WSC 2024-2025
Conference 21, Case 1
Tissue from a rat.

MICROSCOPIC DESCRIPTION**:** Kidney: There are changes at all levels of the nephron. Diffusely, glomeruli exhibit one or more of the following changes: variation in size, marked expansion of the glomerular capillary walls by abundant granular, lamellated or homogenous eosinophilic material, **(1pt)** adhesions of the glomerular tuft to Bowman's capsule (synechia) **(1pt)**, hypertrophy of parietal epithelium, marked thickening of Bowman's capsule, and periglomerular fibrosis. Bowman's space is often moderately dilated and contains variable amounts of eosinophilic tubular reflux. **(1pt)** Occasional glomeruli are shrunken and sclerotic **(1pt).** Diffusely, tubules show marked variation in diameter, with ectatic tubules ranging up to 1mm in diameter **(1pt).** Ectatic tubules **(1pt)** are lined by attenuated epithelium whose height is inversely proportional to the cross-sectional area of the tubule, and contain large amounts foamy pale eosinophilic protein and occasionally sloughed epithelial cells, cellular and karyorrhectic debris, degenerate neutrophils, and rare erythrocytes. **(1pt)** Occasional tubules are lined by multiple layers of basophilic cuboidal epithelium which encroach upon or fill the lumen (regeneration) **(1pt)**. Diffusely, the interstitium is mildly and irregularly expanded by edema, fibrosis, and low to moderate numbers of aggregated lymphocytes and plasma cells which often form aggregates **(1pt)**.

The renal pelvis is moderately dilated, and contains moderate to large numbers of necrotic and viable neutrophils admixed with cellular debris. **(1pt.)** There are segmental areas of ulceration of the pelvic epithelium, and there is marked suppurative inflammation extending into the rest of the pelvis. **(1pt.)** There are rays of ectatic tubules extending into the cortex (1pt.) which are filled with viable and necrotic neutrophils **(1pt.)** admixed with cellular debris and often large colonies of cocci **(1pt)** In foci of inflammation, the interstitium is expanded by large numbers of neutrophils and fewer macrophages, lymphocytes, and small numbers of fibroblasts separated by small amounts of collagen which effaces tubules in some areas

MORPHOLOGIC DIAGNOSIS: 1. Kidney: Nephritis, interstitial **(1pt)**, chronic, diffuse, marked, with membranous glomerulonephritis **(1pt)**, synechiae, tubular loss, degeneration, necrosis, and regeneration. **(1pt)**

2. Kidney: Pyelonephritis **(1pt.)** , chronic-active and suppurative, **(1pt.)** multifocal to coalescing, severe, with intratubular bacilli, and mild hydronephrosis. **(1pt.)**

NAME THE CONDITION: Chronic progressive nephropathy of rats **(1pt)**

WSC 2024-2025
Conference 21, Case 2
Tissue from a rat.
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MICROSCOPIC DESCRIPTION: Zymbal's gland **(1pt)**: Expanding the lumen of the normal gland there is a well--circumscribed, expansile, moderately cellular, multilobular neoplasm. **(2pt)** The wall of the neoplasm is composed of squamous epithelium **(1pt)** with a basal, and markedly thickened spinous layer **(1pt)** . At one edge of the neoplasm, there is are multifocal areas of sebaceous differentiation **(1pt)** with well-formed adenomeres. (1pt) . There is minimal atypia of the neoplastic cells. **(1pt)** Mitotic figures are rare **(1pt)** to include the basal layer of epithelium. The is abrupt keratinization **(1pt)** at the luminal edge of the stratum spinosum which forms long papillary fronds **(1pt)** containing both densely packed lamellar keratin **(1pt)** and ghost cells composed of both keratinocytes and sebocytes. **(1pt)** The central cystic area and invaginations within the proliferating epithelium contain with variable amounts of flocculent sebum, keratin debrisan aggregates of degenerate neutrophils and hemorrhage. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Zymbal's gland: Zymbal's gland adenoma. **(4pt)**

