

SMALL MOUTHS, BIG HOLES:
Know Oral Tumors Better Than Your Internet Savvy Clients!

Oral masses account for approximately 6 % of all tumors in the dog. When treated early the prognosis can be excellent, and even aggressive surgical procedures can have good outcomes. *So what are the most common oral tumors in the dog?*



Fig. 2 Squamous cell carcinoma

1 malignant melanoma. This tumor occurs on the gingiva, often invades bone, and can metastasize to the regional lymph nodes, lungs, and beyond. The tumor may or may not be pigmented (Fig. 1). *Wide surgical excision is the cornerstone of successful treatment*, followed by adjunctive therapy such as the melanoma vaccine. Median survival time is 150- 318 days with surgery alone, and this can increase significantly with adjunctive treatment. **# 2 Squamous Cell Carcinoma (SCC).** It can also appear as a gingival mass that invades bone and can metastasize to the lymph nodes and lungs (Fig. 2). Compared with cats, SCC has a much better prognosis. Wide surgical excision is again the cornerstone of treatment, followed by adjunctive therapy such as chemotherapy and/or radiation therapy. Unlike in cats, SCC in dogs is radiation responsive. Median survival time is 10-26 months with surgery alone for completely excised mandibular SCC. **#3 Fibrosarcoma.** While fibrosarcoma does not tend to metastasize to distant sites, it tends to recur locally even with surgical excision (Fig. 3). Wide surgical excision and adjunctive therapy as recommended by an oncologist will achieve the greatest survival time. Median survival time with surgery alone is 10-12 months. **#4 Osteosarcoma.** Axillary osteosarcoma actually has a better prognosis than appendicular osteosarcoma because it is slower to metastasize (Fig. 4). Wide surgical excision is performed to achieve appropriate margins. Median survival time is 5-10 months with surgery and adjunctive treatment.

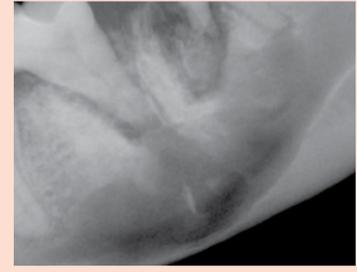


Fig. 4 Osteosarcoma-caudal left mandible

Acanthomatous ameloblastoma, or acanthomatous epulis. While not a malignant tumor, it behaves very aggressively with local tissue destruction (Fig. 5). Metastasis does not occur, but local recurrence is common with incomplete resection. Surgical margins should be wide, similar to what is required for malignant tumors, and surgery alone should be curative. *Based on our philosophy for aggressive first-time surgery and regional lymph node excision, we have a high success rate for tumor-free margins with survival intervals that tend to be greater than the aforementioned median values.* Modern surgical and oncology treatment methods make it much more rewarding to tackle these lesions than in the past.



Fig. 5 Acanthomatous ameloblastoma (epulid)



Fig. 1 Malignant melanoma



Fig. 3 Fibrosarcoma

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CENTER FOR VETERINARY DENTISTRY AND ORAL SURGERY
9041 GAITHER ROAD, GAITHERSBURG, MD 20877
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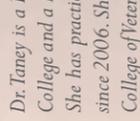
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The Center for Veterinary Dentistry and Oral Surgery offers cutting edge knowledge and state-of-the-art equipment to help you manage your patients with dental and maxillofacial disease.

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- 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



Drs. 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. Chris Smithson is a 2002 graduate of the Auburn University College of Veterinary Medicine. He has been in private practice emphasizing dentistry and oral surgery in the Tampa, Florida area since 2002. He is a member of the American Veterinary Dental Society.



**BEYOND THE MOUTH:
Pinnectomy-Is It Worth A Cure?**

Cutaneous tumors are best treated by complete excision and histopathologic examination *early in the disease process when they are small*. Whether benign or malignant, hopefully this treatment philosophy will result in positive clinical results. *Cutaneous mast cell tumor (MCT) in cats most commonly affects the head*. MCT presents as a small alopecic mass. However, MCT should be high on the differential diagnoses list for any skin mass in the cat, especially on the head since MCT has been

labeled *"the great impostor"* (Fig. 1). Solitary MCT is more common than multifocal disease, with 15% of cats showing signs associated with splenic and visceral MCT. Treatment options include surgical resection and radiation therapy. This latter treatment option is usually reserved for periocular and periaural MCT. Our preference is to perform surgery for all MCTs of the head, using plastic and reconstructive surgical techniques for acceptable cosmesis and function in addition to achieving tumor-free margins. This treatment plan avoids ocular and dental complications of radiation therapy for tumors of the head. *Removing the tumor may be the easy component of the surgical procedure; reconstructive surgery for wound closure and optimal function is the challenge!* Client education is important when discussing the different surgical requirements for complete removal of periaural MCT (Fig. 2). Pinnectomy results in a primarily cosmetic deficit with minimal negative effect on hearing. Vertical ear canal ablation +/- pinnectomy enables resection of a component of the ear canal while maintaining acoustic function (Fig. 3 and 4). Total ear canal ablation +/- pinnectomy has a significant impact on acoustic function of the operated ear, however bony conduction of sound does occur. *Explaining the functional outcome of the different procedures facilitates the owners understanding of a treatment plan that optimizes complete excision...the "I want it gone!" philosophy.*

