

**BEYOND THE MOUTH:
Don't Ignore The Obvious Breathing Problem.**

Brachycephalic upper airway syndrome is a relatively common problem in Bulldogs, Boston Terriers, and Chow-chow dogs. *It is so common that we, as veterinarians, often warn owners about this problem when these breeds are puppies!* The warning is appropriate since preventative or interventional surgery may be warranted early in life to prevent development of this syndrome that includes elongated soft palate, everted laryngeal saccules, and stenotic nares. In fact, any chronic upper airway obstruction can cause components of this syndrome.

These individual problems are secondary to redundant pharyngeal soft tissue and/or a primary elongated soft palate leading to airway obstruction and an increase in normally negative inspiratory airway pressure. The more chronic and severe the primary problem, the greater the inspiratory effort that increases

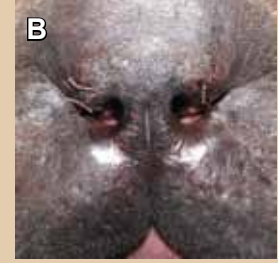


Fig. 2 Reconstructive surgery has been performed on the right nares to improve airway flow (A). The completed left side cosmetically matches the right (B).

negative airway pressure. *The chronic increase in negative airway pressure "sucks" soft tissue into the airway.* The elongated soft palate enters the larynx; the laryngeal mucosa "everts" into the larynx hence the term everted laryngeal saccules; and, the nares collapse towards midline or become stenotic.

Components of brachycephalic upper airway syndrome can be addressed surgically as a primary procedure, or in addition to planned wellness procedures such as spay/neuter or a professional dental cleaning procedure.

Soft palate resection, removal of everted laryngeal saccules, and plastic and reconstructive surgery for stenotic nares can be performed here at the Center when affected patients have planned dental procedures. *Soft palate resection should be judicious keeping in mind that aggressive resection can lead to abnormal deglutition and aspiration pneumonia.* Resection of the laryngeal saccules is done using sharp dissection and direct pressure for hemostasis. The term "bigger is better" is true for surgery to correct stenotic nares. Wedges of alar cartilage are resected and the remaining cartilage is apposed using absorbable suture to provide an enlarged aperture for the nares. The procedure is performed bilaterally with one of the harder goals being to match sides so that both nares appear the same!

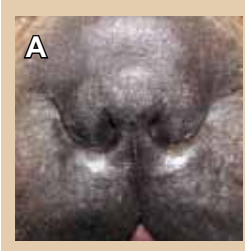


Fig. 1 Completely stenotic nares in a Chow-chow dog (A). The nasal airway is navigated using cotton-tipped applicators (B).

**HELPING THE PET COMMUNITY IN OUR AREA:
Digital Dental Radiography Comes To The Washington Animal Rescue League!**

An anonymous benefactor and friend of WARL donated resources enabling the purchase of a digital dental radiograph system. It was donated in honor of Dr. Mark M. Smith after the donor's pet was diagnosed with inoperable oral malignant melanoma at the Center. The system will be used to aid the diagnosis and treatment of dental disease in patients and adoptees at WARL. The system is shown below where it was dedicated with Dr. Smith and Dr. Janet Rosen, Medical Director. The Center is honored to have been recognized by the donor.



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FALL NEWSLETTER

Holiday Season...

Electrocution Injury?!

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Dr. Mark M. Smith and Kendall G. 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.



TOOTH TRAUMA:
Cage Chewer Syndrome.

