

SMALL MOUTHS, BIG HOLES:
No ALF Nose Here!

Neoplastic lesions of the rostral maxilla often require aggressive surgery to alleviate the tumor burden (Fig. 1). *This type of aggressive maxillectomy may be bilateral and extend as far caudally as the second or third maxillary premolar teeth.* Advanced oral surgery techniques involve a minimum of 1-cm tumor-free margins; large, bilateral mucosal flaps; elevation of the rostral skin and nares; hemorrhage control by ligating the greater palatine arteries; and, hemorrhage control of turbinate tissue after rostral maxillectomy (Fig. 2-5).

Simply putting the "pieces back together" may result in wound closure, but the cosmetic result is unacceptable resulting in the classic ALF nose. ALF nose is based on the character in the television show ALF (Alien Life Form). ALF had a crumpled nose that drooped down over his lower lip. This same cosmetic defect can occur after rostral maxillectomy unless one is trained in maxillofacial reconstruction techniques.

Reconstructive surgery requires rhinoplasty to reposition the maxillary skin and nares in a more caudal direction. A small skin incision is made between the nares and orbits. The maxillary periosteum is reflected laterally to expose the dorsal maxillary bone at midline. Small osteotomies are made bilaterally enabling non-absorbable suture to be placed through the osteotomies to serve as an anchor point for the suture. The suture is then placed through the nasal cartilage caudal to the nares. The suture is tightened to a point where the nose is elevated and repositioned caudally. Although there may be some wrinkles of the maxillary skin over the muzzle similar to a Shar-pei, the result is much more acceptable from a cosmetic and functional perspective (Fig. 6).

Remarkably, wound healing is usually uncomplicated and dogs usually return to nasal breathing by spontaneous healing and adaptation of the airways to provide unobstructed rostral airway movement (Fig. 7).



Fig. 6 Photographs showing a typical "ALF" nose following rostral maxillectomy (A). Rhinoplasty (B) improved cosmesis and function.

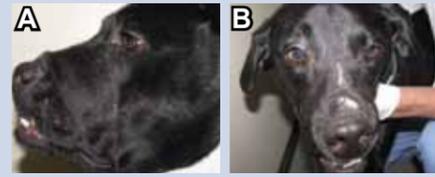


Fig. 7 Lateral (A) and rostral (B) photographs 1-month postoperatively show excellent cosmesis and a closed mouth indicating nasal breathing.



Fig. 1 Photographs showing palatal (A) and lateral (B) views in a dog with acanthomatous epulis of the rostral maxilla.



Fig. 3 Intraoperative photograph showing tissue elevation following carbon dioxide laser dissection before osteotomy. Surgical margins were based on preoperative radiographic imaging.



Fig. 5 Photographs showing mucosal flap repositioning (A) and final wound closure following rostral maxillectomy (B).



Fig. 2 Left (A) and right (B) photographic views showing elevation of bilateral mucosal flaps and exposure of bone in the areas of osteotomy.



Fig. 4 Photographs showing mucosal flap rotation (arrow) following rostral maxillectomy (A). The resected specimen had gross (B) and histologic tumor-free margins.

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Dr. Mark M. Smith and Dr. Kendall Taney are partners in the Center for Veterinary Dentistry and Oral Surgery established in 2006. Dr. Smith is a Diplomate of the American College of Veterinary Surgeons and the American Veterinary Dental College. He was Professor of Surgery and Dentistry at the VA-MD Regional College of Veterinary Medicine at Virginia Tech for 16-years before entering private practice in 2004. Dr. Smith is Editor of the Journal of Veterinary Dentistry and co-author of Atlas of Approaches for General Surgery of the Dog and Cat.



Dr. Taney is a Diplomate of the American Veterinary Dental College and a fellow of the Academy of Veterinary Dentistry. She has practiced dentistry and oral surgery at the Center since 2006. She is a 2002 graduate of the VA-MD Regional College of Veterinary Medicine. She completed her residency at the Center and has also performed internships in both general medicine and surgery, and specialized surgery.



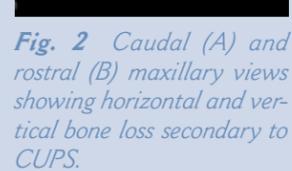
Dr. Emily Edstrom is a 2010 graduate of the Colorado State University School of Veterinary Medicine. She completed a rotating internship in small animal medicine and surgery at VCA Veterinary Referral Associates in Gaithersburg, MD. She is a member of the American Veterinary Dental Society.



DENTISTRY:
So What Is CUPS?

Most pet owners and veterinarians are aware of stomatitis in cats, but did you know this condition also occurs in dogs? *Chronic Ulcerative Parodontal Stomatitis, or CUPS, refers to the inflammation of tissue in the oral cavity.* Unlike periodontal disease, which affects the *periodontal tissues* (i.e. periodontal ligament, alveolar bone, cementum, and gingiva), CUPS affects other structures in the oral cavity including the buccal mucosa in contact with teeth, palatal mucosa, and even the tongue. Periodontal disease and CUPS do not always occur together, although there is generally some degree of bone loss due to chronic inflammation.

