

Case 1. Tissue from a pig.

NOTE: There is some mild variation in slides, as two sections were submitted to the conference – the following description is a hybrid.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, bronchioles are filled with variable combinations and concentrations of the following: macrophages(1 pt), neutrophils, fewer lymphocytes and plasma cells, fibrin, edema fluid (1 pt), and cellular debris, as well as numerous cross sections of both males and femaleadult (1 pt) metastrongyle (1 pt) nematodes and rare eggs. The adult nematodes are 300-75 um in diameter (1 pt) in diameter and have a 5-10 um thick outer cuticle with small ridges (1 pt), a pseudocoelom lined by coelomyarian-polymyarian musculature (1 pt) and lateral cords, a large intestine lined by few uninucleate cells, an ovary, and a paired uterus contain numerous morulated and larvated eggs (1 pt). Multifocally, bronchiolar epithelium is hyperplastic (1 pt), characterized by piling of epithelium (up to 5 layers), and is often sloughed, necrotic, or absent, and is often infiltrated by low to moderate numbers of lymphocytes, plasma cells and eosinophils, with lesser numbers of histiocytes and macrophages, which are also present within the submucosa (1 pt). There is marked smooth muscle hyperplasia (1 pt) resulting in tortuosity, as well as hyperplasia of bronchiolar-associated lymphoid tissue (1 pt). There is moderate atelectasis of alveolar septa in close proximity to occluded bronchioles. Multifocally, alveolar septa are congested and expanded by increased clear space (edema) which fills adjacent alveoli, eosinophilic fibrillar to beaded material (fibrin), and moderate numbers of previously described inflammatory cells (1 pt). There is mild edema within the pleura and interlobular septa.

MORPHOLOGIC DIAGNOSIS: Lung: Bronchiolitis, eosinophilic and lymphoplasmacytic, diffuse, mild with marked smooth muscle hyperplasia, BALT hyperplasia, and numerous cross-sections of metastrongyle adults (3 pt)

CAUSE: Meatastrongylus apri, Metastrongylus pudendotectatus, Metastrongylus salmi (3 pt)

O/C: (1 pt)

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Case 2. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Lung (**1 pt**): Adjacent to and compressing the lumen (**1 pt**) of two bronchioles and adjacent pulmonary parenchyma and extending to cut borders is an encapsulated, well-demarcated, expansile, moderately cellular, nodular neoplasm (**2 pt**). The neoplasm is composed of densely packed polygonal cells (**1 pt**) measuring 20-30 um in diameter (**1 pt**) that are supported by a fine, fibrovascular stroma (**1 pt**). Neoplastic cells have indistinct cell borders, and the cytoplasm is packed with numerous distinct amphophilic granules (**1 pt**). Nuclei are eccentric (**1 pt**), often peripheralized and with finely stippled chromatin and one variably distinct blue nucleolus (**1 pt**). The mitotic rate is less than 1 per 10 HPF (**1 pt**). There is a large area of coagulative necrosis located centrally within the neoplasm (**1 pt**). Alveolar architecture of the remaining parenchyma is largely effaced (**1 pt**) by the proliferation of abundant mature collagen (**1 pt**), basophilic ground substance, and large numbers of plump fibroblasts, throughout which are scattered moderate numbers of histiocyte, lymphocytes, and plasma cells, which occasionally form aggregates (**1 pt**). In the majority of the section, only bronchioles and capillaries are discernable. Bronchioles of all sizes are occluded by abundant flocculent mucin (**1 pt**), admixed with small amounts of hemorrhage, edema fluid, rare macrophages, and desquamated epithelial cells.

MORPHOLOGIC DIAGNOSIS: Lung: Granular cell tumor. (**3 pt**) (**Note:** While there are very significant changes to the pulmonary parenchyma in this slide, as they are secondary to the tumor, it is the long-time tradition of the AFIP/JPC that they are NOT included in the morphologic diagnosis).

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

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Case 3. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Liver: There is distortion of the hepatocellular lobular and plate architecture **(1pt)** with a marked reduction in hepatocyte numbers (hepatocellular loss) **(1pt)** . Remaining hepatocytes are enlarged up to 2-3 times normal **(1pt)**, with abundant eosinophilic cytoplasm which often contains discrete clear vacuoles (lipid) **(1pt)**, and large (often multiple) nuclei **(1pt)** with margined chromatin and a prominent nucleolus (megalocytosis) **(1pt)**. Occasional hepatocytes are rounded up and hypereosinophilic (necrosis) **(1pt)**, and are occasionally surrounded by low numbers of neutrophils. Hepatocytes often contain brown granular pigment, and bile canaliculi are often and prominently distended with bile (cholestasis) **(1pt)**. Diffusely, portal areas are markedly expanded by abundant loosely arranged fibrous connective tissue and plump fibroblasts **(1pt)** which surround and replaces portal hepatocytes **(1pt)**, and occasionally bridge **(1pt)** adjacent portal areas. There is minimal biliary reduplication **(1pt)**. Portal areas contain small numbers of lymphocytes and plasma cells and rare hemosiderin-laden macrophages, and portal lymphatics are moderately ectatic **(1pt)**.

MORPHOLOGIC DIAGNOSIS: Liver: Hepatocellular degeneration, necrosis, and loss, with megalocytosis, bridging portal fibrosis, and cholestasis. **(3pt)**

CAUSE: Pyrrolizidine alkaloid toxicosis **(3pt)**

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

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Case 4. Tissue from a marmoset.

MICROSCOPIC DESCRIPTION: Small intestine: Arising within the mucosa, and transmurally **(1pt)** infiltrating and expanding all layers of the intestine, is an infiltrative, unencapsulated, poorly demarcated neoplasm **(1pt)**, which has effaced normal mucosal architecture and resulted in marked blunting of overlying intestinal villi. **(1pt)** Neoplastic cells are arranged in small nests and tubules **(1pt)** on a fine fibrovascular stroma. Throughout much of the tumor, especially in the muscular tunics and the markedly expanded and sclerotic **(1pt)** serosa, nests of neoplastic cells are surrounded by large lakes of a clear to amphophilic mucinous matrix **(2pt)**. Neoplastic cells have indistinct cell borders with variable amounts of finely granular, eosinophilic to amphophilic cytoplasm **(1pt)**. In some cells, large vacuoles of amphophilic mucin peripheralize the nucleus (signet ring cells) **(1pt)**. Nuclei are irregularly round to elliptical with finely stippled chromatin and a single prominent eosinophilic nucleolus **(1pt)**. Mitotic figures are rare **(1pt)**. The submucosa and sclerotic serosa is infiltrated by low to moderate numbers of neutrophils, macrophages, lymphocytes and plasma cells, which often form small aggregates **(1pt)**. The lamina propria of the unaffected mucosa adjacent to the neoplasm is multifocally expanded by a waxy homogeneous eosinophilic material (amyloid) **(2pt)**. In the mucosa adjacent to the neoplasm, there is a focal mucosal ulcer with infiltration of the adjacent mucosa as well as the submucosa with moderate numbers of neutrophils and lesser histiocytes. **(1pt)**. There is marked diffuse atrophy of fat.

MORPHOLOGIC DIAGNOSIS: 1. Jejunum: Adenocarcinoma, mucinous type. **(3pt)**

2. Jejunum, lamina propria: Amyloidosis, multifocal, moderate. **(1pt)**

3. Jejunum: Ulcer, focal.

O/C: (1pt)

