

ORAL SURGERY:
Abscess Or Tumor?

A patient presents with facial swelling. *Certain etiologies may come to mind: possible bug bite or allergic reaction, trauma, abscessed tooth, or tumor.* The next step in determining a cause would be physical examination. Is there a fractured tooth? Is there a visible mass? Is there a history of contact with insects, toxins, or recent vaccines? In our practice, facial swelling is more often associated with an abscessed tooth or tumor, but sometimes it is not an obvious call. Teeth do not necessarily need to be fractured in order to be abscessed. Even with dental radiographs, we may not be certain of the exact cause of the swelling.

In these cases, we perform multiple diagnostics to ensure that we can adequately diagnose and/or treat the swelling. To determine a cause we will continue our oral examination under general anesthesia and take dental radiographs. In many cases this may be all we need to make a final diagnosis if there are obvious dental abnormality changes consistent with a tooth root abscess on the dental radiographs. It may be difficult to differentiate neoplasia and osteomyelitis. However, the presence of a draining tract will lead to a tentative diagnosis of osteomyelitis (Figs. 1 and 2). Then the question arises: what is the etiology of the infection?

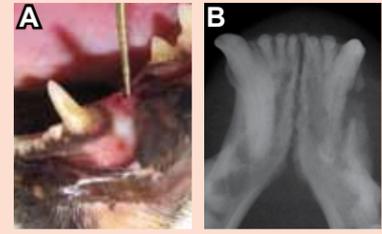


Fig. 2 Image showing a draining tract and pronounced swelling surrounding the left mandibular canine tooth in a 12-year-old cat (A). The mandibular radiograph shows bony lysis and root resorption (B). Treatment and diagnostics included extraction of 304 in addition to biopsy and culture of the bone. The diagnosis was infection and a periodontal abscess.

If we are at all uncertain, we will submit samples of tissue for histopathology and bacterial culture to rule-out neoplasia or osteomyelitis/infection (Fig. 3). We never want to miss an etiology we could have identified by performing a simple test. If the swelling resolves and the diagnostic tests come back negative, we can be confident that we have adequately treated and resolved the problem. *Bottom line: never assume the lesion is cancer; it just may be infection.*



Fig. 1 Image showing a gingival mass and mandibular swelling in a 11-year-old cat (A). There was a draining tract on the chin directly below the mandibular swelling and diseased teeth (B). The mandibular radiograph shows a pronounced periosteal reaction (C). Extraction of the teeth in this quadrant was performed in addition to histopathology and culture of the bone. The result was inflammation due to a ruptured tooth root abscess.

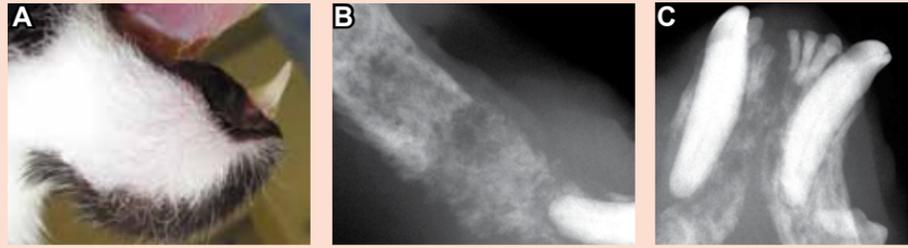


Fig. 3 Image showing mandibular enlargement in a 16-year-old cat (A). Mandibular radiographs show extensive bone lysis and periosteal reaction (B and C) that is extreme for infection. Bacterial culture was negative; the biopsy was diagnostic for squamous cell carcinoma.

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SPRING NEWSLETTER

The Center Welcomes Dr. Patrick Odenweller!

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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. 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:

Difficult Locations, No Problem!