O/C – **(1pt)**

WSC 2024-2025
Conference 21, Case 3.
Tissue from a rat

MICROSCOPIC DESCRIPTION: Lung: Diffusely, bronchioles are markedly ectatic up to 5mm **(1pt.)** in diameter (bronchiectasis) **(1pt.)**and their lumina are occluded by solid exudate of innumerable degenerate neutrophils admixed with abundant cellular debris **(1pt.)** There is a thin layer of viable neutrophils and foamy macrophages immediately adjacent to the largely effaced bronchiolar wall. **(1pt.)** In affected airways, airway epithelium demonstrates a variety of changes to include loss of cilia, necrosis, total absence, and squamous metaplasia **(1pt.)**. In bronchioles approximating normal diameter (which still have abundant but largely viable neutrophils in their lumen), airway epithelium is markedly hyperplastic **(1pt.)** and layered up to 3-4 cells thick, with occasional mitotic figures, apoptotic cells and infiltration with low numbers of lymphocytes and neutrophils. In these airways, the cilia of the airway epithelium is basophilic as the result of a layer of rod-like bacilli intermingled with the cilia. **(1pt.)** In affected airways, mural architecture peripheral to the airway epithelium is replaced by multiple layers of fibroblasts, mature collagen **(1pt.)** and enmeshed neutrophils and macrophages. **(1pt)** The fibrous connective tissue surrounds, separates, and replaces submucosal glands (which often contain neutrophils, macrophages,and sloughed epithelum, and effaces adjacent alveolar parenchyma. **(1pt.)** Remnant alveoli are atelectatic in proximity to ectatic airways, and open alveoli are filled with various combinations and combinations of foamy macrophages **(1pt.)** viable and degenerate neutrophils (1pt.), cellular debris, and edema. Walls are variably edematous, fibrotic **(1pt.)** and/or lined by type II pneumocyte hyperplasia. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Lungs: Bronchopneumonia, **(1pt.)**suppurative, **(1pt.)**chronic, diffuse, severe, with marked bronchiolectasis **(1pt.)**, fibrosis, type II pneumocyte hyperplasia **(1pt.)**,and cilia-associated bacilli. **(1pt.)**

CAUSE: Any cilia-associated bacterium (Filobacter, Bordetella) **(2pt.)** or Mycoplasma pulmonis **(for 1 pt.)**

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

WSC 2024-2025
Conference 21 Case 4.
Tissue from a scid mouse.

MICROSCOPIC DESCRIPTION: Lung: There is atelectasis within all lobes **(1pt.)**. Alveolar septa are hypercellular and expanded by numerous activated intraseptal macrophages **(1pt.)**, circulating neutrophils **(1pt.)**, edema, collagen and fibroblasts **(1pt.)** and often Type II pneumocyte hyperplasia**(1pt.)**. There are scattered acidophilic macrophages within the alveoli as well. Airways contain mucus, sloughed airway epithelium, and small numbers of neutrophils. **(1pt.)** There is increased bronchiolar-associated lymphoid tissue **(1pt.)** as well as perivascular cuffs of large lymphocytes. **(1pt.)** Larger vessels often contain increased numbers of circulating (or pavemented neutrophils) within their lumina.

Esophagus There are moderate number of aggregated lymphocytes and plasma cells within the submucosa. **(1pt.)** There are rare apoptotic cells with the mucosal epithelium. **(1pt.)**

Mediastinum: Aggregates of moderate numerous of lymphocytes and plasma cells are present beneath the epimysium of skeletal muscle and within the perimysium. **(1pt.)** Lymhocytes and plasma cells infiltrate the mediastinal fat. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, interstitial **(1pt.)**, lymphohistiocytic **(1pt.)**, diffuse, chronic, marked, with circulating neutrophilia, peribronchiolar and perivascular lymphoid hyperplasia, **(1pt.)** and type II pneumocyte hyperplasia.
2. Esophagus: Esophagitis, lymphocytic, focally extensive, mild to moderate with mucosal epithelial apoptosis. **(1pt.)**
3. Skeletal muscle: Myositis, lymphocytic, multifocal, mild. **(1pt.)**
4. Mediastinal fat: Panniculitis, lymphocytic, multifocal, mild. **(1pt.)**.

CAUSE: Graft versus host disease **(1pt.)**

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