

WSC 2009-2010, Conference 7, Case 1.

Tissue from a rat.

MORPHOLOGIC DESCRIPTION: Uterus: Expanding the and infiltrating the endometrium and compressing the adjacent muscle layers (**1pt.**), there is a well-demarcated, partially encapsulated, well-vascularized nodule (**1pt.**) composed of decidual cells (**1pt.**) arranged in various zones. At the periphery, opposite of the uterine lumen (antimesometrial side/basal zone) (**1pt.**), cells are spindle-shaped, blend with the endometrial stroma (**1pt.**) and occasionally, plumper stellate cells whirl around vessels and have prominent intercellular bridges (spiny cells) (**1pt.**). Progressing centripetally (toward the uterine lumen), decidual cells enlarge in size (**1pt.**) and are separated into packets by a fine fibrovascular stroma, and contain increased amounts of a granular to vacuolated eosinophilic cytoplasm (**1pt.**) (glycogen change/progesterone effect(**2pt.**)), with prominent nucleoli and 1-2 large purple nucleoli. Occasionally cells within this zone contain abundant brightly eosinophilic granules (**2pt.**) and are separated from adjacent cells by large clear spaces (intercellular edema). Glycogen accumulation increases progressively on the luminal side of this zone. Finally, centrally within the nodule, decidual cells exhibit marked anisocytosis (**1pt.**) (up to 200um in diameter) and anisokaryosis (**1pt.**) (occupying about half of the cell volume.) Nuclei are large, round and vesiculate with prominent nucleoli. Multinucleated cells are scattered throughout this region (**1pt.**). The overlying endometrium is flattened and attenuated.

MORPHOLOGIC DIAGNOSIS: Deciduoma (**4 pt.**)

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

WSC 2009-2010. Conference 7, Case 2

Tissue from a mouse.

MICROSCOPIC DESCRIPTION: The mucosal epithelium is markedly thickened up to 10x normal (**1 pt.**) and thrown into large rugal folds (**1 pt.**) (hyperplasia) (**2 pt.**). Deep glands exhibit occasional ectasia, are lined by attenuated mucous glands, and rarely contain sloughed epithelial cells, proteinaceous debris, and mineral. (**1 pt.**) Rarely, there is piling up of epithelial cells and loss of polarity at the deepest part of the glands. At the mid-to superficial level of the glands, epithelial cells have either a moderate amount of basophilic cytoplasm and large open nuclei (**1 pt.**), or are cuboidal to columnar with abundant, deeply eosinophilic cytoplasm (**2 pt.**). There is also multifocal ectasia of glands in this region, which contain necrotic epithelial cell and proteinaceous debris (**1 pt.**). Mitotic figures are seen at all levels of gastric glands (**2 pt.**); parietal and chief cells are present only in very small numbers (**1 pt.**). There are moderate numbers of lymphocytes and plasma cells and rare neutrophils scattered throughout the gastric mucosa (**2 pt.**).

MORPHOLOGIC DIAGNOSIS: Stomach, mucosa: Hyperplasia, diffuse, severe with marked mucus cell metaplasia and mild lymphoplasmacytic gastritis. (**3 pt.**)

O/C – (**1 pt.**)

Name a possible cause: *Helicobacter muris* (**2 pt.**)

WSC 2009-2010, Conference 7, Case 3.

Tissue from a rat.

MORPHOLOGIC DESCRIPTION: Kidney: There are changes at all levels of the nephron. Multifocally, many glomeruli have one or more of the following changes: marked thickening of basement membranes (**1 pt.**), adhesions of the glomerular tuft to Bowman's capsule (synechia) (**1 pt.**), hypertrophy of parietal epithelium (**1 pt.**), variable thickening of Bowman's capsule, periglomerular fibrosis (**1 pt.**). Occasionally, dilated glomerular spaces contain variable amounts of eosinophilic proteinaceous material (**1 pt.**). Many glomeruli are shrunken and sclerotic. Multifocally, tubules show marked variations in diameter (**1 pt.**). Ectatic tubules are lined by attenuated epithelium and contain variable amounts of pale to brightly eosinophilic proteinaceous casts (**1 pt.**), sloughed epithelial cells, cellular and karyorrhectic debris, degenerate neutrophils, and rare erythrocytes. In areas of dense interstitial fibrosis, tubules are atrophic, with shrunken epithelial cells, and inapparent lumens and markedly thickened basement membranes (**1 pt.**). In these areas, tubules are lined by cuboidal cells with abundant basophilic cytoplasm with vesiculate nuclei (**1 pt.**), and which occasionally pile up and form irregular tubules with thickened basement membranes (regeneration) (**1 pt.**). Occasionally, tubular epithelial cells and interstitial macrophages contain a golden-brown pigment. Multifocally, the interstitium is moderately expanded by fibrosis (**1 pt.**), edema, and low numbers of aggregated lymphocytes, plasma cells, and Mott cells (**1 pt.**). Multifocally, there is pyknosis of smooth muscle cells of the walls of muscular arteries, small amounts of cellular debris, and rarely, the wall contains brightly eosinophilic proteinaceous material (**1 pt.**). Multifocally, the capsular surface is irregular.

MORPHOLOGIC DIAGNOSIS: Kidney: Nephritis, chronic, diffuse, severe, with glomerular loss and synechia, tubular degeneration and regeneration, cast formation, and mineralization of basement membranes. (**3 pt.**)

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

Name the condition: Chronic progressive nephropathy of old rats (**2 Pt.**)

Name a likely strain: Fischer 344, Sprague-Dawley (**1 pt.**)

WSC 2009-2010, Conference 7 Case 4.

Tissue from a mouse.

MORPHOLOGIC DESCRIPTION: Brain (midline section): Multifocally, there is loss of large numbers of Purkinje cells (**1 pt.**) and remaining Purkinje cells are mildly swollen (**1 pt.**) by numerous discrete cytoplasmic vacuoles (**1 pt.**) which give the cytoplasm a foamy appearance. Similar changes are seen in neurons in a number of regions of the brain, including the cerebellar nuclei, hippocampus, (**2 pt. for naming a couple of other areas**) and astrocytes (**1 pt.**) in the cerebellar external granular cell layer are swollen with foamy cytoplasmic cytoplasm. The epithelium lining the choroid plexus in the third and fourth ventricles also has abundant foamy cytoplasm (**1 pt.**).

Lung: Diffusely, alveoli contain low to medium numbers of alveolar macrophages (**1 pt.**), ranging up to 60um (**1 pt.**) in diameter with abundant foamy, eosinophilic cytoplasm (**1 pt.**). Occasionally, these cells also contain eosinophilic spicular refractile protein inclusions within their cytoplasm (**2 pt.**). There are rare multinucleated macrophages (**1 pt.**). These cells are admixed with moderate numbers of morphologically normal alveolar macrophages, and rare lymphocytes (**1 pt.**) and neutrophils, and small amounts of intra-alveolar fibrin and edema. and edema (**1 pt.**). There is mild atelectasis in some lobules.

MORPHOLOGIC DIAGNOSIS: 1. Cerebellum: Purkinje cell loss, multifocal, moderate.

2. Brain, Purkinje cells, neurons of hippocampus, cerebellar nuclei, choroid plexus epithelium: Cytoplasmic vacuolation, multifocal, moderate.

3. Lung: Alveolar histiocytosis, with abundant intracellular lipid, diffuse, mild to moderate.

4. Lung: Eosinophilic crystalline pneumonia, diffuse, mild. (**4 pt.**)

Name the condition: Lysosomal storage disease (**2 pt. – you can name any one**)

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