

WSC 2019-2020 Conference 23

Case 1. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Lung: Two sections of lung are submitted. Both sections contain multiple cysts **(1pt)** ranging up to 1cm in diameter **(1pt)** which contain paired adult trematodes **(1pt)**. Trematodes are 2x3 mm in diameter with a, has a 40 um thick spiny tegument **(1pt)**, and a spongy parenchyma that contains numerous vitellarian glands **(1pt)** arrayed beneath the tegument, paired ceca, and cross sections of testis and uterus. The uterus **(1pt)** is filled with eggs that are 80 x 100um, and have a 1-3um thick, yellow, anisotropic shell. **(1pt)** The cysts are intermittently lined by several layer of stratified squamous to non-ciliated epithelium **(1pt)** (which suggests airway epithelium), and has thick fibrous capsule which ranges up to 500um in diameter **(1pt)** which is infiltrated moderate numbers of lymphocytes and macrophages, often in aggregates beneath the cyst lining, and fewer plasma cells, neutrophils, eosinophils. Adjacent alveolar parenchyma is compressed, and there is diffuse atelectasis throughout both sections. **(1pt)** Multifocally, there are patchy areas in which alveoli are filled with moderate numbers of neutrophils, macrophages, cellular debris, and trematode eggs. **(1pt)** Within these areas, alveolar septa are thickened by increased circulating neutrophils, hypertrophic intraseptal macrophages, edema, fibrin, and patchy type II pneumocyte hyperplasia and scattered siderophages. **(1pt)** Airway lumina contain large amounts of similar inflammatory cells, **(1pt)** which extend through the variably hyperplastic to attenuated mucosal epithelium **(1pt)** into the surrounding parenchyma. Diffusely bronchioles are outlined by marked submucosal gland hyperplasia and mild BALT hyperplasia. **(1pt)** There is moderate multifocal and haphazard mesothelial hyperplasia **(1pt)**, which is infiltrated by low to moderat numbers of lymphocytes, histiocytes, and rare neutrophils.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia **(1pt)**, pyogranulomatous **(1pt)**, multifocal, mild with encysted adult trematode **(1pt)** and eggs.

CAUSE: *Paragonimus kellicotti* **(3pt)**

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Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Fibroadipose tissue with mesothelial lining (presumptive omentum or mesentery): **(1pt)** Scattered throughout the section both encapsulated in cysts **(1pt)** and free within the tissue **(1pt)**, there are numerous cross sections of viable and degenerating metacestodes (tetrathyridia) **(2pt)** which measure up to 1mm in diameter **(1pt)**, have a 15um thick convoluted hyaline pink tegument **(1pt)**, a loose parenchymatous matrix **(1pt)**, lack a pseudocoelom, with numerous somatic cell nuclei in close apposition with the tegument, and numerous calcareous corpuscles **(2pt)**. Degenerating cestodes contain a markedly thickened, less eosinophilic tegument with numerous cleared areas which occasionally contain eosinophilic fluid, and expansion of the parenchymatous body with a clear to granular basophilic material. **(1pt)** Encysted cestodes are surrounded by a fibrous capsule ranging up to 120um in diameter **(1pt)**, with contains low to moderate numbers of histiocytes, lymphocytes, and plasma cells, and is occasionally and segmentally lined by cuboidal epithelioid macrophages. **(1pt)** There are aggregates of low to moderate numbers of lymphocytes and fewer histiocytes around vessels throughout the section. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Fibroadipose tissue: Encysted and free tetrythyridia **(1pt)**, multiple with mild granulomatous steatitis **(1pt)**.

CAUSE: *Mesocestoides* sp. **(3pt)**

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

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Case 3. Tissue from a Malaysian snail-eating turtle.

MICROSCOPIC DESCRIPTION: Lung: There are two cross sections of lung **(1pt.)**. Within the intrapulmonary bronchus and faveolar spaces, **(1pt.)** compressing adjacent faveolar septa, there are cross-sections of an adult **(1pt.)** male and female pentastome. **(1pt.)** The female measures 2mm in diameter and the male 1mm. **(1pt.)** The parasite has a thin hyaline eosinophilic cuticle **(1pt.)** with regularly spaced sclerotic openings **(1pt.)**. There is a line of somatic cell nuclei beneath the cuticle, and underneath these a layer of skeletal muscle **(1pt.)** lining a coelom. The coelom contains multiple cross section of a digestive tract lined by large eosinophilic glandular cells **(1pt.)** with prominent nuclei and cross sections of amphophilic hyaline chitinous hooklets. **(1pt.)** The male pentastome has a single cross section of a testis **(1pt.)** with abundant sperm. The female possess an ovary with developing ova, and a uterus with large fully mature eggs. **(1pt.)** Diffusely, faveolar septa are mildly expanded by edema and low to moderate numbers of infiltrating granulocytes, macrophages, and lymphocytes **(1pt.)** as well as rare pigment-laden macrophages. Faveolar spaces contain low to moderate numbers of sloughed pneumocytes, hemorrhage, fibrin, moderate numbers of macrophages, fewer neutrophils, and cellular debris. At one edge of the section, there is a 850um granuloma **(1pt.)** which contains a core of degenerate heterophils admixed with brightly eosinophilic cellular debris, which is centrifugally surrounded by 2-3 layers of epithelioid and rare foreign-body type giant cells, and in turn by several concentric layers of loosely arranged collagen with plump fibroblasts. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Lung: Pneumonia, bronchointerstitial **(1pt.)**, granulocytic, mild to moderate, chronic, with intra- and extrapulmonary pentastomes **(1pt.)**

2. Lung: Granuloma, heterophilic, focal.

Cause: Pentastome (*species not required for points*) **(2pt.)**

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

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Case 4. Tissue from a foal.

MICROSCOPIC DESCRIPTION: Adrenal gland (2 sections): Within one section, approximately 50% **(1pt)** of the medulla **(1pt)** is replaced by randomly distributed foci of granulomatous **(1pt)** inflammation which extend into the adjacent cortex and are composed of large numbers of epithelioid macrophages **(1pt)** and lymphocytes **(1pt)** and moderate numbers of eosinophils **(1pt)** and Langhans-type and foreign-body type giant cells **(1pt)** and cellular debris enmeshed in abundant vascular and loosely arranged **(1pt)** fibrous connective tissue **(1 pt)**. Some areas of granulomatous inflammation contain central areas of lytic necrosis **(1pt)** and/or cross and sections of adult female rhabditoid nematodes **(1pt)** that are 12-25 um in diameter with a smooth cuticle, platymyarian-meromyarian **(1pt)** musculature, an esophagus with terminal bulb, **(1pt)** and a single uterine cross section with a deeply basophilic egg. **(1pt)**. Additionally there are cross sections of larvae **(1pt)** which range from 6-10um in diameter with a thin cuticle and numerous internal nuclei. There are scattered islands of erythropoiesis located primarily at the corticomedullary junction.

MORPHOLOGIC DIAGNOSIS: Adrenal gland: Adrenitis, granulomatous **(1pt)**, multifocal to coalescing, severe, with adult and larval rhabditoid nematodes. **(1 pt)**

CAUSE: *Halicephalobus gingivalis* **(2 pt)**

NAME TWO OTHER ORGANS WHERE YOU MAY FIND A SIMILAR LESION: Oral or nasal cavity, brain **(2 pt)**

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