

WSC 2017-2018  
Conference 23 Case 1.  
Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Flat bone: Approximately 75% of the bone, both lamellar and trabecular **(1pt.)**, is effaced by an extensive inflammatory process that is regionally granulomatous or pyogranulomatous in nature. At one end of the section, there is a focally extensive partially cavitated area containing numerous viable and degenerate neutrophils **(1pt.)** admixed with abundant cellular debris and numerous 5-8um **(1pt.)** yeasts**(1pt.)** with a 2um thick hyaline cell wall **(1pt.)** and eosinophilic granular cytoplasm which occasionally exhibits broad-based budding. Peripheral to this are several layers of epithelioid macrophages enmeshed in fibrin (pyogranuloma) **(1pt.)**. Filling the marrow spaces of the majority of the remainder of the section are variable combinations and concentrations of epithelioid macrophages **(1pt.)**, lymphocytes, plasma cells and fewer neutrophils admixed with cellular debris, fibroblasts, mature collagen, and widely scattered yeasts. Throughout the remainder of the slide, there is replacement of marrow spaces by variable combinations of epithelioid macrophages, lymphocytes **(1pt.)**, plasma cells **(1pt.)**, and fewer neutrophils and multinucleated giant cell macrophages **(1pt.)** and yeasts, admixed with moderate amounts of edema on a background of variably mature collagen and fibroblasts. Scattered throughout the granulomatous inflammation are scattered poorly formed granulomas or pyogranulomas ranging up to 100um in diameter. Bony trabeculae multifocally exhibit resorptive changes **(1pt.)**, and cortical bone is also effaced by granulomatous inflammation and extensive fibrosis **(1pt.)**. The inflammatory infiltrate extends into the adjacent soft tissues, to include tendon, fascia, and dermis. **(1pt.)**

**MORPHOLOGIC DIAGNOSES:** Bone: Osteomyelitis, (pyo)granulomatous **(1pt.)**, diffuse, severe, with marked cortical and trabecular osteolysis **(1pt.)** and numerous yeasts. **(1pt.)**

**CAUSE:** *Blastomyces dermatitidis* **(3pt.)**

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

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Conference 21 Case 2.  
Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Bone. There is extensive lysis **(1pt.)** of trabecular and cortical bone with replacement by an infiltrate of innumerable spindled and polygonal epithelioid macrophages **(1pt.)** and neutrophils **(1pt.)**, admixed with fewer lymphocytes **(1pt.)**, plasma cells **(1pt.)**, multinucleated giant cell macrophages **(1pt.)**, abundant cellular debris, and numerous fibroblasts **(1pt.)** producing sparse collagen. Throughout the infiltrate are scattered numerous large colonies **(1pt.)** of filamentous bacilli **(1pt.)**. Small amounts of trabecular bone are scattered throughout the area of inflammation. Some spicules of bone are lightly eosinophilic without remaining viable osteocytes within lacunae (necrotic bone.) **(1pt.)** The edges of remaining trabeculae are often scalloped and they contain numerous reversal lines; osteoblasts are intermittent **(1pt.)**. Some fragments of lamellar bone remain (presumptive fragments of cortex), , with woven bone laid down upon them. At one edge of the section, there are anastomosing trabeculae of woven bone. **(1pt.)** Osteoclasts **(1pt.)** are scattered throughout the section at a distance from remaining bony trabeculae. The inflammatory exudate multifocal extends into the adjacent hypercellular periosteum **(1pt.)** which is markedly thickened by proliferating fibroblasts, mature collagen, and inflammatory cells as previously described.

**MORPHOLOGIC DIAGNOSIS:** Bone: Osteomyelitis, pyogranulomatous **(1pt.)**, chronic-active, diffuse, severe, with marked osteolysis **(1pt.)**, multifocal woven bone production, and numerous colonies of filamentous bacilli **(1pt.)**

**CAUSE:** Actinomyces or Nocardia **(2pt.)**

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

WSC 2017-2018  
Conference 23 Case 3.  
Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Long bone with growth plate **(1pt.)**: Segmentally, the metaphyseal primary spongiosa is characterized by elongate **(1pt.)** mineralized spicules of cartilage devoid of osteoid **(1pt.)** and lined by decreased numbers of osteoblasts **(1pt.)** along their surfaces. Within the affected regions of the growth plate, these calcified spicules are frequently discontinuous and fragmented **(1pt.)** with sharp angular borders and fragmented portions are repositioned parallel to the growth plate (microfractures) **(2pt.)**. Separating the calcified spicules of the primary spongiosa and bony trabeculae of the secondary spongiosa are numerous viable and degenerate neutrophils **(1pt.)**, fewer macrophages **(1pt.)**, edema **(1pt.)**, fibrin, hemorrhage and necrotic debris against a background of numerous reactive fibroblasts **(1pt.)** and sparse collagen production. A similar but less dense inflammatory infiltrate is present between the secondary spongiosa within the metaphysis as well as the developing lamellar bone of the metaphysis, **(1pt.)** and secondary spongiosa are only intermittently lined by osteoblasts. Marrow elements are sparse **(1pt.)** within the metaphysis (and actually more prevalent in the epiphysis).

**MORPHOLOGIC DIAGNOSES:** Long bone: Osteomyelitis, metaphyseal, necrotizing and neutrophilic, **(1pt.)** multifocal, moderate to severe with osteolysis **(1pt.)** and microfracture of the primary spongiosis . **(1pt.)**

**NAME THE CONDITION:** Metaphyseal osteopathy **(3pt.)**

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

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Conference 23 Case 4.

Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Vertebra (3) **(1pt.)**: The section shows multiple cross sections of vertebra interrupted by endplates and intravertebral discs. A thick plate of cartilage horizontally bisects the three vertebrae **(2pt.)**. The hypertrophic zone of the growth plates is shortened **(1pt.)** and contain few disorganized chondrocytes **(1pt.)**. Primary spongiosa arising from vertebral endplates is shortened **(1pt.)** and anastomose horizontally **(1pt.)**, oriented parallel to the growth plate. Transphyseal vessels are surrounded by low to moderate numbers of vacuolated histiocytes. **(1pt.)** Intervertebral discs are diffusely hypocellular **(1pt.)** and lack a distinct nucleus pulposus **(1pt.)**. Chondrocytes throughout the section are swollen with abundant vacuolated cytoplasm. **(1pt.)** The intravertebral discs are expanded and centrally cavitated. Trabecular bone of the vertebra is diminished and contains cartilaginous cores **(1pt.)**. Within the endplates, the nucleus pulposus contains numerous polygonal cells with vacuolated cytoplasm. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** 1. Vertebral bodies: Chondrodyplasia **(1pt.)**, diffuse, severe, with epiphyseal dysplasia **(1pt.)**, loss of secondary ossification sites, osteopenia, and intervertebral disk dysplasia.

2. Vertebra and adjacent soft tissue: Chondrocytic, fibroblastic, and histiocytic cytoplasmic vacuolation. **(2pt.)**

**CAUSE:** Mucopolysaccharidosis (although lysosomal storage disease is OK) **(2pt.)**

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