

Case 1. Tissue from a rat.

**MICROSCOPIC DESCRIPTION:** Kidney: Multifocally, within both the cortex and the medulla **(1pt)**, tubules are mildly to markedly ectatic **(1pt)**, occasionally forming cysts ranging up to 4mm in diameter **(1pt)**. Tubules appear to be ectatic at all levels. Ectatic tubules exhibit one or more of the following changes: epithelial swelling with accumulation of numerous discrete cytoplasmic vacuoles **(1pt)**, lining by attenuated epithelium **(1pt)**, lumina contain variable amounts of eosinophilic flocculent protein **(1pt)**, sloughed epithelial cells, and viable neutrophils. There is rupture of occasionally ectatic tubules; the adjacent interstitium is expanded by edematous immature granulation tissue which surrounds and replaces the adjacent tubules and contains low to moderate numbers of lymphocytes, with few plasma cells and neutrophils, admixed with small amounts of cellular debris. There are multifocal areas in which the interstitium is thickened by fibrous connective tissue **(1pt)** and low to moderate numbers of lymphocytes and fewer plasma cells **(1pt)**. Glomeruli are occasionally mildly hypercellular, and parietal epithelium is often mildly hypertrophic **(1pt)**. The renal contour is mildly irregular.

Liver: Multifocally throughout the section, clusters of biliary ductules **(1pt)** and bile ducts **(1pt)** are ectatic (up to 5mm). Ectatic bile ductules (often within portal triads) are lined by attenuated epithelium, which rarely exhibits mitotic figures, and surrounded by moderate amounts of mature collagen containing low numbers of lymphocytes, plasma cells, and eosinophils. **(1pt)** Portal lymphatics, sublobular lymphatics, and rare subcapsular lymphatics are mildly to markedly dilated (edema) **(1pt)**.

**MORPHOLOGIC DIAGNOSIS:** 1. Kidney, tubules: Ectasia, multifocal, moderate to marked, with tubular degeneration, loss, and mild interstitial nephritis. **(2pt)**

2. Liver, bile ductules and ducts: Ectasia, multifocal, moderate to marked, with moderate biliary hyperplasia and hepatic edema. **(2pt)**

**NAME THE CONDITION:** Polycystic kidney disease **(2pt)**

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

WSC 2013-2014, Conference 8

Case 2. Tissue from a rhesus macaque.

(NOTE: THERE IS SIGNIFICANT SLIDE VARIATION, AND NOT ALL SLIDES CONTAIN ALL STRUCTURES.)

MICROSCOPIC DESCRIPTION: Testis: Replacing approximately 90% of the testis **(1pt)** is an unencapsulated, moderately cellular, well-demarcated, expansile and cystic **(1pt)** neoplasm composed of cells from three cell layers **(2pt)** (ectoderm, mesoderm, endoderm). Centrally within the neoplasm is an area of well-differentiated haired skin **(1pt)** with keratinizing stratified squamous epithelium **(1pt)** with hair follicles **(1pt)** and fat **(1pt)** (ectoderm) lined by a loosely arranged edematous fibrous core which contains nerve bundles **(1pt)** and cartilage, bone, and bone marrow.) **(1pt)** (mesoderm). Another area contains a primitive tooth **(1pt)** composed of palisading areas of odontogenic epithelium surrounding a loosely arranged stellate reticulum. There are cystic areas which are lined by intestinal epithelium which is either predominantly mucus (colon), or is well-differentiated small intestine with villi and crypts (endoderm). **(1pt)** The majority of the testis is replaced by a large cyst containing brightly eosinophilic protein **(1pt)**, admixed with abundant spicular keratin and crystalline mineral **(1pt)**. At one edge, proteinaceous fluid is present between the neoplasm and the overlying vaginal tunic (hydrocele). At one edge of the section, the remaining testis contains degenerate **(1pt)** tubules lacking spermatogonia in a edematous stroma with few interstitial cells.

MORPHOLOGIC DIAGNOSIS: Testis: Teratoma. **(4pt)**

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

WSC 2013-2014, Conference 8

Case 3. Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Lung: Affecting 50% of the section is large expansile nodular areas of septal necrosis **(1pt)**. Within these areas, alveoli are maximally expanded by large numbers of neutrophils **(1pt)** admixed with fewer alveolar macrophages **(1pt)**, moderate amounts of edema fluid, polymerized fibrin **(1pt)**, cellular debris, and number intra- and extracellular **(1pt)** 2-3um bacilli **(1pt)** which are often surrounded by clear space **(1pt)** in the extracellular milieu. Rarely, alveoli also contain large multinucleated giant cells **(1pt)** ranging up to 60um. Alveolar septa are maximally stretched and often discontinuous, generally congested, and multifocally lined by plump type II pneumocytes **(1pt)**, and in some areas, fibrotic. Within these areas, bronchi are dilated and filled with a similar cellular and bacteria-laden exudate **(1pt)**; airway epithelium is multifocally degenerate or necrotic, and sloughed into the luminal exudate. **(1pt)** There are large fibrin clots **(1pt)** within several large vessels within these areas. Within intervening and adjacent unaffected lung, septa are maximally congested, and alveoli contain moderate amounts of edema fluid **(1pt)** and fibrin.

MORPHOLOGIC DIAGNOSIS: Lung: Bronchopneumonia, necrosuppurative, multifocal to coalescing, severe with numerous intra- and extracellular bacilli. **(3pt)**

CAUSE: *Klebsiella pneumonia* **(3pt)**

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

WSC 2013-2014, Conference 8

Case 4. Tissue from a rhesus macaque.

**MICROSCOPIC DESCRIPTION:** Ear, pinna: Along the haired skin of the pinna, there are multifocal areas of full-thickness ulceration (**1pt**). At the edges of the ulcer, keratinocytes are mildly swollen with intracellular edema, and nuclei are swollen (**1pt**) and contain one to multiple 2-4um rhomboidal light pink viral intranuclear inclusions (**2pt**). Occasional keratinocytes have multiple nuclei (viral syncytia) (**1pt**). Similar cytopathic changes are seen in follicular epithelium (**1pt**) and sebaceous gland epithelium (**1pt**) as well. In areas of epidermal loss, the dermis is intermittently covered by a serocellular crust composed of innumerable degenerate neutrophils admixed with fibrin, abundant cellular debris, keratin, and some plant material (**1pt**). The underlying dermis is infiltrated by large numbers of degenerate neutrophils, macrophages, edema fluid, and cellular debris. The infiltrate multifocally effaces adnexa and follicles, and naked hair shafts are present in the dermis, where they are surrounded by nodular aggregates of viable and degenerate neutrophils, histiocytes, rare multinucleated foreign body macrophages (furunculosis) (**2pt**). The external root sheath and germinal epithelium of other remaining follicles have is infiltrated by degenerate neutrophils (mural folliculitis) (**1pt**) which are often also present within the ostia. Within the dermis, vascular endothelium is markedly hypertrophic (**1pt**), and vessels are surrounded with low to moderate numbers of neutrophils, histiocytes, and lymphocytes admixed with edema fluid as well as mucin. (**1pt**).

**MORPHOLOGIC DIAGNOSIS:** Haired skin, pinna: Dermatitis, necrotizing, multifocal, severe, with folliculitis, furunculosis, and numerous intraepithelial intranuclear viral inclusions and syncytia. (**4 pt.**)

**CAUSE:** Macacine herpesvirus-1 (**2 pt.**)

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