

Case 4. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Cerebellum and brainstem **(1pt)**. Within and expanding the fourth ventricle, incorporating and expanding the choroid plexus **(1pt)** and compressing adjacent brainstem and cerebellum, there is an epithelial-lined cyst **(2pt)**. The cyst is lined by one to three rows of stratified squamous epithelium which shows normal maturation **(1pt)** and keratinization, to include the presence of a granular cell layer **(1pt)**. Between the cyst lining and the entrapped choroid plexus, there is a layer of mature mildly edematous collagen **(1pt)** which contains few lymphocytes and plasma cells **(1pt)** and multifocal mild hemorrhage, as well as few cholesterol clefts. Exterior to the discontinuous cyst wall, there is abundant keratin **(2pt)**, and exterior to that, a rim of uninucleate and rarely multinucleate macrophages **(1pt)** ranging up to 50um with abundant granular eosinophilic cytoplasm. The ventricular wall is effaced by this inflammatory change. The adjacent neuropil is spongiotic **(1pt)**, with multifocal hemorrhage **(1pt)** and gliosis. There is a focal area of white matter necrosis **(1pt)**, in which there are numerous dilated myelin sheaths with swollen axons (spheroids – “torpedoes” on longitudinal section) which have lost differential staining, and are admixed with necrotic glial cells, small amounts of cellular debris, and hemorrhage. **(1pt)**. Multifocally, neuronal cell bodies are mildly swollen with loss of Nissl substance (degeneration). There is moderate sclerosis of the choroid plexus.

MORPHOLOGIC DIAGNOSIS: 4th ventricle: Epidermoid cyst, with multifocal granulomatous rhombencephalitis and focal leukoencephalomalacia. **(4pt)**

O/C: (1pt)

WSC 2013-2014, Conference 1

Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Urinary bladder: Diffusely, the submucosa **(1pt)** and tunica muscularis **(1pt)** is markedly expanded by up to 1mm-diameter, round to polygonal clear spaces **(1pt)** (emphysema) **(2pt)**, which occasionally extend into the overlying mucosa **(1pt)**. There is diffuse moderate to severe edema **(2pt)** of these layers, which surrounds and separates collagen fibers of the submucosa and muscularis. The edematous submucosa contains multifocal areas of hemorrhage **(1pt)**, and subjacent to the urothelium, focal areas of granulation tissue **(1pt)**, as well as aggregates of low numbers of lymphocytes **(1pt)**, plasma cells, hemosiderin-laden macrophages **(1pt)**, and neutrophils. Rare multinucleated giant cell macrophages are seen adjacent to emphysematous spaces. **(1pt)** Submucosal lymphatics are diffusely dilated (edema), and blood vessels are multifocally congested and often are lined by hypertrophied endothelium. The overlying urothelium is multifocally and mildly hyperplastic **(1pt)**. Emphysema and edema extend into the underlying muscularis, where dilated lymphatics and edematous perivascular connective tissue often separates muscle bundles.

MORPHOLOGIC DIAGNOSIS: Urinary bladder, submucosa and muscularis mucosa: Emphysema, diffuse, moderate, with marked submucosal edema and multifocal mild subacute cystitis. **(3pt)**

Predisposing Condition: Glucose in urine (iatrogenic or diabetes mellitus)**(2pt)**

O/C: (1pt)

WSC 2013-2014, Conference 1

Case 3. Tissue from a blackbuck.

Jejunum and mesentery: There is diffuse circumferential lytic **(1pt)** and coagulative necrosis **(1pt)** of the intestinal mucosa, which multifocally extends through the submucosa into the underlying muscular and serosal layers **(1pt)**. Only eosinophilic necrotic remnants of villi remain, admixed with abundant cellular debris and low numbers of degenerate neutrophils **(1pt)**, fibrin **(1pt)** and hemorrhage. In the deeper mucosa, intestinal crypts are dilated, with loss and attenuation of lining epithelium, and contain low to moderate number of neutrophils, admixed with cellular debris (crypt abscesses) **(2pt)**. The intervening lamina propria is distended with innumerable infiltrating neutrophils, largely degenerate, admixed with abundant fibrin, hemorrhage, and edema. Scattered throughout these areas of necrosis are large colonies **(1pt)** of 2-3um bacilli **(1pt)** which range up to 250um in diameter which surrounded by moderate numbers of degenerate neutrophils and abundant cellular debris. Areas of necrosis and bacteria are present multifocally in the markedly edematous **(1pt)** submucosa, which is further expanded by aggregates of moderate numbers of degenerate neutrophils, fibrin, hemorrhage and edema. Submucosal vessels often contain fibrin thrombi **(1pt)**, and walls contain degenerate neutrophils and cellular debris (vasculitis) **(1pt)**. Large numbers of neutrophils, cellular debris, and bacterial colonies extend into and multifocally efface the muscularis and serosa, and the attached mesentery **(1pt)**. Large areas of the mesentery are replaced by suppurative inflammation, hemorrhage, edema, fibrin, and bacterial colonies.

MICROSCOPIC DESCRIPTION: Small intestine: Enteritis, necrosuppurative, transmural, multifocal to coalescing, with necrosuppurative mesenteric steatitis and numerous large colonies of bacilli. **(3pt)**

CAUSE: *Yersinia enterocolitica* or *pseudotuberculosis* **(3pt)**

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

WSC 2013-2014, Conference 1

Case 4. Tissue from a rhesus monkey.

MICROSCOPIC DESCRIPTION: Kidney: Within the cortex **(1pt)**, and extending into the medulla, approximately 60% of the parenchyma is replaced by multiple, often coalescing, poorly defined pyogranulomas **(1pt)**, composed of a central areas of degenerate neutrophils **(1pt)** and macrophages admixed with abundant cellular debris. Peripheral to this are moderate numbers of epithelioid macrophages **(1pt)** and multinucleated giant cell macrophages **(1pt)** which measure up to 150um in diameter, and peripherally low to moderate numbers of lymphocytes and rare plasma cells, enmeshed in small amounts of mature fibrous connective tissue. Multifocally, most often in subcapsular areas, pyogranulomas are largely replaced by areas of lytic necrosis **(1pt)** admixed with moderate amounts of hemorrhage, edema, and fibrin. The pyogranulomas are centered on moderate numbers of intra- **(1pt)** and rarely extrahistiocytic yeasts **(1pt)** which measure 12-15um **(1pt)** with a 2-3um clear cell wall **(1pt)** and which occasionally exhibits narrow-based budding. Adjacent to the granulomas, low to moderate numbers of neutrophils, lymphocytes, and rare plasma cells infiltrate and expand the renal interstitium, separating and surrounding tubules **(1pt)**. Within these areas, tubules are often dilated, filled with brightly eosinophilic protein **(1pt)** which contains low numbers of sloughed and necrotic neutrophils and cellular debris, and lined by variably attenuated to hyperplastic epithelium with occasional mitotic figures, which are occasionally transmigrated by neutrophils (tubulitis) **(1pt)**.

MORPHOLOGIC DIAGNOSIS: Kidney: Nephritis, pyogranulomatous, multifocal to coalescing, with numerous intra- and extracellular yeasts. **(3pt.)**

CAUSE: *Blastomyces dermatitidis* **(2pt)**

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