Our philosophy at the Center is to approach aggressive, malignant neoplasms in....an aggressive manner! *Aggressive meaning at least 1 cm tumor-free margins around the entire lesion, no matter the location.*

Mast cell tumor is undoubtedly an insidious and aggressive tumor regardless of location. In this case, the patient had an invasive mast cell tumor of the nasal planum area (Fig. 1). Based on the tumor type, margins > 1-cm would be ideal in all directions. In order to acquire tumor-free margins, bony structures would require resection (Fig. 2). *The preoperative plan included en bloc resection of the entire tumor including multiple tissue layers: skin, subcutaneous tissues/muscle, periosteum, and bone.* Soft tissue dissection was facilitated by CO2 laser that has been shown to be associated with less pain and decreased hemorrhage. Reconstruction of the large, multi-layered defect required a labial advancement flap to provide both cutaneous and oral reconstruction. Tumor margins were negative and the patient had a good cosmetic result.

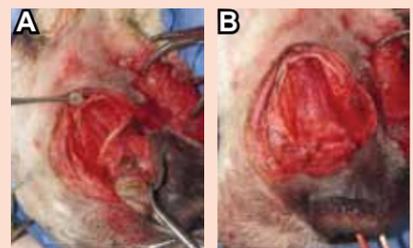


Fig. 2 Laser soft tissue dissection and osteotomy of the nasal and incisive bones exposed the nasal turbinates (A). The completed dissection shows the size of the resulting defect that requires reconstructive surgery (B).

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?*

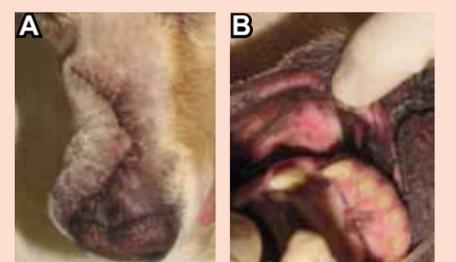


Fig. 4 Dorsal (A) and oral (B) views show the reconstructed surgery site.



Fig. 1 Biopsy performed by the rdvm diagnosed mast cell tumor of the dorsal nasal planum area. The perimeter of the en bloc surgical resection was marked.

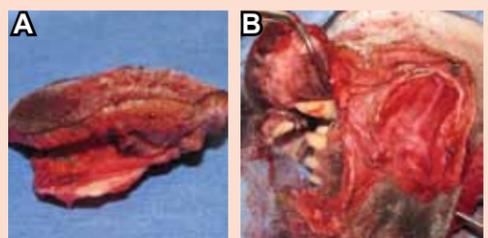


Fig. 3 The sagittal view of the resected specimen shows the multiple tissue planes included in attempt to ensure tumor free margins (A). An ipsilateral lip advancement flap was developed to close the defect (B).

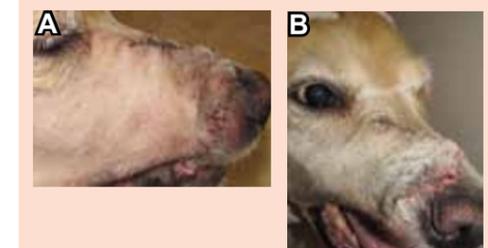


Fig. 5 The immediate (A) and 2-week (B) postoperative lateral views show the maintained viability of the flap.

SMALL MOUTHS, BIG HOLES:
Uncommon Mass In A Young Cat

It is uncommon to find oral tumors in young animals, but these growths can occur in animals of any age. *Unfortunately, many oral tumors are not found until they are large in relation to the small area of the mouth.* This oral tumor presented in a cat only 18-months-old (Fig. 1). Because of this patient's young age, malignant neoplasia didn't seem likely, but still had to be considered. Odontogenic cyst was also a primary consideration. The most common malignant oral tumors of the feline in order of frequency are squamous cell carcinoma, fibrosarcoma, and malignant melanoma. Benign growths include various epulids, cysts, and mixed tumors. Dental radiographs showed a possibly fluid-filled, cystic structure that was well encapsulated and invading the maxilla (Fig. 2). *It was decided to take a more conservative approach since the patient was young and the radiographs suggested a benign lesion.* The mass was causing the adjacent teeth to become mobile, so the affected teeth were also extracted.



Fig. 2 Lateral (A) and dorso-ventral (B) radiographs show bone lysis from compression by the mass (arrows). The mass appeared to be cystic in nature.

