

WSC 2026-2027
Conference 4, Case 1
Tissue from a rat.

MICROSCOPIC DESCRIPTION: Kidney: Approximately 80% of the kidney is effaced and the pelvis is compressed by an infiltrative, unencapsulated, well-demarcated, multilobular, moderately cellular neoplasm. (1pt) The neoplasm has three distinct morphologies to the neoplastic cells – blastemal (1pt), mesenchymal (1pt), and epithelial (1pt). The majority of the neoplastic cells are blastemal and are arranged in short streams and bundles (1pt) of densely packed spindle cells, which are centered on and surround one or more well-formed tubules (described below). (1pt) Blastemal cells have indistinct cell borders and a small to moderate amount of granular amphophilic cytoplasm. (1pt) Nuclei are irregularly round to oval with abundant finely stippled chromatin and 1-3 basophilic nucleoli. (1pt) There is minimal anisokaryosis, and the mitotic rate in this population is 20 per 2.37mm² field. (1pt) There are low numbers of apoptotic blastemal cells. (1pt) At the periphery of islands of blastemal cells, these cells elongate and become narrower, and are separated by moderate amounts of edematous stroma (mesenchymal cells); (1pt) the mitotic rate in this population is approximately 6 per 2.37mm² field. (1pt) Within the center of blastemal islands, condensations of cells assume columnar epithelial morphology and palisade around an often irregularly shaped lumen, resembling tubules (1pt) (epithelial) – mitoses are approximately 12 per 2.37mm² field. At the periphery of the neoplasm, blastemal cells surrounding the epithelial tubular component are markedly decreased in number. AT the advancing edge of the tumor, normal renal architecture is lost with loss of tubules, atrophy of tubular epithelium, and fibrosis. Centrifugally, remnant tubules are ectatic, and the interstitium is infiltrated by aggregates of lymphocytes and plasma cells. (1pt) There is interstitial fibrosis (1pt) at the infiltrating edge of the neoplasm, with atrophy and loss and compression of tubules and glomeruli.

MORPHOLOGIC DIAGNOSES: Kidney: Nephroblastoma. (3pt.)

NAME AN APPROPRIATE IMMUNOHISTOCHEMICAL STAIN: WT-1 (1pt)

O/C: (1pt.)

WSC 2026-2027
Conference 4, Case 2
Tissue from a dog.

MICROSCOPIC DESCRIPTION: Colon **(1pt.)**: Expanding the smooth muscle wall **(1pt.)** of the colon and focally infiltrating and effacing the overlying mucosa and submucosa, there is a well-demarcated, multilobular, densely cellular, unencapsulated neoplasm. **(1pt.)** The neoplasm is composed of round cells arranged in nests and packets **(1pt.)** on a fine fibrovascular stroma **(1pt.)**. Neoplastic round cells have variably distinct borders and a moderate amount of granular basophilic cytoplasm **(1pt.)**, and often an eosinophilic perivascular cuff **(1pt.)**. In some neoplastic cells, the entire cytoplasm is eosinophilic. Nuclei are irregularly round with coarsely stippled chromatin and 1 to 2 prominent basophilic nucleoli **(1pt.)** and are often indented **(1pt.)** ("helmet cells"). Anisocytosis and anisokaryosis are moderate, and karyomegalic **(1pt.)** and multinucleated cells **(1pt.)** (up to 3 nuclei) are common. Mitoses average 7 per 2.37 mm² field. **(1pt.)** Scattered throughout the neoplasm, predominantly near the ventral margin and often surrounding and entrapping blood vessels, there are variably sized islands of a pale pink homogeneous waxy material **(1pt.)** (amyloid) **(1pt.)**. There is multifocal hemorrhage within the neoplasm. Within the overlying remnant mucosa, there is loss of colonic gland and fibrosis of the mucosa **(1pt.)** with scattered hemorrhage and numerous individualized numbers lymphocytes and plasma cells. There is multifocal hemorrhage within the mucosa and submucosa.

MORPHOLOGIC DIAGNOSIS: Colon: Plasmacytoma. **(4pt.)**

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

WSC 2026-2027
Conference 4, Case 3.
Tissue from a cat.