Have you seen a dog whose teeth look like toothpicks or sickles? *Have you seen shiny metal marks on the teeth?* The patient may be a cage chewer. By questioning the owner you may find that the dog may have separation anxiety, or is a Houdini who likes to escape his confinement. Other times the patient may have spent part of its life at a shelter,

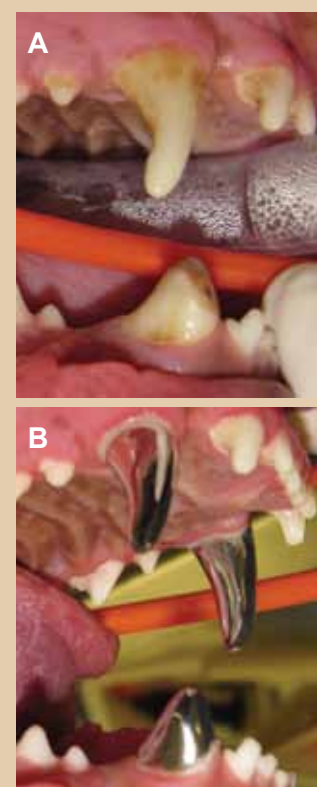


Fig. 2 Signs of cage chewer syndrome (A) - caudal abrasion of the right maxillary canine tooth and fracture of the right mandibular canine tooth. Full metal jacket crowns protect the teeth (B).

or may be a working dog that is primarily kenneled. These dogs will chew on the bars of their crate or other part of their confinement out of boredom and stress. Metal bars can act like a fine file and as a result the teeth can become worn down, usually on the caudal surfaces of the canine teeth. This is termed distal tooth abrasion (Fig. 1). In this weakened state, the teeth can easily fracture (Fig. 2). So what can be done? The first step is to try to modify the dog's behavior. Ideally the pet would be kept in a different environment or have behavior modification to reduce anxiety. Unfortunately, this is not always practical or possible. *In such cases, patients can benefit from full metal crown placement on the canine teeth* (Fig. 2). The metal will prevent further wear of the canine teeth and make them as strong as possible. The tooth is prepped for placement of a crown just above the gingiva (Fig. 3) and whole mouth impressions are made. These impressions are sent to a dental laboratory where a non-precious metal crown will be fabricated. About a week later, the crown is cemented in place. Many service dogs rely on their teeth to perform their job, and preserving them is of utmost importance. Without crown placement or behavior modification, these patients are likely to present with a fractured tooth that would then require root canal therapy or extraction. *Remember the old adage- an ounce of prevention is worth a pound of cure!*

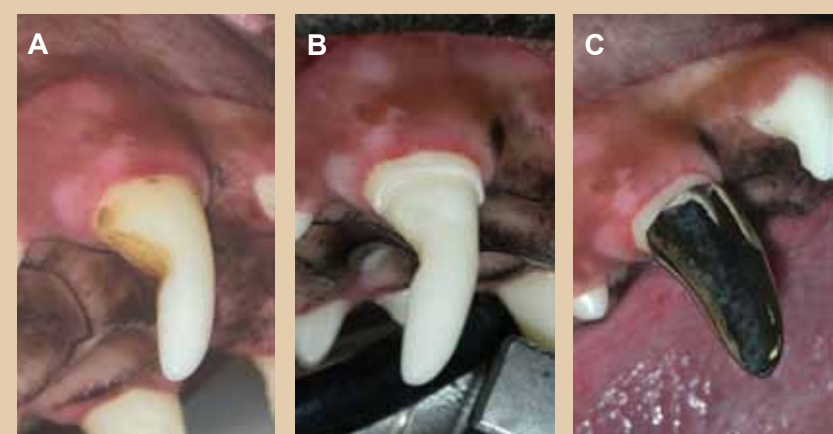


Fig. 3 The sickle-shaped right maxillary canine tooth (A) is prepared for the crown impression (B), ultimately receiving a full metal jacket crown (C).



Fig. 1 Abrasion of the caudal surface of the left maxillary canine tooth so severe as to cause pulp exposure.

ORAL TRAUMA:
Holiday Season...Electrocution Injury?!

