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CUTTING EDGE

As our patients live longer, the prevalence of cancer increases. Cancer is the major cause of death in 45% of dogs living over 10 years. Also, with the increased acknowledgement of the human-animal bond, owner interest in therapy and expectations of outcomes have changed with more owners seeking intervention.

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Cancer should be suspected in any patient, but especially aging patients. Presenting complaints from owners include a recently growing mass, a worsening lameness or changes in general body condition. A thorough physical examination is necessary in these patients. Anatomic location, size of the mass, adherence to underlying tissues, regional lymphadenopathy, associated swelling/redness, pain on palpation are important to note. Screening with a CBC, Chemistry and Urinalysis is important in these patients. A minimum of 2 orthogonal chest radiographs should be done in all patients suspected of cancer. Radiographs of the affected region should be considered if lameness is reported.

Obtaining a sample of a the mass at the time of initial presentation is indicated in some situations. For instance, a fine needle aspirate (FNA) of a dermal mass is a quick, inexpensive and minimally invasive method that can often result in a diagnosis. FNAs are rarely dangerous, but can have question able accuracy in large and/or firm masses where the cells may not exfoliate well or the sampled area may not be representative. FNAs are inconsistently accurate for tumors that have nflammation or infection involved.

Various biopsy methods exist, including Tru-cut, skin punch and excisional biopsies. All biopsies must be planned with a future excision in mind because the biopsy track will need to be removed with appropriate margins. Each oncology patient is treated as an individual, taking into account the owner's expectations and limits, both financially and emotionally. We work closely with our internal medicine and oncology colleagues to provide comprehensive care. The following is a brief discussion of some common surgical oncology cases.

DVSC

Oral tumors
Biopsy prior to definitive surgery is very important in oral tumors because the prognosis varies between these possible tumors that all look similar. In oral tumors especially, the biopsy must be planned carefully. A CT or radiograph of the head is typically done to define the margins and extent of bone involvement and identify the best site for biopsy.

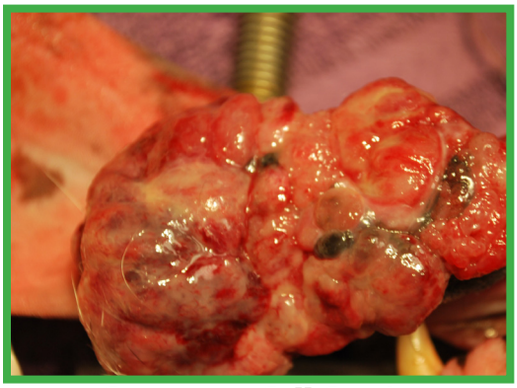
The recommended therapy for most oral tumors is partial mandibulectomy or maxillectomy. This can be an overwhelming proposal for some owners, but patients generally do very well and owners report the cosmetic and functional outcome is better than they had anticipated. Long term prognosis and need for adjunctive therapy depends highly on histologic diagnosis in oral tumors. Other common canine oral tumors include osteosarcoma, and epulides.

Malignant melanoma tends to occur in smaller breeds. Amelanotic melanoma accounts for approximately 30% of melanomas and these look strikingly similar to other oral tumors. Melanoma is an aggressive tumor that spreads frequently to local lymph nodes and lungs. Though an overall poorer prognosis than other tumors, many patients can have a high quality survival time. A combination of surgery, radiation and chemotherapy/immunotherapy is recommended in these cases.


Oral Melanoma

Squamous cell carcinoma in dogs and cats generally invades the bone, with more severe and extensive invasion in the cat versus dog. SCC uncommonly metastasizes, but is very locally aggressive and hard to control surgically . Unfortunately, feline SCC is often diagnosed late and has already become extensive. Often, these patients are referred for radiation therapy in addition to surgery. Canine oral SCC can be controlled with surgery, depending on location.

Canine FSA is more common in the hard palate and maxilla and can look histologically quiet, but act very aggressively (called 'high-low FSA'). Aggressive surgical resection is recommended and metastatic rate to the lungs is considered low. Feline FSA is less aggressive with a low metastatic rate and is typically gingival and carries a better prognosis than SCC.