MICROSCOPIC DESCRIPTION: Eye: Markedly expanding the iris and ciliary body **(1pt.)** and extending along Descemet's membrane and posteriorly, infiltrating the sclera along perivascular spaces **(1pt.)**, and forming a mat along the retina, there is an infiltrative, unencapsulated, moderately cellular, poorly demarcated neoplasm. **(1pt.)** The neoplasm is composed of markedly pleomorphic polygonal cells **(1pt.)** which are arranged in sheets **(1pt.)** on a pre-existing stroma. Within the iris and ciliary body, approximately 50% of the neoplasm has undergone coagulative necrosis **(1pt.)**, with areas of peritheliomatous survival. **(1pt.)** Neoplastic cells have indistinct cell borders and a moderate amount of homogeneous eosinophilic cytoplasm. **(1pt.)** Nuclei are irregularly round with coarsely stippled chromatin and 1 to 2 prominent eosinophilic nucleoli. Anisocytosis and anisokaryosis are severe, **(1pt.)** with marked nuclear pleomorphism. **(1pt.)** Mitoses range up to 22 per 2.37 mm² field **(1pt.)** with occasional atypical mitotic figures. There is mild multifocal corneal vascularization. Neoplastic cells coat the posterior aspect of the cornea **(1pt.)**, and there is eosinophilic proteinaceous fluid and detached and degenerate neoplastic cells within the anterior segment. Posterior to the expanded iris, the anterior segment contains abundant eosinophilic fluid. Drainage angles are effaced by the neoplasm at the iris root on both sides of the globe. **(1pt.)** Marked cataractous change is present within the lens **(1pt.)**, with formation of numerous balloon cells and Morgagnian globules. Neoplastic cells coat the inner aspects of the retina. **(1pt.)** The retina is artificially detached, with no evidence of pigmentation or hypertrophy of the retinal pigmented epithelium. The rod and cone layer is intact. There is moderate atrophy of the plexiform and inner nuclear layers of the retina. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Eye, iris and ciliary body: Metastatic carcinoma. **(3pt.)**

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

WSC 2026-2027

Conference 4, Case 4.

Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Liver: The liver is diffusely infiltrated by an infiltrative, unencapsulated, poorly demarcated, and densely cellular round cell neoplasm **(1pt)**, which markedly expands sinusoids **(1pt)** and effaces the normal hepatic sinusoidal architecture. Neoplastic cells are arranged in sheets **(1pt)** on a pre-existing stroma. **(1pt)** Neoplastic cells have indistinct cell borders and a moderate amount of finely granular eosinophilic cytoplasm. **(1pt)** Nuclei are irregularly round to oval, occasionally indented, and have moderately stippled chromatin with one to two prominent nucleoli. **(1pt)** Anisocytosis and anisokaryosis are moderate with occasional pleomorphism **(1pt)**, and mitoses average 2 per 2.37 mm² field. **(1pt)** Rarely, neoplastic cells contain erythrocytes or brown granular pigment within their cytoplasm (likely hemosiderin). Numerous islands of hyperchromatic cells (erythroid precursors, extramedullary hematopoiesis) are scattered throughout the neoplasm. **(1pt)** Hepatocytes are often compressed in areas of sinusoidal infiltration, with occasional karyomegalic nuclei and bright pink cytoplasmic granules. **(1pt)** Multifocal areas of hemorrhage and necrosis are scattered throughout the neoplasm. **(1pt)** Islands of neoplastic cells are present within the lumen of hepatic vessels. **(1pt)**

Kidney: Diffusely, the cytoplasm of proximal convoluted tubules is markedly expanded by numerous discrete brightly eosinophilic droplets **(1pt)** (lysozyme) **(1pt)**. There is brown granular pigment (likely lipofuscin) within the cytoplasm of occasional tubular epithelial cells.

MORPHOLOGIC DIAGNOSIS: Liver: Histiocytic sarcoma **(4pt)**.

2. Kidney, proximal convoluted tubules: Hyaline droplets, numerous. **(1pt)**

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