

DENTISTRY:
Just The Tip Of The Iceberg!

When a young dog presents to you for its yearly physical, an oral examination can help identify developmental abnormalities, such as missing teeth, retained tooth roots, or enamel defects. Enamel dysplasia literally means an abnormal development of the enamel layer of the tooth. *It can affect just one tooth, or it can be more generalized and affect almost all of the teeth, making a young dog's pearly whites appear brown, rough, and ugly. These teeth can be unsightly to the owner!*



Fig. 1 Localized enamel dysplasia on the right mandibular canine tooth. Dental radiographs of this tooth showed normal root development.



Fig. 2 Generalized enamel dysplasia in a young Great Pyrenees. Notice the areas of brown staining, along with increased plaque and calculus retention from a roughened dentin surface (A and B).

Enamel dysplasia occurs when there is a disruption in normal tooth development. Localized defects may occur when there is an insult to that tooth, such as facial trauma, overaggressive extraction of retained deciduous teeth, or periapical infection from a deciduous tooth (Fig. 1). Generalized enamel defects occur when there is a systemic anomaly during the time of enamel development, including a fever, illness, or hypoproteinemia (Fig. 2). Enamel dysplasia compromises the outer layer of the tooth, the enamel, which is the hardest substance in the body. The underlying dentin is softer and more porous, increasing the risk of tooth sensitivity, endodontic disease, and a predisposition to periodontal disease (Fig. 3). Diagnostically, full-mouth radiographs are indicated to diagnose abnormalities with root development, which may also occur with serious systemic illnesses during tooth formation (Fig. 4). Depending on the number of teeth affected, treatment may include the application of a composite restoration, application of a bonded resin to seal dentinal tubules, or placing a prosthetic crown. *Generally, these teeth carry a very good prognosis for normal function and comfort with appropriate treatment.*

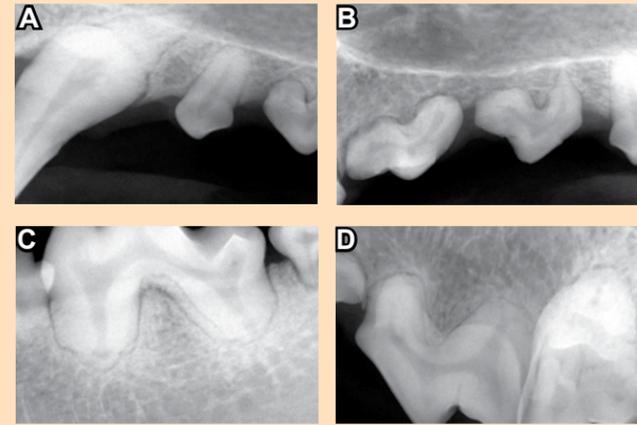


Fig. 3 In this same dog with generalized enamel dysplasia, areas of bone loss were detected on oral examination. Several teeth were also found to have a slightly increased mobility index.

Fig. 4 Unfortunately for this dog with generalized enamel dysplasia, oral radiographs confirmed that all of the roots were underdeveloped and malformed. Additionally, several teeth were beginning to show signs of endodontic disease. Left maxillary canine tooth (A); right maxillary premolar teeth show almost a complete lack of root development (B); left mandibular first molar tooth (C); left maxillary fourth premolar tooth (D).

CALL TODAY FOR REFERRAL INFORMATION
301-990-9460



CENTER FOR VETERINARY DENTISTRY AND ORAL SURGERY
9041 GAITHER ROAD, GAITHERSBURG, MD 20877
PHONE: (301) 990-9460 FAX: (301) 990-9462
www.centerforveterinarydentistry.com

SUMMER NEWSLETTER

Beyond Expectation and Beyond the Mouth!

SPECIALIZATION BEYOND EXPECTATION™

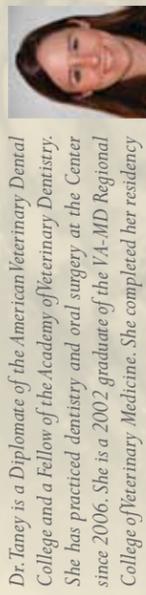
CENTER FOR VETERINARY DENTISTRY AND ORAL SURGERY
DENTISTRY ♦ ORAL & MAXILLOFACIAL SURGERY ♦ HEAD & NECK SURGERY

The Center for Veterinary Dentistry and Oral Surgery offers cutting edge knowledge and state-of-the-art equipment to help you manage your patients with dental and maxillofacial disease.

- Root canal therapy
- Restorations for caries and enamel defects
- Metal crowns to strengthen fractured teeth
- Surgery for neoplasms of the maxilla, mandible & facial area
- Repair of maxillofacial fractures
- Correction of congenital palate defects
- Surgical extraction of diseased multi-rooted teeth and impacted teeth
- Therapy for oral inflammation
- Surgical management of diseases of the head and neck



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. Patrick Odenweller is a 2009 graduate of the Auburn University College of Veterinary Medicine. He was in private practice for 4 years in Kentucky before deciding to pursue a career in veterinary dentistry. He is a member of the American Veterinary Dental Society.



