WSC 2021-2022
Conference 21, Case 1.

Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Vertebrae: Multiple tangential sections of a vertebrae are submitted for examination. **(1pt)** The bone marrow is multifocally effaced by multiple, occasionally coalescing poorly formed granulomas **(1pt)** composed of large numbers of epithelioid macrophages **(1pt)** admixed with fewer lymphocytes **(1pt)** and multinucleated giant cell macrophages, with fewer plasma cells and neutrophils **(1pt)** and small amounts of cellular debris, and encircled by several rings of immature collagen and fibroblasts. **(1pt)** Multinucleated giant cells are of both foreign body **(1pt)** and Langhans type. **(1pt)** Epithelioid macrophages range up to 20um in diameter and often have a discrete cytoplasmic vacuole filled with granular debris. **(1pt)** Numerous epithelioid macrophages separate granulomas and fill in the interstices. In one section, there is extensive necrosis of inflammatory cells with mineralization (caseous necrosis). **(1pt)** there are multiple bone fragments in which lacunae Multifocally, the cortex is expanded by thin trabeculae of proliferating woven bone **(1pt)** within an expanded hypercellular periosteum. **(1pt)** Fibrosis extends from the periosteum into the surrounding markedly atrophic skeletal muscle. **(1pt)** There is fissuring and fracture of the endplate with hemorrhage and a fragment of embedded bone and disk material **(1pt)**

MORPHOLOGIC DIAGNOSIS: Cervical vertebrae: Osteomyelitis **(1pt)**, granulomatous **(1pt)**, multifocal to coalescing, marked, with pathologic fracture, periosteal new bone growth and extrusion of intervertebral disk material. **(1pt)**

CAUSE: *Mycobacterium tuberculosis* **(2 pt.)**

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

WSC 2021-2022
Conference 21, Case 2.
Tissue from a dog.

MICROSCOPIC DESCRIPTION: Vertebral body with intervertebral disk and overlying spinal cord **(1pt)**: Multifocally effacing the bone marrow **(1pt)**, replacing resorbed medullary and cortical bone **(1pt)**, expanding the periosteum **(1pt)**, and infiltrating the fragmented disc **(1pt)**, there is an infiltrate of innumerable epithelioid macrophages **(1pt)** and neutrophils **(1pt)** admixed with fewer multinucleated foreign body giant cell macrophages **(1pt)**, hemorrhage, fibrin, abundant cellular debris, and moderate amounts of haphazardly arranged highly vascular fibrous connective tissue. Primarily within macrophage and giant cell cytoplasm, but rarely extracellularly, there are 2-4 um wide, parallel-walled, septate **(1pt)** brown **(1pt)** hyphae **(1pt)** with non-dichotomous branching, and 8-12 um diameter conidia **(1pt)**. Within the medullary cavity, in the midst of the inflammatory infiltrate, trabeculae of medullary bone are multifocally resorbed with numerous reversal lines and prominent Howships's lacunae. **(1pt)** There are multiple fragment of necrotic bone which contain empty lacunae and exhibit a loss of differential staining.Lamellar cortical bone is also resorbed in the areas of periosteal inflammation. The adjacent intervertebral disk is fractured with interposed fragments of nuclear pulposus, hemorrhage, and small amounts of inflammation separating fragments. **(1pt)** There are foci of mineral within the spinal cord (likely artifact)

MORPHOLOGIC DIAGNOSIS: Cervical vertebral body and adjacent intervertebral disk: Discospondylitis **(1pt)** and osteomyelitis **(1pt)**, granulomatous **(1pt)** and necrotizing, chronic, diffuse, severe with numerous intra- and extracellular hyphae and conidia **(1pt)**

CAUSE: *Paecilomyces* sp. (any pigmented fungus OK) **(2pt)**

WSC 2021-2022
Conference 21, Case 3
Tissue from a calf.

MICROSCOPIC DESCRIPTION: Long bone with growth plate. There is diffuse thinning **(1pt.)** of both primary **(1pt.)** and secondary **(1pt.)** spongiosa with expansion of the marrow spaces throughout the section in both the epiphysis, physis, and metaphysis (osteopenia) **(2pt.)** and diffuse marked thinning of cortical bone with a total absence of cortical bone at the cutback zone. The growth plate is also thin with a reduced zone of hypertrophy **(1pt.)**. Primary spongiosa have a reduced osteoid seam and a distinct tendency to develop horizontal to the growth plate. **(1pt.)** There is multifocal mild hemorrhage, edema and fibrin deposition in the intervening marrow space. **(1pt.)** Subjacent to the growth plate and extending the width of the bone, **(1pt.)** there is a focal area of fibrosis **(1pt.)** in which large segments are devoid of primary spongiosa **(1pt.)**, remaining primary spongiosa are thicker than those seen close to the growth plate and anastomosing trabeculae of irregular primary spongiosa alternate with thin trabeculae of woven bone arising de novo from with this area of fibrosis **(1pt.)** (non-distracted fracture callus) **(2pt.)**. There is no significant lamellar or osteonal bone formation seen in the cortex. **(1pt.)** There is adequate marrow fat, but hematopoietic precursors are markedly diminished. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Long bone with growth plate: Osteoporosis (osteopenia ok if you mentioned the fracture in the morph) **(2pt.)**, diffuse, marked with non-distracted proximal metaphyseal fracture line (infraction). **(1pt.)**

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

WSC 2021-2022 Conference 21
Case 4. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Bone: Effacing both the cortex and medullary cavity **(1pt)**, there is an unencapsulated, densely cellular, poorly demarcated infiltrative neoplasm. **(1pt)** The neoplasm is composed of round cells **(1pt)** on a pre-existent stroma **(1pt)**. Neoplastic cells have distinct cell borders with scant to moderate basophilic granular cytoplasm. **(1pt)** Nuclei are irregularly round with coarsely stippled chromatin and 1-2 basophilic nucleoli. **(1pt)** There is moderate to marked anisokaryosis **(1pt)** and anisocytosis with nuclear pleomorphism. **(1pt)** Multnucleated cells are numerous. **(1pt)** Low to moderate numbers of lymphocytes **(1pt)** and neutrophils **(1pt)** with fewer plasma cells are scattered throughout the neoplasm. Mitoses **(1pt)** average 16 per 2.37mm^2 field. There are widely scattered siderophages throughout the neoplasm. **(1pt)** At the periphery of the neoplasm, there are several distinct layers of anastomosing trabeculae of periosteal woven bone **(1pt)** oriented perpendicularly to the cortex. There are several areas of similar bone which is being resorbed within the neoplasm. m There are multiple islands of cartilage **(1pt)** within the proliferating bone and a densely cellular periosteum. Dense bands of fibrous connective extend from the periosteum and infiltrate the adjacent atrophic skeletal muscle. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Bone: Histiocytic sarcoma. **(3pt)**

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