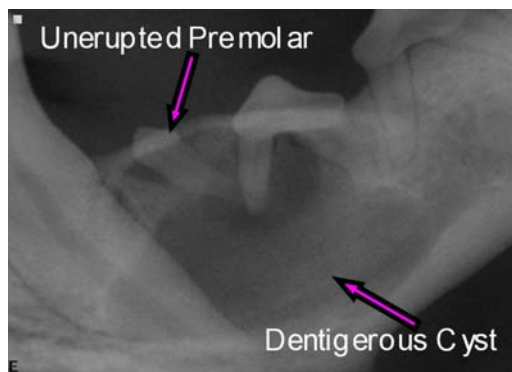


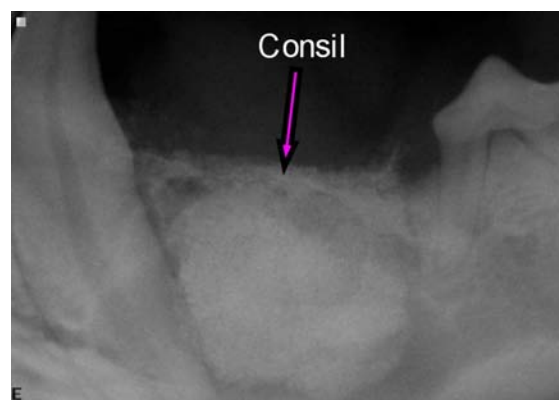
CASE OF THE MONTH (September 2007)

Signalment and History:

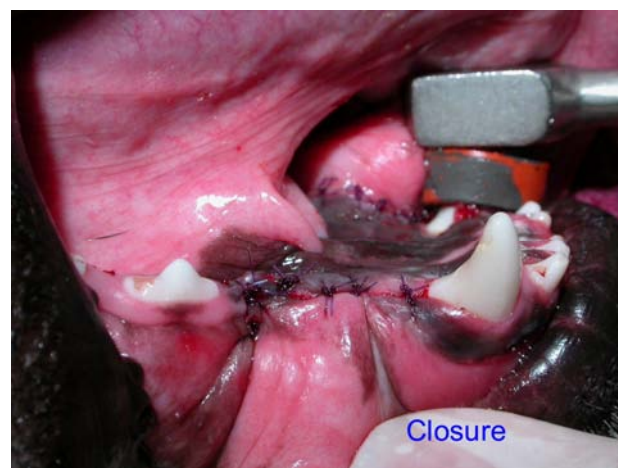
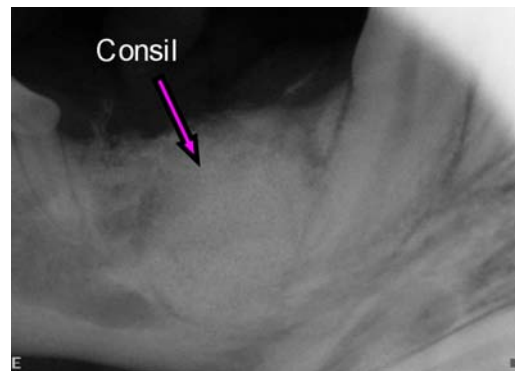
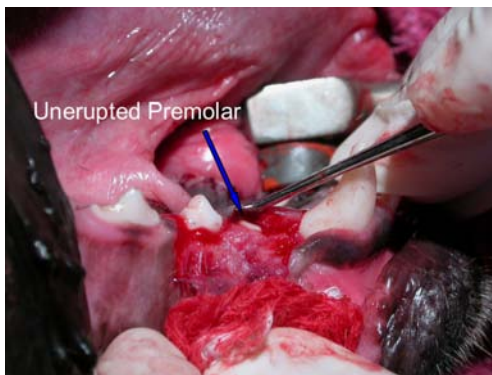
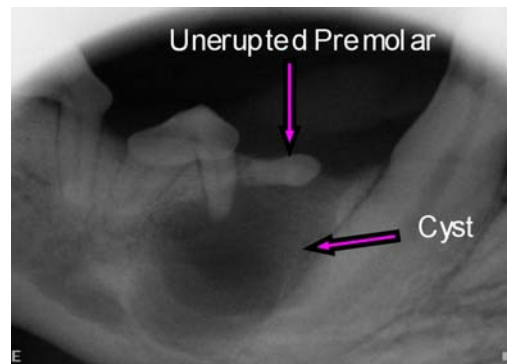
A seventeen month old spayed female Boxer presented with an acute swelling of the side of the left mandible at the level of the buccal frenulum. This area was quite painful to the touch. No history of trauma was given and no physical evidence of trauma other than the swelling was present. One possible etiology that I was considering at the time was a bee sting. However, I felt that intraoral radiographs were indicated to further pursue a diagnosis. After placing the patient under general anesthesia, we found that the mandibular first premolars were missing bilaterally. Intraoral radiographs of the left side revealed that the first premolar was unerupted and was lying at a 45 degree angle. Below the premolar was a large area of radiolucency within the mandible, indicating a dentigerous cyst.