Squamous Cell Carcinoma


Mandibular Tumor

Epulides
Epulides are a special category of benign tumors arising from the periodontal ligament, causing gingival proliferation that can look similar to gingival hyperplasia. Epulides require aggressive surgery (partial mandibulectomy/maxillectomy) to prevent recurrence. Often, with appropriate surgical care from the beginning, these tumors can be controlled. Acanthomatous epulides specifically have aggressive local behavior, but can often be controlled with appropriate surgery. Acanthomatous epulides most commonly occur in the rostral mandible.

Epulides

Mast Cell Tumors
MCTs are the most common cutaneous tumor in dogs, accounting Epulis for 16-21% of cutaneous tumors. MCTs are the second most common cutaneous tumor in cats, after basal cell tumor. MCTs are most often diagnosed on the basis of an FNA that reveals typical cells with dark purple granules.

Mast Cell Tumor

Histologic grade (I-III) and clinical stage(local and distant metastasis, systemic signs of disease) are prognosticindicators. Wide surgical excision with a minimum of 2-3cm can provide control in ~80-90% of grade I tumors and ~75% grade II tumors. Patients with poorly differentiated grade III tumors typically die of the disease within one year. Fortunately, grade III tumors are uncommon and 80-90% of dogs have grade I or II tumors. In some cases, adjunctive radiation therapy is recommended, while chemotherapy is recommended in dogs with grade III tumors.

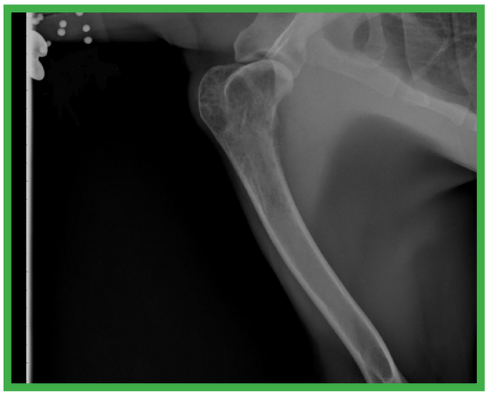
Anal Sac Tumors
Apocrine gland adenocarcinoma of the anal sacs occurs with relatively low frequency. However, it is an important tumor because it can be diagnosed very easily at an early stage with a simple rectal examination. Male and female dogs are at equal risk. Approximately 25-30% of dogs have hypercalcemia of malignancy due to the tumor secreting parathyroid hormone-related peptide. These patients can present with signs related to hypercalcemia (PUPD, vomiting, anorexia) or the enlarged sublumbar lymph nodes (constipation, changein stool shape) instead of signs related to the primary mass. The masses can be aspirated, but a strong suspicion based physical exam alone,warrants surgery even without a prior cytologic diagnosis. Survival times are better in patients that received surgery than those that did not, and removal of the enlarged lymph nodes has been shown to improve survival time in somestudies. Even with large tumors, most dogs do well postoperatively without fecal incontinence. Median survival time estimates range from 6-30 months depending on the case and adjunctive therapy pursued. Early diagnosis is very important.

Anal Sac Tumor

Primary Bone Tumors

These patients typically present for lameness. The signs can initially be difficult to differentiate from arthritis in older dogs, but signs are progressive and incompletely responsive to medications. The metaphyseal region of bone is affected and osteosarcoma accounts for 85% of primary bone tumors. The most common sites in the forelimb are distal radius and proximal humerus; while in the hindlimb distal femur, distal tibia and proximal tibia are similar in occurrence. The mandible and maxilla are the most common sites in the axial skeleton. Radiographs are generally diagnostic showing a lytic/proliferative lesion. Biopsy is often done prior to surgery. Highly suspicious radiographs in a typical patient and a typical location, provide a strong enough suspicion for many owners to elect surgery without biopsy.

Surgical therapy in the form of amputation is the standard of care and eliminates the source of pain. Owners are generally very happy with their pet's quality of life after amputation. Only significant orthopedic or neurologic disease prevents a dog from being an amputation candidate. Osteosarcoma is aggressive and will metastasize. Amputation and chemotherapy is recommended to delay metastatic disease. Some patients that are not amputation candidates may benefit from palliative radiation therapy and chemotherapy. Median survival times with amputation alone is reported between 4-6 months and amputation combined with chemotherapy between 10-12 months. Patients are generally euthanized soon after diagnosis due to pain if therapy is not pursued.



Humeral Osteosarcoma

Tibial Osteosarcoma