

WSC 2024-2025

Conference 23, Case 1

Tissue from a saki monkey.

**MICROSCOPIC DESCRIPTION:** Long bone: Diffusely, normal compact **(1pt)** and trabecular bone **(1pt)** is replaced by abundant moderately cellular collagen **(1pt)** populated by plump fibroblasts, which expands the diameter of the bone and infiltrates and thickens the cortex**(1pt)**. The medulla contains numerous thin branching trabeculae of woven bone **(1pt)**. Trabeculae of woven bone are lined by a single or often multiple layers of osteoblasts **(1pt)**; osteoclasts within Howships lacunae are numerous, **(1pt)** and evidence of remodeling or reversal lines along bony trabeculae is absent. **(1pt)** The collagen between bony spicules effaces all marrow spaces and hematopoietic marrow. **(1pt)** There is a transverse diaphyseal fracture **(1pt)** with a poorly formed callus **(1pt)** containing anastomosing trabeculae of woven bone, islands of mature cartilage **(1pt)**, and abundant fibrous connective tissue and plump fibroblasts, and multifocal areas of cartilage. Fibrous connective tissue infiltrates the overlying atrophic skeletal muscle. **(1pt)** Skeletal muscle fibers are hypereosinophilic and shrunken, and also separated by abundant blue ground substance.

**MORPHOLOGIC DIAGNOSIS:** Long bone: Osteopenia **(1pt)**, diffuse, severe, with osseous resorption, **(1pt)**, marked fibrous tissue proliferation, pathologic fracture **(1pt)** , callus formation, and skeletal muscle atrophy. **(1pt)**

**NAME THE CONDITION:** Fibrous osteodystrophy **(1pt)**

**MOST LIKELY CAUSE:** Dietary insufficiency of Vitamin D **(1pt)**

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

WSC 2024-2025  
Conference 23, Case 2  
Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Long bone: Three transverse sections of bone are submitted for examination and all are essentially similar. In each section, the marrow is largely replaced by multiple ectatic **(1pt)** blood-filled spaces **(1pt)**, hemorrhage, and fibrin. **(1pt)** Trabecular bone, bone marrow and marrow fat is not evident. **(1pt)** Vascular spaces are separated and surrounded by loosely arranged fibrous septa containing numerous siderophages **(1pt)**, fibroblasts, **(1pt)** and fewer lymphocytes and plasma cells **(1pt)**, and scattered osteoclasts. (Some of the spindled cells may represent osteobalsts, but evidence of osteoid production within the fibrous septa is not evident.) This hypercellular tissue separating the blood-filled spaces also blends with the endosteum. **(1pt)** The lamellar bone of the cortex is non-compacted, **(1pt)**, and in 2/3 sections, the cortex is actually thinned. Overlying these areas there are anastomosing trabeculae **(1pt)** of woven periosteal new bone **(1pt)** deposited assymetrically **(1pt)** that extend peripherally outward from the cortex. The periosteum is markedly thickened and hypercellular **(1pt)**, and smaller trabeculae of woven bone are being produced within and subjacent to it. **(1pt)** Adjacent skeletal muscle fibers are variably shrunken and hypereosinophilic (atrophy). **(1pt)**

**MORPHOLOGIC DIAGNOSIS:** Long bone: Aneurysmal bone pseudocyst **(3pt)**

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

WSC 2024-2025  
Conference 23, Case 3.

Tissue from a rabbit.

**MICROSCOPIC DESCRIPTION:** Haired skin and mucus membrane (lip): **(1pt.)**: Arising from the buccal mucosa, there is an unencapsulated, well-demarcated, poorly circumscribed, moderately cellular, infiltrative neoplasm. **(1pt.)** The neoplasm is composed of anastomosing cords **(1pt.)** of odontogenic epithelium **(1pt.)** that incompletely recapitulate dental elements. The cords are composed of palisades **(1 pt.)** of tall columnar cells **(1 pt.)** (ameloblasts) **(1 pt.)** on a fine fibrovascular stroma that often surround a central focus of loosely arranged small spindle to stellate cells **(1 pt.)** on a pale myxomatous matrix, recapitulating dental pulp **(1pt.)**. Neoplastic cells often have small to moderate amounts of brown pigment (melanin) **(1pt.)** within their cytoplasm. Rarely, islands have central cystic spaces or areas of necrosis up to 1mm in diameter. The neoplastic ameloblasts have distinct cell borders, moderate amounts of pale eosinophilic fibrillar cytoplasm, a pale, oval to elongate, basillar nucleus, with finely stippled chromatin, and 1-2 distinct nucleoli. **(1pt.)** Occasionally, ameloblasts have abundant pink cytoplasm (keratinization). Throughout the neoplasm, the neoplastic stellate mesenchymal cells have distinct cell borders, scant eosinophilic fibrillar cytoplasm, and an oval to elongate, with finely stippled chromatin and a variably distinct nucleolus. **(1pt.)**The overlying gingival epithelium is markedly hyperplastic **(1pt.)** and overlying the hyperplastic epithelium and within invaginations, there is abundant lamellated keratin **(1pt.)** as well as production of ghost cells. Within the overlying tissue, there is mild multifocal lymphoplasmacytic dermatitis and atrophy of skeletal muscle. **(1pt.)**

**Morphologic Diagnosis:** Haired skin, lip: Ameloblastoma-like tumor. **(4pt.)**

O/C - **(1pt.)** (Use of neoplasm description is key)

Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Gingiva **(1pt.)** : Arising from the gingiva, infiltrating the underlying alveolar bone **(1pt.)** and forming cystic spaces lined by neoplastic epithelium**(1pt.)** , there is an infiltrative, moderately cellular, multilobular, cystic and papillary neoplasm. **(1pt.)** The neoplasm is composed of squamous epithelial cells **(1pt.)** forming extensive exophytic papillary fronds **(1pt.)** , and also infiltrating the underlying lamina propria and infiltrating the underlying alveolar bone and forming cystic spaces and are arranged on a moderate fibrous stroma. **(1pt.)** Neoplastic cells have indistinct cell borders with moderate amounts of homogenous non-keratinizing eosinophilic cytoplasm. **(1pt.)** In more superficial layers, desmosomes break down, resulting in individualization of neoplastic cells, cytoplasmic vacuolation **(1pt.)** , and large areas of dropout which occasionally also contain abundant bluish cellular debris.. **(1pt.)** Nuclei are irregularly round with finely stippled chromatin and 1-2 prominent eosinophilic nucleoli. **(1pt.)** Anisocytosis and anisokaryosis are moderate, there is occasional nuclear pleomorphism, and mitoses average 4 per 2.37mm<sup>2</sup> field. **(1pt.)** There is remodeling of alveolar bone **(1pt.)** with osteoclasts in Howship's lacunae and numerous reversal lines **(1pt.)** and there is also resorption of alveolar bone due to direct pressure by neoplastic cysts. **(1pt.)** Surrounding some of the cystic spaces lined by neoplastic cells, there are anastomosing trabeculae of woven bone. There is infiltration of the stroma at the mucosal surface by moderate numbers of lymphocytes and plasma cells, and small aggregates of neutrophils infiltrate the tumor proper. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Gingiva: Papillary squamous cell carcinoma. **(3pt.)**

O/C- **(1pt.)**