Inquisitive young puppies can be a source of joy for many families but they can also be endless bundles of energy that eventually find trouble. Electrical injury from biting or gnawing on an electric cord can be a scary and potentially life-threatening injury that requires immediate attention. Complications of electrical shock can include non-cardiogenic pulmonary edema, pulmonary hypertension, and thermal burns to surrounding tissues, including the cheek, gums, and teeth. *Once life-threatening conditions have been addressed, the thermal damage to the soft tissue and teeth should be treated.*

The patient described here was presented for treatment of multiple oral injuries after biting an electrical cord. The patient had been treated previously for non-cardiogenic pulmonary edema, which had developed after biting an electrical cord. Due to the thermal injury associated with the power cord, oral examination revealed that multiple teeth had become non-vital, meaning the teeth had undergone pulpitis and pulp necrosis. The thermal damage also caused extensive burns to the labial commissure, and gingival recession and exposure of the alveolar bone surrounding several teeth (Fig. 1). *Non-vital teeth should be treated either with root canal therapy or extraction as they will eventually develop periapical disease.* Our treatment goal was to close the commissure as cosmetically as possible while also maintaining a healthy oral cavity. Due to the tight commissuroplasty and the exposed alveolar bone, the best option for the non-vital teeth was extraction since the tight cheek and lack of anatomic oral vestibule would have likely led to periodontal disease. At presentation, granulation tissue was already present along the labial commissure, making a three-layer reconstructive procedure possible (Fig. 2). The commissuroplasty and extraction sites healed remarkably well. *Have your clients with young pets stay alert this holiday season to prevent electrocution injuries that can be so devastating!*

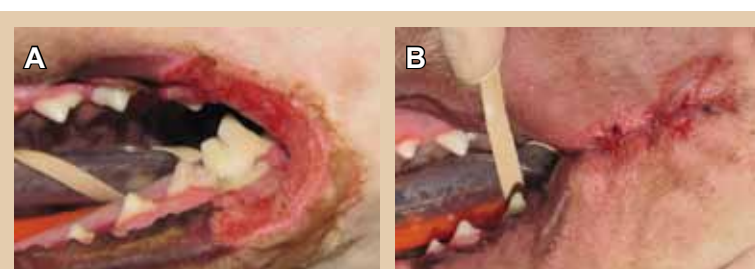


Fig. 2 Thermal injury of the left labial commissure with destruction of the mucocutaneous junction. Several days following injury shows pink, healthy granulation tissue (A). Postoperative view of the commissuroplasty with a cosmetic three-layer closure (B).

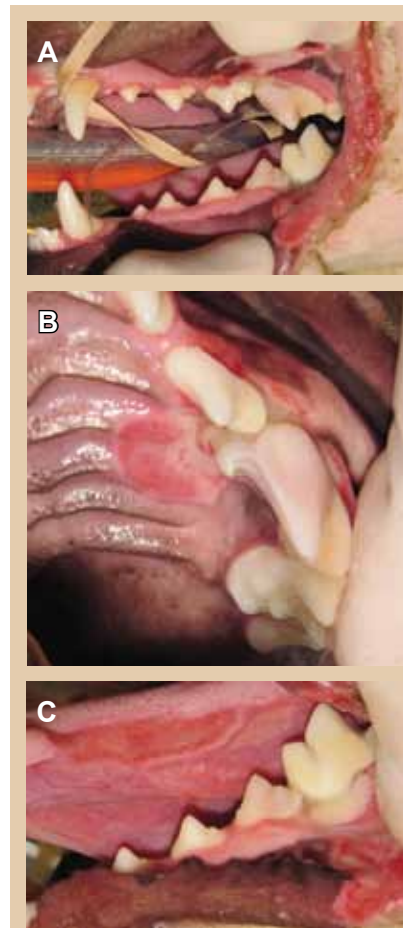


Fig. 1 Electrocution injury causing multiple oral injuries in a young dog. Note the devitalization and discoloration of the left maxillary fourth premolar (208) and mandibular fourth premolar (308) teeth with gingival recession and thermal burn to the labial commissure (A), thermal burns on the palatal aspect of the discolored 208 with root exposure due to gingival recession (B), and alveolar bone exposure on the mesiobuccal aspect of 309 (C).

SMALL MOUTHS, BIG HOLES:
The Many Faces of Squamous Cell Carcinoma.

