

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Oral mucosa: Within the lamellar bone of the jaw **(1 pt)** and overlying oral submucosa is an unencapsulated, infiltrative, well-demarcated moderately cellular **(1 pt)** neoplasm composed of anastomosing cords, ribbons, and trabeculae **(1 pt)** of well-differentiated epithelial **(1 pt)** cells separated by an abundant dense and well vascularized stroma **(1 pt)**. Neoplastic cells are polygonal **(1 pt)** with often distinct intercellular bridges and moderate amounts of eosinophilic granular cytoplasm **(1 pt)**. Nuclei are irregularly round to oval with finely stippled chromatin and 1-2 magenta nucleoli **(1 pt)**, and there is mild anisokaryosis. Palisading neoplastic cells **(1 pt)** along the edge of trabeculae are cuboidal to columnar with antibasilar nuclei **(1 pt)** and frequently, basilar cytoplasmic clearing **(1 pt)**. The mitotic rate is less than 1 per 10 high power fields **(1 pt)**. There is prominent intercellular bridging between nonbasilar neoplastic cells. There is marked lysis and resorption of lamellar bone with scalloping of edges and osteoclasts in Howship's lacunae in some areas and production of bone ranging from a 10um layer of osteoid to extensive areas of woven bone in others **(2 pt)**.

MORPHOLOGIC DIAGNOSIS: Jaw and oral mucosa: Acanthomatous ameloblastoma. **(5 pt)**

O/C: **(1 pt)**

Case 2. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Oral mucosa: Expanding the submucosal fibrous connective tissue and extending to the overlying mucosal epithelium is an unencapsulated, well-demarcated, infiltrative moderately cellular neoplasm **(1 pt)** composed of broad cords **(1 pt)** and islands of neoplastic odontogenic **(1 pt)** epithelium. Odontogenic epithelium ranges from cuboidal to columnar **(1 pt)** cells which occasionally palisade along a dense fibrovascular stroma **(1 pt)**. Occasionally, neoplastic cells surround a central focus of loosely arranged small spindle to stellate cells on a pale myxomatous matrix (stellate reticulum) **(1 pt)**. Neoplastic epithelial cells have distinct cell borders, and a moderate amounts of pale eosinophilic fibrillar cytoplasm **(1 pt)**. Cells have a pale, oval to elongate, basillar nucleus, with finely stippled chromatin, and 1-2 distinct nucleoli **(1 pt)**. Mitotic figures are rare **(1 pt)**. Neoplastic cells are often separated and occasionally surrounded by a dense homogenous waxy material **(1 pt)** (amyloid) **(2 pt)** that is often deposited in lamellated rings (Liesegang rings). Frequently, the amyloid is mineralized **(1 pt)**. The fibrovascular stroma separating cords of neoplastic cells is infiltrated by large numbers of neutrophils, histiocytes, lymphocytes, and plasma cells, admixed with abundant cellular debris, and is multifocally edematous **(1 pt)**. The overlying gingival epithelium is moderately hyperplastic, with multifocal intercellular and intracellular edema and low numbers of infiltrating neutrophils **(1 pt)**. At one edge of the section, there is a prominent ulcer **(1 pt)**. Subjacent to the ulcer is a large area of granulation tissue infiltrated by massive numbers of neutrophils and lesser histiocytes, lymphocytes and plasma cells admixed with abundant cellular debris **(1 pt)**.

MORPHOLOGIC DIAGNOSIS: Oral mucosa: Amyloid-producing odontogenic tumor. **(4pt)**

O/C: **(1pt)**

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Case 3. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Mandible (with tooth): Diffusely, the mandible is markedly thickened (**1 pt**) by a subperiosteal proliferation of trabecular bone up to 1.2 cm thick (**1 pt**) which replaces the normal cortex (**1 pt**). Subperiosteal trabeculae are arranged perpendicular to the periosteum; are composed primarily of woven (**1 pt**) and, occasionally, lamellar bone which becomes more compact in closer proximity to the medullary cavity. Bony trabeculae are lined by an intact layer of trabecular lining cells (**1 pt**) and separated by wispy bundles of collagen (**1 pt**); cellularity becomes progressively denser in proximity to the medullary cavity. In these areas, there is remodeling (**1 pt**) of bony trabeculae with numerous reversal lines, osteoclasts within Howship's lacunae (**1 pt**), osteoblasts intermittently lining trabeculae (**1 pt**), and increased amounts of collagen and fibroblasts within trabecular spaces. Marrow is not evident (**1 pt**) within intertrabecular spaces. Adjacent to the medullary cavity, there are small trabeculae of bone with scalloped edges which likely represent the pre-existent cortex; additional fragments of woven bone are present here within more cellular areas. There is marked resorption (**2 pt**) of alveolar bone surrounding the embedded tooth.

MORPHOLOGIC DIAGNOSIS: Mandible: Exostosis, hyperostotic, diffuse, marked (**3pt**)

NAME THE CONDITION: Craniomandibular osteopathy (**2 pt**)

NAME AN AFFECTED BREED: West Highland White Terriers, Scottish Terriers, Great Danes (**2 pt**)

O/C: (1pt)

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Case 4. Tissue from a horse.

(NOTE: This is a good section of early laminitis and demonstrates characteristic changes, however, it is not a great descriptive slide.)

MICROSCOPIC DESCRIPTION: Cross section of hoof (**3 pt**): Multifocally, there is tapering (loss of volume) (**3pt**) and retraction of the secondary epidermal laminae, with multifocal retention of empty basement membranes at the tips (**4pt**). There is multifocal retraction of the secondary dermal laminae resulting in clear space between dermal and epidermal laminae (**3pt**). Lymphatics within the dermal laminae are expanded (edema) (**3pt**).

MORPHOLOGIC DIAGNOSIS: Hoof: Separation of dermal and epidermal laminae with retraction of secondary epidermal laminae and dermal edema. (**3pt**)

O/C: (1pt)