Procedures: A full thickness mucoperiosteal flap was created and the area of the dentigerous cyst was surgically explored. The first premolar was extracted, as was the second premolar, due to cyst involvement of its mesial root. We also found a fistula penetrating from the cystic structure completely through the buccal cortex of the mandible into the deep layers of the alveolar mucosa. Since there was no opening through the gingiva or alveolar mucosa, the cystic fluid migrating through this fistula accumulated in the form of edema, causing the swelling of the soft tissue. After extraction of the first two premolars, the lining of the cyst was curetted and Consil, an osseoconductive product, was placed into the empty cystic structure. The mucoperiosteal flap was closed with 4-0 Monocryl.



An intraoral radiograph revealed that the right mandible also had an unerupted first premolar with a dentigerous cyst present. An identical procedure was performed on the right side.



Discussion: Unerupted teeth are most common in the smaller breeds of dogs, but may occur in any breed. The most common teeth to fail to erupt are the first premolars (both maxillary and mandibular) and the mandibular 3rd molars. It is imperative that we count the teeth of all our patients to determine if any teeth are missing. If teeth are missing, an intraoral radiograph is indicated to determine if the tooth is truly missing or if it is present but unerupted. Unerupted teeth have a tendency to lead to formation of a dentigerous cyst. A dentigerous cyst tends to increase in size over time and becomes destructive to the surrounding bone due to the increasing pressure of the associated fluid. This leads to bone atrophy and a weakening of the affected jaw. Left untreated, a dentigerous cyst can also transform into an ameloblastoma.

Surgical extraction of unerupted teeth associated with a dentigerous cyst is mandatory, along with curettage of the cyst lining to prevent recurrence. In this case the 2nd premolars were also extracted because the cysts had compromised the apical blood supply of the mesial roots of both teeth. This diminished apical blood supply is likely to lead to pulp necrosis of the affected tooth. After these teeth are extracted there is a large void in the structure of the jaw which will weaken the jaw significantly. To aid in maintaining the normal structural integrity and strength of the jaw, we place Consil into the defect. Consil is an osseoconductive product that forms a structural matrix in the defect. Consil consists of tiny ceramic spheres coated with hydroxyapatite, the mineral component of bone and teeth. The local blood supply transports osteoblasts into the area and these osteoblasts latch onto the matrix and begin creating normal bone tissue. Over a period of 4-6 months the matrix is replaced by normal bone.

A great opportunity for counting teeth arises when we spay or neuter our young patients. If a patient is missing teeth at that time, it is easy to take an intraoral radiograph to see if unerupted teeth are present. If present, they should be extracted immediately to prevent future dentigerous cyst formation. If no tooth is present, the client can rest easily, knowing that no procedure will be necessary.

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