Oral tumors represent 3-10% of all tumors in the cat, and the most common by far is squamous cell carcinoma (SCC). Interestingly, SCC can present in many different ways, which could lead to improper treatment or missed diagnoses. Oral SCC usually originates in the gingiva and often invades bone (Fig. 1). *It can sometimes be mistaken for severe periodontal disease.* If a patient has relatively normal teeth and presents with a localized area of inflammation and a few adjacent mobile teeth, neoplasia should be considered. Alternatively, SCC can be found sublingually or in the tonsillar region (Fig. 2). *Clinical signs in these cases may be as benign as dropping food or drooling.* Definitive diagnosis is achieved through histopathology, but other diagnostic tests such as dental radiographs are essential for evaluating the extent of the tumor. It is fascinating to see the many different ways that SCC can appear radiographically, from a completely lytic area of bone (Fig. 3) to a very proliferative lesion with significant periosteal reaction similar to osteosarcoma (Fig. 4). When harvesting a biopsy, it is important to remove adequate tissue for diagnosis and avoid sampling an area of inflammation or necrosis. We use dental radiographs to guide our tissue biopsy by identifying the areas of abnormal bone below an area of gingival inflammation. *Our goal is to be aggressive enough to get an answer without causing undue morbidity to the patient or jeopardize tissue that may be needed for future surgical removal of the tumor.*

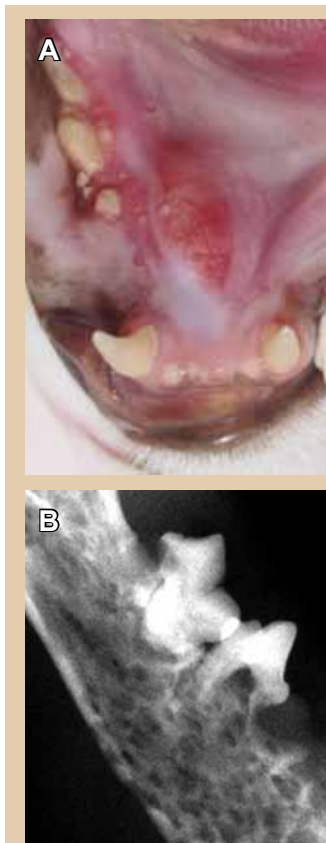


Fig. 1 Inflamed gingiva and SCC of the right mandible (A). Note the moth-eaten, lytic mandible (B).



Fig. 2 Sublingual SCC. Note the bruised, inflamed, and necrotic lesion that could be mistaken for trauma.

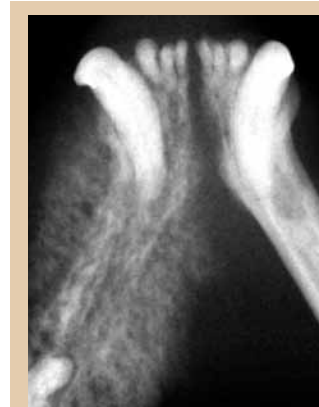


Fig. 3 Completely lytic area of the maxillary bone in a cat with SCC. The teeth appear to be floating in the lesion (A). No mass was visible in the mouth but all of the right maxillary teeth were mobile (B).

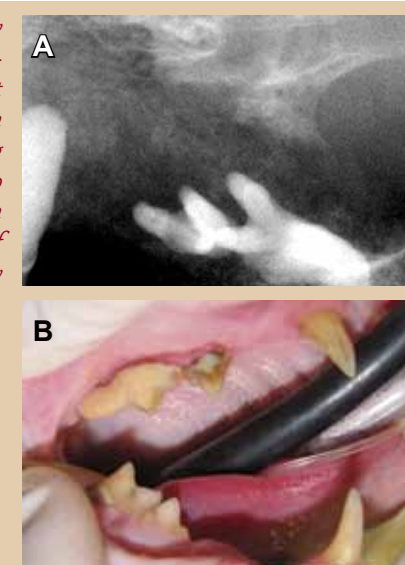


Fig. 4 Proliferative bony lesion of the mandible with a sunburst appearance similar to osteosarcoma. The diagnosis was SCC.