Dogs with CUPS may present with severe halitosis, thick white plaque, and pain or difficulty eating. Contact ulcers most commonly occur on the mucosa overlying the maxillary canines and caudal dentition; these are sometimes referred to as "kissing ulcers." Certain breeds, like Maltese and Cavalier King Charles, may be more prone to developing CUPS but it can occur in any breed at any age.



Similar to stomatitis in cats, the cause of CUPS is believed to be an immune over-reaction to plaque and bacteria in the mouth. Plaque begins building up on the teeth within hours of a dental cleaning, so even the most diligent pet owner will be unable to prevent plaque from returning. Temporary remedies to alleviate pain and inflammation can include pain medications, antibiotics and occasionally immunomodulating drugs, like steroids. Unfortunately, these medications are not curative and once discontinued, the symptoms will quickly worsen. Extracting the teeth in immediate contact with the contact ulcer can provide temporary relief, but the inflammation will likely shift to other parts of the mouth, once again causing pain and discomfort.

We believe that our pets deserve a pain-free mouth. Just like cats with stomatitis, the only potential for a cure is with multiple extractions. Following full-mouth extractions, most owners are surprised at how much happier and energetic their dog feels, and they can finally stand to be in the same room with them following resolution of the halitosis!

Fig. 4 Selective extractions (A) can help to resolve inflammation locally but we always tell owners that the redness and inflammation can shift to other parts of the mouth over time. Full-mouth extractions can provide a cure for this painful condition (B).

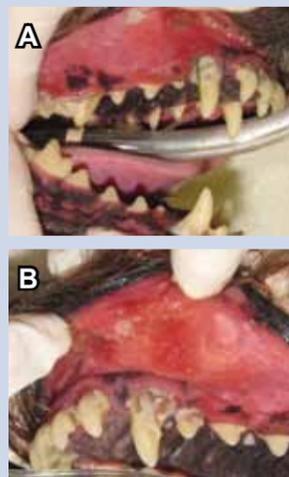
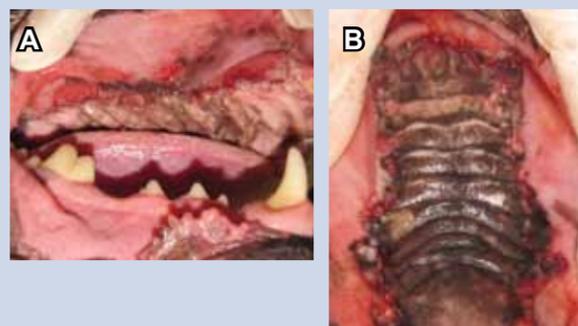


Fig. 1 Right (A) and left (B) photographic views from a 12-year-old Schnauzer dog with severe inflammation and ulceration of the maxillary buccal and vestibular mucosa. Note the thick, white plaque covering the caudal dentition and canine teeth.

DENTISTRY:
Why The Inflammation Doesn't Go Away!

Unfortunately, whole-mouth extraction is often the only viable treatment for feline stomatitis/gingivitis. We don't understand the etiology of this disease despite many clinical and epidemiologic studies. However, by trial and error, it is clear that whole-mouth extraction alleviates the clinical disease and symptoms in the vast majority of cases. It is theorized that plaque stimulates the inflammatory process seemingly "acting" as an allergen. The rationale of treatment being to remove the plaque, and hopefully the inciting cause of the inflammation. The key point is that the whole-mouth extraction procedure be complete, including all tooth roots!

Preoperative dental radiographs are important to assess the status of the tooth roots so that complete removal can be performed with confidence. Some tooth roots may be undergoing resorption or may be completely intact. Resorbing roots should be extracted unless the resorption process is nearly complete. A tooth root that fails to resorb or an intact root that is not extracted can stimulate the inflammatory process with failure of the inflammation to resolve.

In the case illustrated here, pre-existing stomatitis was unresolved after tooth extraction (Fig. 1). All teeth were not extracted, and worse, many tooth roots were not extracted leaving multiple sources for stimulating inflammation (Fig. 2 and 3). Complete tooth extraction including remaining tooth roots, and CO2 laser surgery for caudal pharyngeal stomatitis alleviated the inflammation (Fig. 4).

Our technique for whole-mouth tooth extraction includes 6 dental radiographs to image all dentition, 4 mucoperiosteal flaps (1 for each quadrant), buccal alveolectomy, hemisection of multi-rooted teeth, tooth extraction, 6 dental radiographs to confirm complete tooth removal, chlorhexidine lavage at the extraction sites, application of synthetic bone graft at all mandibular extraction sites, and primary wound closure. This procedure takes about 1.5 hours at the Center. We consider this an important factor for medically compromised or geriatric patients with the mantra that the less time under general anesthesia, the better!

Fig. 4 Right (A), left (B), and pharyngeal views following extraction of remaining teeth and retained tooth roots and CO2 laser therapy for caudal pharyngeal stomatitis.

