Oral pathology of dogs and cats (neoplasia)

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For an accurate histopathologic diagnosis of some oral cavity lesions, imaging and clinical data are often necessary.

Squamous cell carcinoma (SCC) in cats
- Most common oral malignancy in cats
- Common locations: gingiva, sublingual region and tongue
- Often mistaken for gingivitis clinically in the early stages of the lesion
- Locally invasive neoplasm, with bone and soft tissue involvement
- May metastasize to regional lymph nodes and lungs (higher rates of metastasis reported recently)
- Histologically straightforward diagnosis, except in some cases of poorly differentiated SCC. In these cases, the rarer salivary gland adenocarcinoma may be considered as a differential diagnosis.

Squamous cell carcinoma in dogs
- Second most common oral neoplasm in dogs
- Tonsillar SCC have higher metastatic potential than non-tonsillar SCC
- Non-tonsillar SCC – gingiva, lips, tongue, other oral mucosa – locally invasive

Papillary/well-differentiated squamous cell carcinoma
- Histologic variant of squamous cell carcinoma in dogs
- Initially thought to occur predominantly in young dogs, but cases have now been reported in adult and older dogs as well
- On superficial biopsies, may be confused with acanthomatous ameloblastoma
- Locally invasive (soft tissue and bone), metastasis has not been reported

Acanthomatous ameloblastoma
- Most common odontogenic neoplasm in dogs
- Locally invasive (soft tissue and bone); metastasis has not been reported
- Requires wide surgical excision
- Superficial biopsies may be difficult to interpret for pathologists: may need to differentiate from epithelial hyperplasia secondary to gingivitis or papillary/well-differentiated squamous cell carcinoma

Peripheral odontogenic fibroma (previously known as fibromatous epulis of periodontal ligament origin)
- Very common in dogs, also occurs in cats less commonly
- Benign odontogenic neoplasm: proliferation of periodontal fibroblasts, odontogenic epithelium +/- dentinoid/cementum/bone
- In cats, more frequently recurrent and multicentric
- Rarely, malignant version of peripheral odontogenic fibroma has been recognized – periodontal or odontogenic sarcoma
**Malignant melanoma**
- Very common oral malignancy in dogs
- May be pigmented or not pigmented (amelanotic)
- Common sites of metastasis: regional lymph nodes and lung
- Immunohistochemistry panel for diagnosis of canine malignant melanoma (TRP-1, TRP-2, PNL2 and Melan A) – caveat, a negative result does not rule out malignant melanoma
- Small subset of oral/lip melanocytic neoplasms exhibit less aggressive behavior: mitotic index, nuclear atypia, and Ki67 among prognostic factors.

**Fibrosarcoma**
- Third most common oral malignancy in dogs, second most common oral malignancy in cats
- Locally invasive
- Low-grade histologic variant in dogs (low-grade histologically, high grade biologically) may present challenge in histopathologic diagnosis with small, superficial samples

**Fibroosseous lesions**
- Benign lesions that include ossifying fibroma and fibrous dysplasia
- Low-grade osteosarcomas may mimic benign fibroosseous lesions histologically
- Imaging and clinical data are necessary for definitive diagnosis

**Feline inflammatory/reactive conditions that may resemble neoplasms clinically:**
- **Pyogenic granuloma**
  - Exuberant granulation tissue with inflammation
  - Thought to be secondary to chronic irritation or trauma

- **Alveolar bone expansion and osteomyelitis secondary to periodontal disease**
  - Bone proliferation and osteolysis secondary to periodontal disease in cats
  - Canine teeth or caudal premolar/molar region often affected