WSC 2010-2011, Conference 2, Case 1.

Tissue from a cat.

MICROSCOPIC DESCRIPTION: Bone marrow **(1 pt.)**. The marrow is hypercellular **(1 pt.)**, with marrow elements largely replacing normal marrow fat **(1 pt.)**. Mature erythrocytes and bone spicules are markedly decreased in number **(1 pt.)**. The majority of the cells are of erythrocytic lineage **(2 pt.)** with the predominant cell having a large often indented or cleaved nucleus, one to three nucleoli, finely stippled chromatin, and a moderate amount of pale eosinophilic cytoplasm **(1 pt.)** (rubriblasts) **(1 pt.)**. Adjacent to these cells are islands of more mature erythrocytic cells **(1 pt.)** including smaller more hyperchromatic nuclei with poorly visible nucleoli, and less cytoplasm (rubricytes) **(1 pt.)** and ultimately small cells with dark hyperchromatic nucli and lightly basophilic cytoplasm (metarubricytes) **(2 pt.)**. Megakaryocytes appear decreased in number **(1 pt.)**, and granulocytes are very rare **(1 pt.)**. Iron stores are also decreased **(1 pt.)**.

MICROSCOPIC DIAGNOSIS: Bone marrow: Erythroid hyperplasia, diffuse, severe with maturation arrest. **(4 pt.)**

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

WSC 2010-2011. Conference 2, Case 2

Tissue from a cat.

MICROSCOPIC DESCRIPTION: Liver: Primarily within midzonal and periportal regions of the lobule **(2 pt.)**, and rarely within centrilobular areas, hepatocytes contain one to numerous lymphocytes **(2 pt.)** within their cytoplasm **(1 pt.)**. The lymphocytes are often surrounded by a clear halo **(2 pt.)** (emperipolesis) **(2 pt.)**. Hepatocytes contain small to moderate amounts of glycogen**(1 pt.)** and occasionally fat; this change is most prominent in centrilobular areas **(1 pt.)**. Hepatocytes and rare Kuppfer cells often contain a brown granular pigment **(1 pt.)** (bile) **(1 pt.)**, and Kupffer cells are diffusely prominent **(1 pt.)**. There is prominent electrocoagulation artifact at the cut edge of the section **(1 pt.)**.

MORPHOLOGIC DIAGNOSIS: 1. Liver, midzonal and periportal hepatocytes: Lymphocyte emperipolesis, diffuse, moderate to severe. **(3 pt.)**

2. Liver, centrilobular hepatocytes: Vacuolar change, diffuse, mild to moderate. **(1 pt.)**

O/C – **(1 pt.)**

WSC 2009-2010, Conference 2, Case 3.

Tissue from a horse.

MICROSCOPIC DESCRIPTION: Adrenal gland: Expanding the medulla, and compressing the overlying cortex is an unencapsulated, well demarcated, moderately cellular, multilobulated neoplasm **(1 pt.)** arranged in nests, packets and trabeculae **(1 pt.)** separated by a moderate fibrovascular stroma. Neoplastic cells are polygonal with variably distinct cell borders and abundant coarsely granular, basophilic cytoplasm **(1 pt.).** Nuclei are irregularly round, slightly hyperchromatic, with finely stippled chromatin and 2-3 dark blue nucleoli. **(1 pt.)** There is moderate anisokaryosis. Mitoses average less than 1 per 10 HPF. **(1 pt.)** The neoplasm is diffusely congested, with multifocal areas of hemorrhage and fibrin deposition and few hemosiderin-laden macrophages. **(1 pt.)** The overlying cortical cells of the zona fasciculate contain large numbers of discrete, variably sized lipid vacuoles, and there is diffuse cortical congestion. **(1 pt.)**

Thyroid (multiple sections): Scattered throughout both sections are multiple neoplasms, exhibiting similar morphology. The neoplasms are nodular, exceed a centimeter in diameter, expansile, moderately cellular, partially encapsulated, **(1 pt.)** and contain numerous entrapped follicles. Neoplastic cells are arranged in nests packets, and dilated acini **(1 pt.)** on a fine fibrovascular stroma. Cells are polygonal with distinct cell borders and abundant granular eosinophilic cytoplasm. **(1 pt.)** Nuclei are irregularly round, with finely stippled chromatin and 1-3 small basophilic nuclei. **(1 pt.)** There is moderate anisokaryosis and rare multinucleated cells. **(1 pt.)** Mitotic figures are rare. **(1 pt.)** Acini are filled with abundant brightly eosinophilic homogenous fluid and in some areas, brown granular inspissated material. There is variation between nodules in the size of follicles, amount of follicular contents, anisokaryosis, and density of cells. **(1 pt.)** Entrapped thyroid follicles are lined by compressed attenuated follicular epithelium and often have pyknotic nuclei. Follicles of entrapped thryroid tissue are dilated and often contain slightly mineralized colloid.

MORPHOLOGIC DIAGNOSIS: 1. Adrenal gland: Pheochromocytoma. **(2pt.)**

2. Thyroid gland: C-cell adenomas, multiple. **(2 pt.)**

Name the syndrome: Multiple endocrine neoplasia (MEN) **(1pt.)**

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

WSC 2009-2010, Conference 2, Case 4.

Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Kidney: Within the renal pelvis, there is a focally extensive, 1 cm-wide discrete area of coagulative necrosis **(2 pt.)**. Within this area, the tubular architecture is maintained, and many lightly eosinophilic tubular outlines are present without differential staining **(1 pt.)**. Many tubules are devoid of epithelium (with only basement membranes remaining) **(1 pt.)**, or lined by severely attenuated epithelium **(1 pt.)**. These tubules often have one to several necrotic epithelial cells within the lumen **(1 pt.)**. There is marked congestion and mild edema within the infarct, with scattered necrotic cells and few neutrophils within the interstitium **(1 pt.)**. Small discrete areas of infarction finger out into the surrounding medulla. At the edges of the infarcted areas, there are many tubules lined by necrotic epithelium which contain granular and/or cellular casts**(1 pt.)**, and numerous tubules with prominent tubular epithelial cells with abundant basophilic epithelium, large vesicular nuclei, and rare mitotic figures **(2 pt.)** (regeneration) **(1 pt.)**. The interstitium separating tubules in this area is mildly edematous, with small amounts of hemorrhage and low to moderate numbers of neutrophils. Lymphatics within the renal pelvis are markedly dilated, and peripelvic collagen is widely expanded by edema **(1 pt.)**. Scattered throughout the remaining medulla, and to a lesser extent in the cortex, occasional tubules are lined by one or more hypereosinophilic pyknotic epithelial cells and contain protein casts **(1 pt.)**. Rarely there is protein within the uriniferous space.

MORPHOLOGIC DIAGNOSIS**:** 1. Renal crest: Necrosis, coagulative, focally extensive. **(2 pt.)**

**2.** Kidney, medullary tubules: Degeneration, necrosis, and regeneration, diffuse, moderate, with multifocal coagulative necrosis and numerous cellular casts. **(2 pt.)**

CAUSE: Non-steroidal anti-inflammatory drugs **(2 pt.)**

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