WSC 2019-2020 Conference 25
Case 1. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Fibrous connective tissue: Extending to three cut borders is a well-demarcated, unencapsulated, multilobular , moderately cellular, infiltrative neoplasm, with smaller invasive nodules, **(2pt)**, composed of cells of two distinct phenotypes. **(1pt)** The first population is that of spindle cells **(1pt)** arranged in long, interlacing streams **(1pt)** and bundles on a moderate fibrovascular stroma **(1pt)**. Neoplastic cells have indistinct cell borders and a moderate amount of eosinophilic, fibrillar cytoplasm. **(1pt)** Nuclei are elongate with finely stippled chromatin and have 1-2 variably distinct nucleoli. **(1pt)** There is mild anisocytosis and anisokaryosis. Mitoses in this population average 10 per 2.37mm$^{2.}$ **(1pt)** The second, less frequent neoplastic cell, irregularly distributed through the neoplasm, is a large irregularly round multinucleated giant cell **(1pt)** ranging up to 75um in diameter with distinct cell borders and abundant finely vacuolated eosinophilic cytoplasm. **(1pt)** Nuclei are irregularly round to angular with 1-2 prominent nucleoli. **(1pt)** Mitoses are rare. Throughout the neoplasm, there are large areas of necrosis **(1pt)**, hemorrhage **(1pt)**, polymerized fibrin and cellular debris. In areas of hemorrhage, there are numerous hemosiderin-laden macrophages. **(1pt)** Aggregates of moderate numbers of lymphocytes, macrophages and rare plasma cells are scattered throughout the neoplasm, most often at the deeper margins. **(1pt)** Vessels within the underlying fibrous connective tissue are surrounded by low to moderate numbers of lymphocytes and macrophages (often hemosiderin-laden).

MORPHOLOGIC DIAGNOSIS: Subcutis (presumptive): Pleomorphic (anaplastic) sarcoma with giant cells. (Giant cell tumor of soft parts ok) **(3pt)**

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

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Case 2. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Disarticulated joint with tendon cross sections: The normal articular architecture is almost totally replaced by a suppurative process. **(1pt)** The joint space is filled **(1pt)** with several large aggregates of innumerable viable and largely degenerate neutrophils **(1pt)**, abundant cellular debris **(1pt)** to include large basophilic aggregates of nuclear material **(1pt)** admixed with abundant polymerized fibrin **(1pt)** ad small amounts of hemorrhage. The synovial lining is multifocally and segmentally effaced **(1pt)** by densely cellular granulation tissue **(1pt)** which is populated by numerous plump fibroblasts, small vessels with hypertrophic endothelium and large numbers of evenly distributed viable neutrophils. **(1pt)** In other areas of the joint, synovial villi remain **(1pt)**, are lined by attenuated to flattened synoviocytes, and are infiltrated by moderate numbers of viable neutrophils. Vessels throughout the synovial spaces are prominent, and their lumens are often filled or at least lined by numerous neutrophils. **(1pt)** There is moderate fibrosis **(1pt)** of the joint capsule underlying the granulation tissue.

MORPHOLOGIC DIAGNOSIS: Synovium and perarticular soft tissue: Synovitis **(1pt)**, fibrinosuppurative **(1pt)**, chronic, diffuse, severe, with synovial ulceration **(1pt)** and granulation tissue formation. **(1pt)**

CAUSE: *Mycoplasma mycoides* subsp. *capri* **(3pt)**

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

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Case 3. Tissue from a pig.