**BEYOND THE MOUTH:
Still A Place For Thyroid Surgery!**

Feline hyperthyroidism is relatively common, especially in older cats. Clinical signs include polydipsia, polyuria, polyphagia, weight loss even with an excellent appetite, vomiting and/or diarrhea, weakness/lethargy, poor hair coat from abnormal grooming habits, preference for cold areas, tachypnea, and hyperactivity or nervousness.

The etiology of feline hyperthyroidism is benign neoplasia commonly referred to as adenomatous hyperplasia. Generally, hyperthyroid cats have palpably enlarged thyroid gland(s) [Fig. 1]. One gland is affected in 30 % of hyperthyroid cats, while both glands are affected in 70% of cats. Serum total thyroxine (TT4) levels are generally increased although levels can be in the high range of normal especially in cats with "euthyroid-sick"-like effects. *There are 3 options for chronic treatment of feline hyperthyroidism: medical management with antithyroid medication; surgery consisting of thyroidectomy; and, radioactive iodine treatment.*



Fig. 2 Intraoperative photograph of the unaffected, contralateral thyroid gland. The external parathyroid gland (arrow) was dissected from the capsule and preserved in order to maintain normal Ca metabolism.

The advantages of thyroidectomy for treatment of hyperthyroidism have been underestimated since the advent of radioactive iodine treatment. Thyroidectomy is an efficient and affordable method for cure of hyperthyroidism. At the Center, bilateral thyroidectomy is always performed even in cases of unilateral disease since the contralateral gland may have microscopic disease or develop disease at a later date. The procedure is performed on an outpatient basis so that the owner can avoid having their pet isolated as required with other therapy. We ask the referring veterinarian to monitor Ca levels on an outpatient basis, however this is only precautionary since we use an extracapsular dissection technique that salvages the external parathyroid gland and ensures complete removal of the thyroid gland (Figs. 2 and 3). *Consider the surgical option for your clients that are holistically-oriented, or want an efficient, affordable treatment option after stabilization with preoperative medical management.*

Fig. 3 Intraoperative photograph of the wound closure without the need for skin sutures, avoiding the need to place an Elizabethan collar.



Fig. 1 Intraoperative photograph in a cat that had a palpable thyroid mass however the TT4 was 1.3 ug/dl (range 0.8 - 4.0). The concern was that the mass might be thyroid carcinoma found in less than 2% of cats. Histopathology indicated the mass was an adenoma.

**DENTISTRY:
The Ultimate Tooth Save!**

No client ever plans for a dental emergency, but when one comes up, we want to do everything we can to help the patient have a pain-free mouth while also trying to save any injured teeth. Oral trauma in our patients can happen from a run-in with a car, a baseball bat, another dog, or any other number of circumstances. Depending on the type of injury, one or multiple teeth may become fractured, luxated, avulsed, or suffer a concussive injury. In all of these cases, depending on the severity and owner's expectations, we can offer a treatment plan that will save the tooth and maintain a functional, comfortable occlusion.

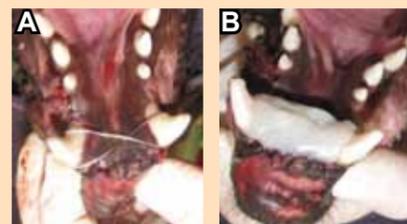


Fig. 2 A figure-eight wire was placed between the mandibular canine teeth to stabilize the luxated tooth. The avulsed incisor was removed, along with the other unstable mandibular incisor teeth, and the gingiva was sutured closed (A). An acrylic bite plate was placed to reinforce the wire splint (B). The splint was rechecked every two weeks until it was removed 4- weeks following the initial placement.

A laterally luxated tooth is the most common type of luxation injury that we see, and it occurs when the tooth (usually a mandibular or maxillary canine) is displaced in a lateral direction. When this happens, the periodontal ligament and blood supply to the tooth become compromised. *In essence, once the tooth is reduced and stabilized with a splint, it lacks a viable blood supply and will require a root canal procedure to prevent pulp necrosis and eventual periapical disease.*



Fig. 4 Preparation of the crown was performed to provide a foundation for a full-metal crown to be placed on the tooth (A). After the crown was fabricated, it was placed on the canine tooth and cemented into place (B).

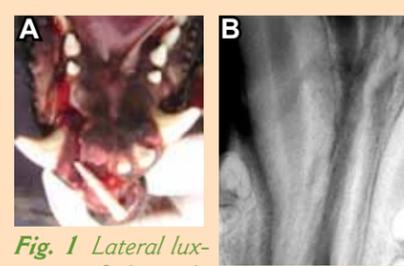


Fig. 1 Lateral luxation of the right mandibular canine tooth along with an avulsed mandibular incisor tooth (A). Several incisor teeth were also avulsed and missing; however, no retained tooth roots were noted on radiographs (B and C).

