SMALL MOUTHS, BIG HOLES: Mandibular Tumors In Cats

Cats have similar oral cancer diseases that occur in dogs. Unfortunately, often the diagnosis 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.

The first step is to make the diagnosis by incisional 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 cats 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 maximize margins of normal appearing tissue around the tumor. Maintaining function and providing acceptable cosmesis are also major factors when determining the surgical plan.

Removing a complete section of one of the mandibles results in an unstable lower jaw since the integrity between the temporomandibular joints (TMJ) is interrupted. Fortunately, dogs and cats are resilient and do exceptionally well clinically with an unstable lower jaw. Stabilizing the lower jaw with metal implants is not necessary despite being a common question asked by owners. Clinical success also requires crown reduction and vital pulp therapy of the remaining mandibular canine tooth (teeth). This procedure ensures a comfortable bite by preventing the sharp, pointed mandibular canine teeth from interfering with, and traumatizing the hard palate. Finally, mandibular lesions in cats may enroach upon the tongue leaving the labial (buccal) mucosa to provide lateral tissue that can be elevated and repositioned towards the mouth to aid wound closure following resection.

As might be expected, postoperative care and patient management is critical, often involving placement of an esophagostomy tube. We manage cases at the Center until patients are eating and drinking again.... taking the stress of postoperative management away from the referring veterinarian.

Fig. 1. Oral photograph (A) showing an osteosarcoma (arrow) of the right caudal mandible in a cat. The radiograph shows the osteolytic lesion (B).

Fig. 2. Intraoperative measurement (A) following commissurotomy shows the tumor requires a 2.5 cm resection (B).

Fig. 3. An intraoperative view shows approximation of the mucosal flaps and closure of the commissurotomy.

Fig. 4. Postoperative radiographs show the cranial (A) and caudal (B) ostectomy margins. Note the restorations for crown reduction and vital pulp therapy of the mandibular canine teeth.
BEYOND THE MOUTH: Orbital Neoplasms.

Orbital neoplasms often impact the eye but do not necessarily involve the globe. The clinician may think ophthalmology problem; but it is really a surgical problem. The lacrimal glands and the zygomatic salivary gland can give rise to both benign and malignant neoplasms. The zygomatic arch may be the source for other neoplasms including osteoma, multilocular osteochondroma, and osteosarcoma. Certainly, enucleation may be required however the owner often wishes to salvage the eye if possible. The good news is that many of these lesions can be resected while saving the eye.

Clinical signs include a mass effect around the orbit with displacement of the globe causing exophthalmus or enophthalmus depending on the location of the neoplasm. A thorough work-up includes 3-view thoracic radiographs, incisional biopsy, and advanced imaging with either computed tomography or MRI. These latter diagnostic tests provide the surgeon with a “map” that is vital for operative planning and aids in the determination whether the eye can be saved.

For malignant lesions with radiotherapy as a component of multi-modality treatment, it may be judicious to perform enucleation given the ocular complications of radiotherapy. Our surgical team strives to completely excise the tumor while saving the eye especially in cases of benign neoplasms.

A lateral surgical approach may involve resection of the lateral orbital ligament or be more complicated to include resection of the zygomatic arch for larger lesions that may originate from the zygomatic salivary gland or occupy the caudal orbit. Dorsal lesions such as adenoma/adenosarcoma emanating from lacrimal gland may require partial myectomy of the large temporals muscle. There are multiple surgical approaches to the orbit. The key is to avoid vital structures in order to maintain function and cosmesis while completely removing the tumor burden.

DEVELOPMENTAL PROBLEMS: Funny Looking Teeth... Not So Funny!

Have you ever seen a tooth that just didn’t look quite right? Sometimes you may see a tooth that appears to have multiple cusps or hasn’t quite erupted normally. Other times you may suddenly have an absence develop in a non-fractioned tooth. There are a few developmental abnormalities of the teeth that can cause significant problems in the dog and cat. One type of developmental abnormality is called an odontoma. These benign tumors appear as very abnormal teeth and can be quite large. They are often composed of disorganized masses of tooth like structures called denticles. They are treated by surgical resection because they can undergo malignant transformation or cyst formation. The good news is that surgical removal is curative.

Another scenario you may be familiar with is a tooth root abscess. A patient may present with the typical signs of an abscess such as facial swelling. But when you do an oral examination, you do not see any fracture of the tooth. Maybe, if you look more closely, you notice that the tooth does not look quite normal. So what happened? Sometimes during the development of the teeth, the pet may have sustained an injury or an illness that affected the enamel or dentin formation of a particular tooth. The enamel or dentin may be arranged irregularly or folded in on itself. This is called dens invaginatus or dens-in-dente (a tooth within a tooth). As a result, the tooth may erupt normally, but can then die because it does not have a normal blood supply.

A discolored tooth is also likely non-vital. Since non-vital teeth can be a nidus for infection, it is not uncommon for these teeth to become abscessed. The actual cause of this phenomenon may never be known, but surgical extraction is the treatment of choice for these abnormal teeth.

A clinical scenario may be seen in collies, dogs with a history of trauma to the maxilla or with a history of oral surgery. The condition is commonly termed dens invaginatus or dens-in-dente. This condition can be associated with a discolored tooth and dental abscesses.