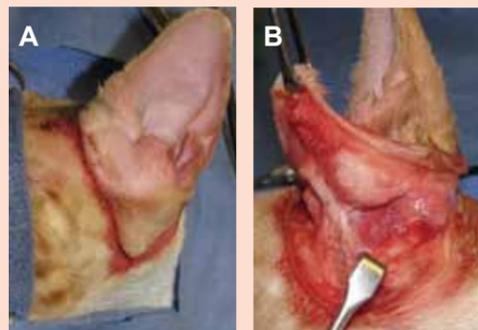


Fig. 2 The extensive nature of the tumor required an incision that included pinnectomy (A) and vertical ear canal ablation. The facial nerve is retracted during the procedure (B).

Fig. 3 shows the ear canal being isolated at the junction of the horizontal and vertical canals, with flaps developed for completion of the vertical ear canal ablation. Fig. 4 shows lateral and dorsal views of the completed pinnectomy and vertical ear canal ablation, with a rotation flap based on the occipital artery and vein used for wound closure at the pinnectomy site.



Fig. 4 Lateral (A) and dorsal (B) views of the completed pinnectomy and vertical ear canal ablation. A rotation flap based on the occipital artery and vein was used for wound closure at the pinnectomy site.



Fig. 1 Periaural cutaneous mast cell tumor (arrows) in a cat.

**FELINE DENTISTRY:
Can My Cat's "Fang" Tooth Be Saved?**

Even though cats have smaller mouths and teeth, we can still perform the same tooth saving procedures we do in the dog. The most common tooth that needs treatment for fracture is the canine tooth. *Cat fights, car accidents, and falls can lead to fracture of the canine tooth*. In a young cat, the tooth can be saved when vital pulp therapy is done within 48-hours of the injury, and in a mature cat a root canal can be performed anytime. The most important thing to do when a client says their cat has a fractured tooth is to determine the cause of the fracture. *Resorptive lesions are very common in the cat and fractures can occur as a result of the progressive weakening of the tooth*. Many owners will call and say that their indoor cat has somehow fractured a tooth, but they do not know how this could have happened. We are immediately suspicious that the fracture could be due to resorption. This is confirmed with a dental radiograph (Fig. 1). If the tooth is indeed resorbing, then extraction is the only treatment. If a true fracture has occurred and the root and apex appear normal (Fig. 2), then standard endodontic therapy can be performed (Fig. 3). Instrumentation is performed through the fracture site and one restoration is typically placed. *The crown may have to be reduced in height slightly, but the remaining crown will still be functional and more invasive procedures such as extraction are avoided*. The "fang" teeth are very dominant in cats and owners truly notice their absence.... *give owners the option to save that Cheshire cat smile!*



Fig. 2 Fractured left maxillary canine tooth in a cat (A). The root is normal and is not resorbing (B).

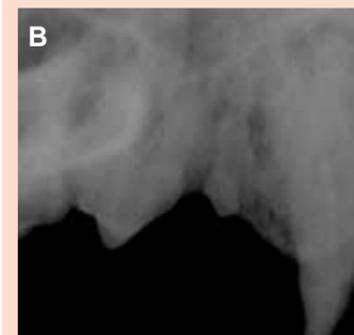
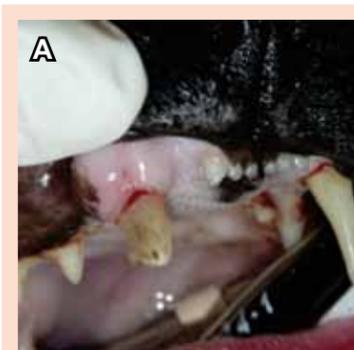


Fig. 1 Fractured right maxillary canine tooth in a cat (A). Unfortunately, tooth resorption prevents root canal therapy (B).

Fig. 3 shows the process of saving a fractured right maxillary canine tooth in a cat with normal root integrity. (A) shows the tooth with a gutta percha master cone filling the pulp chamber. (B) shows the radiograph of the completed root canal. (C) shows the radiograph of the completed root canal. (D) shows the final restoration matching the color of the tooth.