After removing the mass, there was a large defect that could not be closed without tension (Fig. 3). To facilitate closure, a hard palate flap was created. The flap is elevated from the hard palate and rotated towards the wound site. *This allows complete closure of the surgery site without tension, which is the key for uncomplicated healing* (Fig. 4). The open area on the hard palate will then heal by second intention. The tissues were sent for histopathology, and were reported as ameloblastic fibroma. This is a rare, benign tumor in cats. Because negative margins were not achieved with surgery, the site will need to be monitored closely for recurrence.

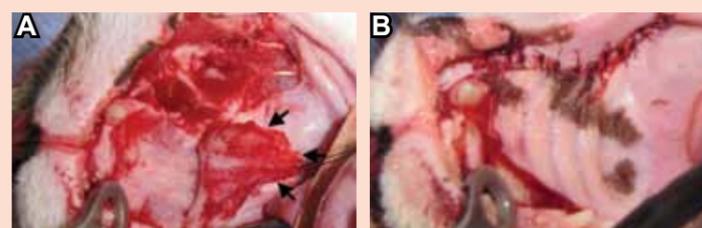


Fig. 4 A hard palate flap (A) was elevated (arrows) and rotated towards the surgery site to allow tension free closure (B).



Fig. 1 Lateral (A) and oral (B) views of an ameloblastic fibroma in an 18-month-old cat measuring 3 x 3-cm.

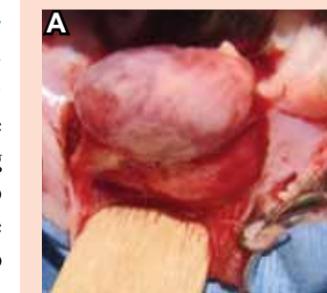


Fig. 3 A mucosal flap is created (A) to allow easier closure and removal of the mass. All abnormal tissue was removed and the bone was curetted of all visibly diseased tissue (B).

DENTISTRY:

Tooth Resorption...Dogs Too!

At the Center, we routinely take full-mouth dental radiographs of our patients. *This allows us to thoroughly examine the patient's dentition and identify hidden problems such as tooth resorption.* Most of us are familiar with tooth resorption in the cat, however it does frequently occur in the dog. Perhaps tooth resorption in the dog is becoming more "common" because our diagnostics are improving. Treatment of tooth resorption in the dog and cat can differ.

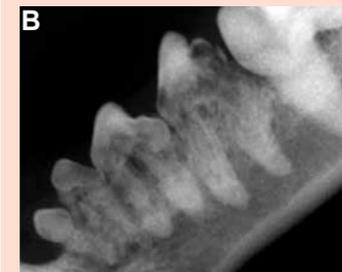


Fig. 2 Photograph (A) and radiograph (B) showing tooth resorption affecting multiple premolar teeth in a dog. Teeth with gross or radiographic resorptive lesions above the gumline should be extracted.

In dogs, some cases of extensive tooth resorption may be an incidental finding on radiographs. Teeth with palpable, grossly visible, or radiographic lesions above the gumline are extracted (Fig. 2). Root resorptive lesions may be monitored in the dog if the tooth is non-mobile as they do not seem to progress in the same manner as resorptive lesions in cats (Fig. 3). For cats, Type I tooth resorption has an inflammatory component with the presence of distinct tooth roots. Type II tooth resorption shows roots that are resorbing and being replaced by bone (Fig. 4). *The appropriate treatment plan can only be performed based on having dental radiographs.* For both dogs and cats, we recommend routine follow-up dental radiographs at yearly intervals in conjunction with a dental cleaning to identify new lesions or monitor progression of any known lesions.



Fig. 3 Radiograph showing the incidental finding of tooth root resorption in a dog. With no gross or radiographic lesion above the gingival margin, this tooth can be monitored since it may be a static or age-related change.



Fig. 4 Radiograph showing type 2 tooth resorption in a cat with obvious root replacement by bone. These teeth appeared normal clinically.



Fig. 1 Radiograph showing classic tooth resorption in a cat affecting the left mandibular third premolar and first molar teeth. The roots are visible and both teeth should be completely extracted.