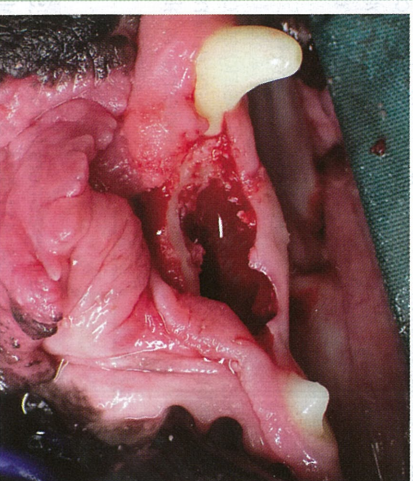
Packing synergy and PRF mixture in the Q4 defect



Measuring depth of the cyst. 15mm probe was used to measure



PRF membrane placed over synergy Q4 dentigerous cyst



306 extracted to enhance access to the dentigerous cyst lining curettage



Two layer closure. Simple interrupted and continuous oversewn