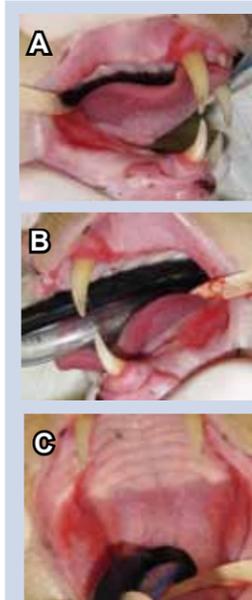
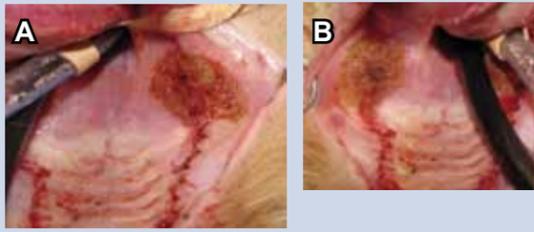


Fig. 1 Right (A) and left (B) maxillary and caudal (C) pharyngeal photographs, showing severe inflammation.

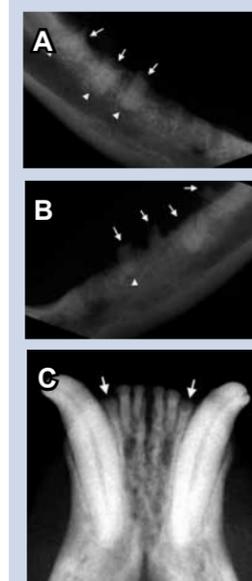


Fig. 3 Right (A), left (B), and rostral (C) mandibular radiographs showing retained tooth roots (arrows).

ORAL SURGERY:
Always, Always Biopsy Sublingual Masses!

Sublingual masses are relatively common in cats. Clinical signs include ptyalism, dropping food while eating or not eating at all, and poor grooming habits. These same clinical signs are also associated with feline stomatitis and tooth resorption. Therefore, it is important to perform a thorough oral examination in the awake patient. For cats, digital pressure applied ventrally between the mandibles with the mouth open will give the clinician a good view of the sublingual region for masses or foreign bodies.

The most common type of mass is squamous cell carcinoma (SCC). SCC is so often diagnosed that it is easy to assume that every sublingual mass is SCC. Unfortunately, the prognosis for sublingual SCC is poor/grave. So, if we suppose that the lesion is SCC and convey it to the owner, many owners will decline biopsy for their pet since the prognosis is so poor. When cats are referred to our practice with a presumptive diagnosis of SCC, we always perform a confirmatory biopsy no matter how sure we are that the lesion is SCC. If we assume SCC without biopsy, some patients will suffer and eventually be euthanized unnecessarily.

In the first case here, a ventral tongue mass was noted during an oral examination under anesthesia (Fig. 1). An excisional biopsy was performed and the diagnosis was ductal ectasia....don't forget, there are monostomatic salivary glands in the tongue!



Fig. 1 Preoperative (A) and postoperative (B) views of a ventral tongue mass (arrow) in a cat diagnosed as ductal ectasia.

The second case was more complicated. The mass was presumed to be SCC based on appearance and location (Fig. 2). The cat had all the classic symptoms as described previously. True to form, we recommended biopsy of the mass. Fractured and resorbing teeth were not necessarily going to be treated based on the poor prognosis for SCC. However, upon initial incision to obtain biopsy, purulent fluid was drained indicative of abscess. The mass lining was biopsied to confirm that the abscess was not secondary to SCC. Based on the likely diagnosis of abscess, the extraction procedures were performed and the biopsy result indeed was abscess (Fig. 3).

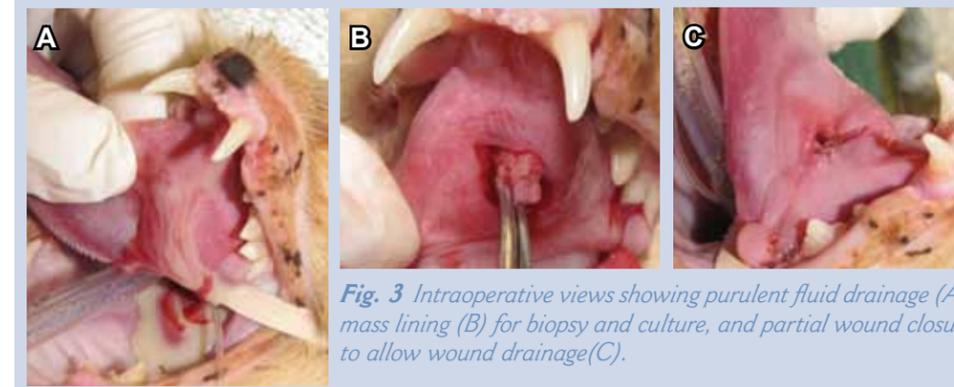


Fig. 3 Intraoperative views showing purulent fluid drainage (A), mass lining (B) for biopsy and culture, and partial wound closure to allow wound drainage (C).