WSC 2016-2017, Conference 5

Case 1. Tissue from a hedgehog

MICROSCOPIC DESCRIPTION: Transverse section of skull and cerebrum at the level of the diencephalon and pituitary gland – (note: This is extremely variable but you get a point for ACCURATELY describing where the section is taken)**(1pt.)** : Within the cranium and extending laterally and ventrally **(1pt.)** and compressing the overlying atrophic skeletal muscle**,** and extending inwardly and compressing the cerebral cortex, there is an unencapsulated, infiltrative, moderately cellular, multilobular, well-demarcated neoplasm **(1pt.)**. The neoplasm is composed of short bundles **(1pt.)** and streams of neoplastic osteoblasts on a moderate fibrous matrix **(1pt.)** which often coalesce into sclerotic trabeculae of osteoid. In some areas, neoplastic osteoblasts are depositing tumor bone on pre-existent lamellar bone. . Neoplastic cells are spindled to polygonal with a moderate amount of finely granular eosinophilic cytoplasm **(1pt.)**. Nuclei are oval to elongate with finely stippled chromatin and a single prominent nucleolus. **(1pt.)** Mitotic figures average 1-2 per 400X field. **(1pt.)** Neoplastic cells are often separated and surrounded by homogenous osteoid matrix **(2pt.)** which is occasionally mineralized, and some lobules containing large areas of woven bone **(1pt.)** and cartilage **(1pt.)**. Within the cranium, cerebrum is focally compressed **(1pt.)** by the neoplasm, and there is focal atrophy with neuronal necrosis and loss and spongiosis of the cerebral cortex. **(1pt.)** There is moderate dilation of the lateral and 3rd ventricles **(1pt.)**. Entrapped and overlying skeletal muscle fibers are shunken, pale and of varying size (atrophy). **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Cranium: Osteosarcoma **(3pt.)**

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

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Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Bone (rib – but no way to tell): There is diffuse loss of cortical architecture and osteonal bone **(1pt.)**. In areas of remaining lamellar bone **(1pt.)**, there is diffuse loss of marrow elements and large areas of bone are replaced by fibrous connective tissue **(1pt.)** which contains innumerable viable and degenerate neutrophils **(1pt.)** admixed with large amounts of cellular debris **(1pt.)** and small amounts of hemorrhage and fibrin.. Randomly scattered throughout this inflammatory miiieu are 100-150 um large colonies of basophilic filamentous bacilli **(2pt.)** embedded in a faint pink protein matrix **(1pt.)** (Splendore-Hoeppli material.) **(1pt.)** Similar masses of collagen and inflammatory tissue extend into the surrounding bone, which is largely composed of islands of woven bone **(1pt.)**which are segmentally bordered by thick bands of hypercellular periosteum **(1pt.)**. Trabeculae of woven bone are being actively remodeled and are lined by a single layer of plump osteoblasts and numerous osteoclasts within Howship's lacunae. At one edge of the section is a dense bed of collagen **(1pt.)** which has replaced skeletal muscle; remaining muscle fibers are widely separated, shrunken, and atrophic. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Bone: Osteomyelitis **(1pt.)**, chronic-active **(1pt.)** and suppurative **(1pt.)**, diffuse, severe, with new bone formation, and large colonies of filamentous bacilli **(1pt.)**

CAUSE: *Actinomyces* sp. or *Nocardia* sp. - both OK. **(2 pt.)**

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

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Case 3. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Rectum **(1pt.)**: The rectal mucosa is thickened and focally expanded by an exophytic **(1pt.)**, dome-shaped mucosal mass **(1pt.)**. The mass is composed of rectal mucosa **(2pt.)** with markedly dilated glands **(1pt.)** (predominantly at its base) **(1pt.)** filled with abundant wispy blue mucin **(1pt.)** throughout which are scattered variable combinations and concentrations of viable and degenerate neutrophils **(1pt.)**, large multinucleated muciphages **(1pt.)**, sloughed epithelial cells **(1pt.)**, hemorrhage, and cellular debris **(1pt.)**. The intervening edematous stroma is markedly congested, edematous and contains moderate numbers of lymphocytes and plasma cells **(1pt.)** and scattered hemorrhage and hemosiderin laden macrophages. Multifocally, there are areas of mineralization **(1pt.)** as well as thin spicules of mineralized bone **(1pt.)**. The surface of the polyp is multifocally ulcerated **(1pt.)**. The adjacent mucosa is moderately thickened by elongated and ectatic glands.

MORPHOLOGIC DIAGNOSIS: Rectum: Inflammatory rectal polyp. **(3pt.)**

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

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CASE 4. Tissue from a calf.

MICROSCOPIC DESCRIPTION: Colon. Diffusely, colonic crypts are multifocally dilated and lined by epithelium which is swollen and vacuolated (degenerate), pyknotic or karyorrhactic (necrotic) **(1pt.)**, or flattened and attentuated **(1pt.)**. Numerous dilated glands are filled with sloughed epithelial cells, degenerate neutrophils, and cellular debris (crypt abscesses) **(1pt.)**. There is diffuse mild to moderate glandular loss **(1pt.)** and the intervening stroma is expanded by moderate numbers of lymphocytes and plasma cells, fewer neutrophils and macrophages, and moderate amounts of hemorrhage and cellular debris. Multifocally, large abscessed glands ranging up to 4mm in diameter are herniated into the muscularis **(2pt.)**. These glands are filled with mucin **(1pt.)**, few sloughed mucinous epithelial cells, few neutrophils, hemorrhage, and cellular debris. The edges of the dilated crypts are bordered by large numbers of macrophages **(1pt.)** with foamy cytoplasm, admixed with numerous neutrophils, lymphocytes, and plasma cells, as well as cellular debris. The mucosa is covered by a fibrinonecrotic membrane **(1pt.)** composed of layers of fibrin, hemorrhage, and abundant neutrophils and cellular debris, as well as individualized and rafts of necrotic epithelium **(1pt.)** and colonies of bacilli. There is diffuse severe loss of lymphoid tissue within the section **(2 pts)**. The submucosa **(1pt.)** is markedly expanded by moderate numbers of macrophages, neutrophils, and fewer lymphocytes and plasma cells, hemorrhage, edema, and small amounts of cellular debris. There is marked edema of the muscular tunics. **(1pt.)** There are partially occlusive fibrinocellular thombi in the lumen of mesenteric arteries, and smooth muscle cells are multifocally hyperchromatic and hypereosinophilic (degeneration and possible necrosis) (possible effect of endotoxemia.)

MORPHOLOGIC DIAGNOSIS: Colon: Colitis, necrotizing **(1 pt.)**, diffuse, severe, with abscessed crypts **(1pt.)** and pseudomembrane formation and severe lymphoid depletion. **(1pt.)**

CAUSE: Bovine pestivirus **(3pt.)**

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