Class I malocclusion can affect deciduous or permanent teeth and may be categorized as: anterior cross-bite, posterior cross-bite, facial cusps (base-wide canine teeth), lingual cusps (base-narrow canine teeth), crowded or rotated teeth, and certain partial level bites.

The mandibular canine teeth normally interdigitate in the interproximal space (diastema) between the maxillary canine and third incisor teeth. Heritable dentofacial deformity is considered the underlying cause of mandibular canine tooth linguoversion known as base-narrow canine teeth. Although tooth extraction is a viable option for this problem, the most common dental procedures for treatment of base narrow canine teeth are crown reduction and vital pulp therapy, or application of an acrylic inclined plane. In mild cases of mandibular canine tooth linguoversion where the tip of the canine crown is interfering with the diastema of the gingival margin causing gingival irritation and indentation from impaling the soft tissue, gingivectomy and gingivoplasty may be performed to eliminate the soft tissue impediment (Fig. 1). Similar procedures can be performed for linguoversion of deciduous mandibular canine teeth.

Gingivectomy/gingivoplasty may be performed with radiosurgery and/or a water-cooled diamond bur in a high-speed handpiece. Thermal injury to underlying bone should be avoided by limiting the procedure to soft tissue, and efficient “light” use of the radiosurgery tip. Prolonged pressure with the heat-generating instrument in a focal area predisposes to bony injury. Likewise, the diamond bur should be used with water-cooling to avoid thermal injury to tissues. Maintenance of the periosteum will enhance epithelialization of the soft tissue defect. The resulting gingivectomy/gingivoplasty should be hour-glass shaped in appearance, and wider dorsally to serve as a “sliding board” to receive the linguoverted canine tooth (Fig. 2). A diamond bur should be used to bevel the edges of the gingivoplasty (arrowheads) and every effort should be made to maintain the gingival margin and attached gingiva at the maxillary first incisor and canine teeth (arrow) [B].

When the canine tooth bite is not quite right, consider letting us consult with the owner and pet to determine if a procedure can provide a comfortable occlusion.

**Fig. 2** The resulting gingivoplasty should be hour-glass shaped (black lines) in appearance, and wider dorsally to serve as a “sliding board” to receive the linguoverted canine tooth (A). A diamond bur should be used to bevel the edges of the gingivoplasty (arrowheads) and every effort should be made to maintain the gingival margin and attached gingiva at the maxillary first incisor and canine teeth (arrow) [B].

**Fig. 3** Following gingivectomy/gingivoplasty (A), the post-exploration image shows improved occlusion (B). The 2-week postoperative examination showed correction of the linguoverted canine tooth (C).
**DENTISTRY: Complicated Gingivitis!**

Lymphoma is one of the most common malignant tumors to affect dogs in veterinary medicine. Multicentric lymphoma is by far the most common form of lymphoma seen in veterinary patients, but other types of lymphoma include medullary, gastrointestinal, and cutaneous. The cutaneous form has a predilection for epithelial tissue and often causes signs of chronic skin allergies, bacterial infection, or autoimmune disease. The main clinical signs in the early stages of disease include depigmentation, pruritus, scaling, and hair loss (Fig. 1). These skin lesions can progress to ulcerative plaques or tumors that do not respond to systemic therapy.

Epitheliotrophic lymphoma, also called mycosis fungoides, is a variant of cutaneous lymphoma that has a predilection for mucosal tissue of the oral cavity and lip commissures (Fig. 2). It can present as a distinct nodule, as diffuse gingival hyperplasia, or as eroding, non-pigmented areas along the commissures. Palatitis and palatal ulcers can also occur concurrently with epitheliotrophic lymphoma. Although this form of lymphoma is uncommon in veterinary patients, it should always be considered in patients with a history of chronic skin infections and a new or recent onset of gingivitis/stomatitis. Obtaining a biopsy of the gingival tissue will help to distinguish epitheliotrophic lymphoma from other forms of lymphoma.

The first step is to make the diagnosis by incisional or excisional biopsy. The next step is to make every attempt to remove the entire lesion including tumor-free margins of the lesion. Oncologic surgery guidelines recommend 1-2 cm of gross tumor-free tissue be included as part of the resected specimen. This parameter is more difficult to follow in the oral cavity of dogs because of the difficult to follow in the oral cavity of dogs because of the consistent small size of the mouth. A 2-cm margin might include half of the skull!