MICROSCOPIC DESCRIPTION: Haired skin: Within the deep dermis, there is portion of an abscess **(1pt)** which appears to underrun the deep margin, forming a draining tract (alternatively, this may be an ulcerate synovial lining). **(1pt)** The necrotic area is composed of a central core of large amounts of lamellated eosinophilic and basophilic cellular debris **(1pt)**, throughout which is scattered few degenerate neutrophils, colonies of 1-3um coccobacilli, **(1pt)** hemorrhage, brightly eosinophilic hemoglobin crystals and polymerized fibrin. Peripheral to this, and along the edge of the draining tract is a layer of moderate numbers of degenerating neutrophils and eosinophils admixed with cellular debris. **(1pt)** More centrifugally is a layer of mature granulation tissue containing numerous macrophages, neutrophils, and eosinophils with fewer lymphocytes and plasma cells enmeshed in progressively denser layers of collagen and plump fibroblasts. **(1pt)** The deep dermis has increased numbers of fibrous connective tissue populated by stellate to spindled fibroblasts **(1pt)**. In the superficial dermis, vessels are surrounded by few to moderate numbers of eosinophils, lymphocytes, plasma cells and macrophages, which are also dispersed through the dermis, **(1pt)** and apocrine glands are moderately dilated. The overlying epidermis is mildly hyperplastic and there is mild orthokeratotic hyperkeratosis. There are small pustules within the keratin layer and a covering of necrotic debris, hair and plant material.

Lung: Replacing 10% of the section is a large 0.5cm abscess **(1pt)** which effaces pulmonary architecture. It is structured similar to that in the section of haired skin. The necrotic area is composed of a central core of eosinophilic and basophilic cellular debris, throughout which is scattered numerous colonies of 1-3um coccobacilli, hemorrhage, brightly eosinophilic hemoglobin crystals, and polymerized fibrin. Centrifugally, there is a layer of is a layer of moderate numbers of degenerating neutrophils and eosinophils admixed with cellular debris and in turn, a layer of mature granulation tissue containing numerous macrophages, neutrophils, and eosinophils with fewer lymphocytes and plasma cells enmeshed in progressively denser layers of collagen and plump fibroblasts, which efface preexistent pulmonary architecture. Within the adjacent lung, alveolar septa are expanded by varying combinations and concentrations of neutrophils, macrophages, eosinophils, polymerized fibrin, edema fluid, and cellular debris. **(1pt)** Airways are filled with large numbers of viable and degenerate neutrophils **(1pt)** and small amounts of cellular debris, and in larger airways, the epithelium is largely intact and traversed by low numbers of inflammatory cells. Smaller airways often have effacement of one wall and infiltration by a plug of fibrous connective tissue **(1pt)**and low to moderate numbers of eosinophils and neutrophils which compromises the lumen (bronchiolitis obliterans). **(1pt)** Peribronchiolar venues are often filled by eosinophils and neutrophils, and there is mild to moderate peribronchiolar and perivascular lymphoid hyperplasia. The pleura and septal connective tissue is expanded by edema and adjacent to the abscess, granulation tissue. There is a clot in a large pulmonary vein.

MORPHOLOGIC DIAGNOSIS: 1. Haired skin, deep dermis: Abscess, with draining tract. **(1pt)**
2. Lung: Pneumonia, embolic **(1pt)**, chronic-active **(1pt)**, focally extensive, severe.

CAUSE: Trueperella pyogenes **(2pt)**

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

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Case 4. Tissue from a horse.

MICROSCOPIC DESCRIPTION: There are two sections of skeletal muscle, one each oriented in longitudinal and transverse section. Randomly **(1pt.)** scattered throughout both sections, myofibers exhibit one or more of the following changes: variation in fiber size **(1pt.)**, swelling **(1pt.)**, loss of stain affininty, loss of cross-striations **(1pt.)**, shrinkage **(1pt.)** and hypereosinophilia (degeneration) **(1pt.)**, vacuolation **(1pt.)** contraction band formation **(1pt.)** and fragmentation **(1pt.)** (necrosis) **(1pt.)**. Fragmented myofibers are often infiltrated, and sometimes effaced by large numbers of macrophages **(1pt.)** and few lymphocytes and rare multinucleated giant cells **(1pt.)** which often extend into and expand the endomysium and perimysium. **(1pt.)** Satellite cell nuclei around degenerate myofibers are hypertrophic and there are rare mitotic figures in this population. **(1pt.)** Necrotic fibers and fragments often contain granular to crystalline mineral **(1pt.)** (dystrophic mineralization). The epimysium is expanded by a combination of edema, macrophages, disordered plump fibroblasts, collagen, and rare hemorrhage. **(1pt.)**

MICROSCOPIC DIAGNOSIS: Skeletal muscle: Myositis, necrotizing **(1pt.)** and granulomatous, polyphasic **(1pt.)** diffuse, severe, with mineralization. **(1pt.)**

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