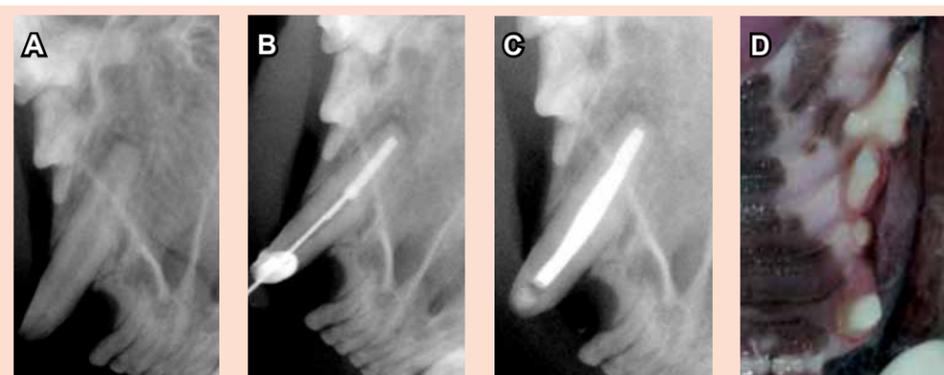


Fig. 3 Fractured right maxillary canine tooth in a cat with normal root integrity (A). Gutta percha master cone filling the previously instrumented and disinfected pulp chamber (B). Radiograph of completed root canal (C). The restoration matches the color of the tooth (D).

**URGENT CARE:
Fractured Teeth In Young Animals.**

Help! Your client just called and said their pet has experienced a child with bat vs. dog episode! She sees that one of her 9-month old Labrador retriever's canine teeth is fractured and bleeding. What should she do? The answer is call us ASAP! *Fractured teeth in young animals are a time sensitive emergency*. If treated within 48-hours, the vitality of the tooth can be preserved. So why can't she just wait and have a root canal performed in a few weeks? The answer is that at this age the teeth have not matured. A dental radiograph will reveal that the dentin of the tooth is very thin, almost like an eggshell, and that the apex has not closed (Fig. 1). In order to perform a successful root canal, the apex must be closed. Even if a root canal procedure was able to be performed, the tooth would still be very weak because not much dentin is present in the wall of the tooth. The best possible treatment is vital pulp therapy. The goal of this treatment is to remove the inflamed pulp near the fracture, apply a medicament to promote pulp healing, and seal-off the fracture with a restoration (Fig. 2). The tooth should be monitored with dental radiographs in 6-12 months, and if the treatment has been successful, there will be closure of the apex and a progressively narrower pulp chamber. Do vital pulp therapies ever fail? The answer is unfortunately yes, usually due to overwhelming bacterial invasion of the pulp...*hence the time sensitive emphasis to provide treatment quickly to greatly increase the success rate*. The tooth can still be saved if chronic failure occurs from slow bacterial growth overtime since the tooth will have matured to the point that a root canal can be performed. *Any patient under 18-months of age with an acute crown fracture should be treated as soon as possible*.

Fig. 2 Radiograph of completed vital pulp therapy (A). A medicament has been placed after removal of inflamed pulp and a restoration has been performed. Completed vital pulp therapy and placement of a restoration (B).

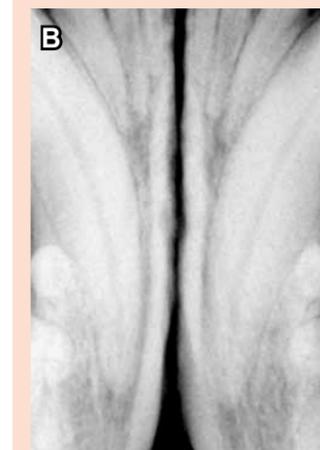
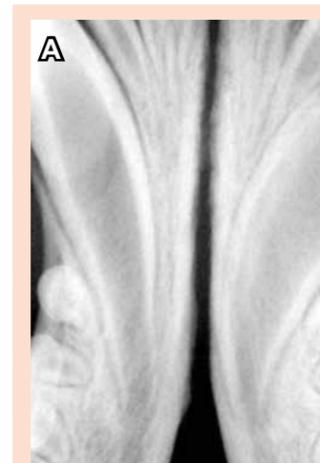
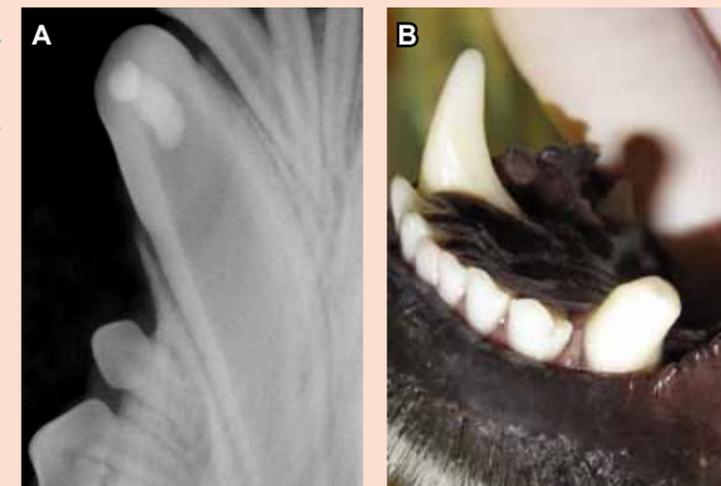


Fig. 1 Immature tooth in a dog (A). The apex is not closed and the dentin walls are very thin. Vital pulp therapy performed within 48 hours could save the vitality of this tooth and allow apical closure. Canine tooth of a mature dog (B). The apex is closed and the dentin walls are thicker. A standard root canal could be performed on this tooth.