Therefore pragmatic considerations dictate goals that still prioritize removing the entire tumor and maximizing margins of normal appearing tissue around the tumor. Maintaining function and providing acceptable cosmesis are also major factors when determining the surgical plan.

The labial (buccal) mucosa provides lateral tissue that can be elevated and repositioned towards midline to aid wound closure following resection. A thorough work-up and biopsy (Fig. 4) are the keys for a proper diagnosis avoiding non-responsive symptomatic treatment that is frustrating for the patient, owner, and veterinarian!

**SMALL MOUTHS, BIG HOLES: Closing Major Oral Defects.**

Unfortunately, often the diagnosis of oral neoplasia is made when the lesion is quite large in relation to the size of the mouth. In fact, the lesion can seem so large that all hope is lost and the owner is conveyed a grave prognosis based on the size of the lesion, regardless of the tumor type.

Oral reconstructive surgery techniques allow closure of oral defects that might seem intimidating or impossible to close based on the size of the defect following resection. The first step is to make the diagnosis by incisional or excisional biopsy. The next step is to make every attempt to remove the entire lesion including tumor-free margins of the lesion. Oncologic surgery guidelines recommend 1-2 cm of gross tumor-free tissue be included as part of the resected specimen. This parameter is more difficult to follow in the oral cavity of dogs because of the consistent small size of the mouth. A 2-cm margin might include half of the skull!

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The labial (buccal) mucosa provides lateral tissue that can be elevated and repositioned towards midline to aid wound closure following resection of mandibular or maxillary tumors. In this case, the large oral melanoma required total mandibulectomy with disarticulation of the TMJ (B-D). The labial (buccal) mucosa provides lateral tissue that can be elevated and repositioned towards midline to aid wound closure following resection of mandibular or maxillary tumors. In this case, the large oral melanoma required total mandibulectomy with disarticulation of the TMJ (B-D). The labial (buccal) mucosa provides lateral tissue that can be elevated and repositioned towards midline to aid wound closure following resection of mandibular or maxillary tumors. In this case, the large oral melanoma required total mandibulectomy with disarticulation of the TMJ (B-D).

**HEAD & NECK: A Case Of The Sniffles!**

One of the more frustrating symptoms pets, owners, and veterinarians experience is chronic nasal discharge. Such a non-specific symptom can have many causes, and often many different medical therapies are attempted for treatment and/or to rule-out a disease process. Antibiotics may clear up the discharge, or antihistamines may reduce the amount, but generally symptoms return once medication is discontinued. Certain characteristics of the nasal discharge may help narrow down an etiology; for example unilateral mucopurulent nasal discharge may indicate a nasal foreign body, tooth root abscess, or nasopharyngeal polyp (Fig. 1). Unilateral epistaxis could be a symptom of a nasal tumor or fungal disease. Dental radiographs can be a useful tool in any case of nasal discharge, at the very least to rule out a dental cause. Any teeth in the maxilla that show radiographic and/or visual signs of pathology should be extracted (Fig. 2). If a tooth was truly the cause, the nasal discharge should resolve over the next few weeks. Detailed views of the nasal sinuses can also be taken with dental sensors and can identify destructive processes such as a tumor or fungal disease (Fig. 3). With the patient under general anesthesia, a sinoscopy can be performed through the oral cavity to retrieve samples from the nasal cavity for histopathology and culture. The biopsy result is the most important information when determining a cause. We are all a little disappointed when we get a diagnosis of allergic or lymphoplasmacytic rhinitis, but at least the medical management can be further tailored to the suspected disease process.

**Fig. 1** Radiopaque nasal foreign body in a cat (A). This cat had nasal discharge from the time the owner adopted it as an adult 10 years previously. The foreign body was bucket list that was removed from the nasal cavity (B). The discharge resolved a few weeks after the foreign body was removed.

**Fig. 2** Lateral (A) and rostral (B) postoperative photographs showing diffuse gingival hyperplasia and hypertrophy with a spongiiform texture in this same dog. The owner reported that the cutaneous plaques and necrosed areas were present for months. The diagnosis of epitheliotrophic lymphoma was confirmed (B-C).

**Fig. 3** Views of the buccal (A) and lingual (B) aspects of the resected mandible with malignant melanoma.

**Fig. 4** Views of the oral (A) and cutaneous (B) wound closures following left total mandibulectomy. Note the wound closure for the commissural incision that enabled exposure for the TMJ disarticulation.