This case presented to us after the owner found bleeding in her dog's mouth from an unknown trauma. On oral examination at our hospital, the right mandibular canine tooth was laterally luxated, along with several incisor teeth (Fig. 1). The tooth was splinted with an intradental wire and an acrylic bite plate for 4-weeks (Fig. 2). When the splint was removed, a standard root canal therapy procedure was performed (Fig. 3). Several weeks later, the owner decided that she

wanted to have a full-metal crown placed on that tooth for added strength since the dog was an aggressive chewer (Fig. 4). *All things considered, this was the ultimate tooth save for both the dog and the owner!*

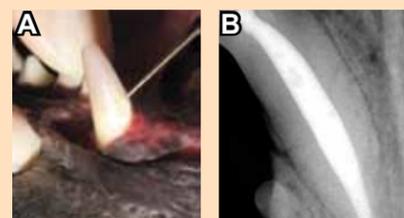


Fig. 3 When the splint was removed, root canal therapy was performed on the affected tooth since it was no longer viable due to disruption of its blood supply. Note the restoration at the root canal access site (A). Dental radiographs confirmed normal healing of the alveolus and an excellent root canal (B).

**SMALL MOUTHS, BIG HOLES:
Difficult Locations, No Problem!**

Our philosophy at the Center is to approach aggressive, malignant neoplasms in....an aggressive manner! *Aggressive meaning at least a 1-cm tumor-free margins around the entire lesion, no matter the location.* Advanced imaging is required for tumors of the caudal oral cavity and head in order to determine if a plan that includes obtaining tumor-free margins is even possible. MRI or CT imaging provides the "map" to achieve this goal.

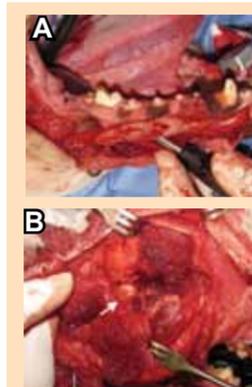


Fig. 2 The rostral mandible was isolated while leaving muscle attachments to the caudal mandible (A). Digastricus and masseter muscles were dissected (B) revealing the TMJ (arrow).

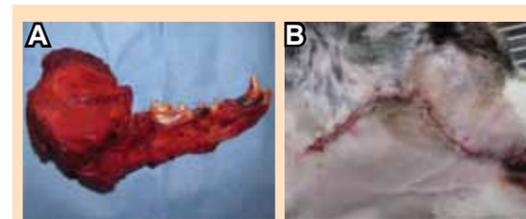


Fig. 3 Note the en bloc nature of the procedure signified by the amount of muscle tissue included with the specimen in attempt to ensure tumor-free margins (A). Mandibulectomy wound closure was contiguous with the previous regional lymph node biopsy site (B). Oral mucosal integrity was maintained (C).

The 3-week post-operative examination shows an excellent cosmetic result. The patient was eating and drinking without difficulty.

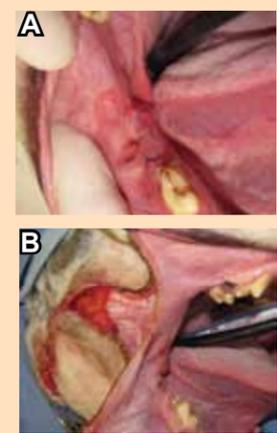


Fig. 1 Biopsy performed by the rdvm diagnosed osteosarcoma of the right caudal mandible (A). The en bloc right mandibulectomy procedure began by commissurotomy over the masseter muscle (B) after removing the regional lymph nodes in an aseptic procedure immediately before definitive resection.

Osteosarcoma is undoubtedly an aggressive tumor regardless of location. In this case, the patient had an invasive osteosarcoma of the caudal mandible (Fig. 1). Advanced imaging and intraoral dental/mandibular imaging indicated lytic bone involvement. In order to acquire tumor-free margins, bony structures would require resection (Fig. 2). The preoperative plan included en bloc resection of the entire right mandible including the surrounding masseter and digastricus muscles, and the tumor including 2-cm margins (Fig. 3). This plan required TMJ disarticulation and extensive muscle dissection. Muscle dissection was facilitated by CO2 laser, that has been shown

to be associated with less pain and decreased hemorrhage (Fig. 4).

Generally, we focus on fulfilling the plan for resection, with the reconstruction a secondary concern that must await the outcome of the surgery. If reconstruction and wound closure are paramount concerns, then it is probably natural to be more conservative during the en bloc resection. Conservative surgery often results with tumor-positive margins and a concomitant poor prognosis. *Incomplete resection is defeating for both the surgeon, client, and especially the patient who might have to undergo additional adjunctive therapy.* This case typifies the advanced surgical procedures that can result in tumor-negative margins and a successful outcome. *After all, when you refer your clients and their pets for surgery, wouldn't you prefer the surgeon get it all?*