WSC 2015-2016, Conference 12
Case 1. Tissue from a guinea pig.

MICROSCOPIC DESCRIPTION Ovary (with oviduct remaining at the edge of the mass) **(1pt)**: Effacing **(1pt)** 100% of the ovary, is an unencapsulated, poorly demarcated, densely cellular, multiloculated neoplasm **(2pt)** composed of tissue representing all three primordial germ cell lines **(2pt)**. Ectodermal **(1pt)** elements consist of abundant neural tissue **(1pt)** with neurons **(1pt)** and glial cells and aggregates of small basophilic primitive neuroepithelial cells scattered throughout the neoplasm,. Mesodermal elements include numerous trabeculae of well-differentiated lamellar bone **(1pt)**, with small amounts of woven bone, randomly arrayed large bundles of smooth muscle, and scattered areas of fibrosis. Endodermal **(1pt)** tissues are composed of numerous variably sized cysts up to 6 mm in diameter which are either lined by a single layer of ciliated **(1pt)** tall columnar epithelium (respiratory epithelium **(1pt)**) which is often attenuated when lining ectatic cysts. Cysts contain variable amounts of hemorrhage, fibrin, secretory product, macrophages often with brown ingested secretory product, and hemoglobin crystals. **(1pt)** Endodermal tissue also includes glandular epithelium **(1pt)** forming acini with both mucus droplets within some acini and brightly eosinophlic granules within others (mucous and serous salivary epithelium) **(1pt)** as well as ducts lined by tall columnar epithelium. Mitoses in all cell populations average fewer than 1 per 10 HPF.

MORPHOLOGIC DIAGNOSIS: Ovary: Teratoma **(3 pt.)**

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

WSC 2015-2016, Conference 12
Case 2. Tissue from a cynomolgus monkey.

MICROSCOPIC DESCRIPTION: Heart, Left atrium and ventricle with mitral valve: Diffusely and most prominently within the left ventricular wall **(1pt)**, but also within all other segments, cardiomyocytes are massively swollen **(1pt)** and hypertrophic, and mildly disarrayed **(1pt)**. Within the cytoplasm, myofilaments are similarly maloriented, and are often separated by clear space which often coalesces into clear non-membrane bound vacuoles **(2pt)** ranging up to 100um. Nuclei are hypertrophic **(1pt)**, with an elongated often rectangular nucleus ranging up to 40um with finely stippled chromatin and small basophilic nuclei. **(1pt)** Occasionally, chromatin is arrayed into a solid line down the center of the nucleus (Anistchow or "caterpillar" cell) **(1pt)** . Rarely nuclei range up to 100um and are pleomorphic **(1pt)**. These nuclei are often rimmed by a discrete halo and often ordered by abundant pink to brown lipofuscin granules **(1pt)**. Satellite nuclei are hypertrophic and increased in number. Scattered throughout the section, small numbers of myofibers are brightly eosinophilic, and contracted (degenerate) and fragmented and anuclear (necrotic **(1pt)**) and surrounded by low numbers of histiocytes and lymphocytes **(1pt)**. In other areas, there are aggregates of lymphocytes and histiocytes which replace myofibers. There is extensive fibrosis **(2pt)** throughout the section which surrounds, separates, and replaces hypertrophic myocytes and myofibers. Within the atrium, there are small foci in which condensed bands of myofilaments span multiple cells (contraction band necrosis) **(1pt)**

MORPHOLOGIC DIAGNOSIS: Heart, left ventricle: Myocyte cytomegaly, karyomegaly, and vacuolation, diffuse, severe, with myocyte degeneration, necrosis, and loss, and marked myocardial fibrosis. **(4 pt)**

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

WSC 2015-2016, Conference 12
Case 3. Tissue from a hare.

MIROSCOPIC DESCRIPTION: Appendix (sacculus rotundus OK too.) **(1pt)**: There is diffuse transmural **(1pt)** necrosis , focused on the mural lymphoid tissue. Areas of lymphoid tissues are diffusely outlined by well-demarcated foci of lytic necrosis **(1pt)** composed of abundant eosinophilic cellular debris throughout which is scattered numerous degenerate heterophils and few remaining viable lymphocytes, abundant hemorrhage, and numerous coalescing large colonies **(1pt)** of 2-3um short rods**(1pt)** which measure up to 200um in diameter. Ghost outlines of the overlying mucosal stroma are present, and the lamina propria at all levels is expanded by abundant hemorrhage **(1pt)** with lesser amounts of fibrin and edema, admixed with cellular debris. There are areas of necrosis within the distended tunica muscularis, admixed with hemorrhage and large colonies of bacilli. The necrosis, with concomitant hemorrhage and large colonies of bacilli extend into and through the thickened serosa and multifocally efface the adjacent mesentery **(1pt)**. Mesenteric vessels are often markedly congested and contain colonies of bacilli, and occasionally, walls are thickened by hemorrhage and cellular debris (vasculitis) **(1pt)**.

Liver: Scattered randomly throughout the section, there are multifocal to coalescing areas of lytic **(1pt)** hepatocellular necrosis **(1pt)**. These areas are composed of eosinophilic and basophilic cellular debris admixed with few infiltrating neutrophils, hemorrhage, and large colonies of bacilli as previously described. There is extensive hemorrhage at the borders of necrotic areas. Colonies of bacilli expand and outline sinusoids in unaffected areas throughout the section as well **(1pt)**, and sinusoids contain increased numbers of heterophils which are often pyknotic. Rarely central and sublobular veins contain fibrin thrombi. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Appendix (Sacculus rotundus would be OK as well): Appendicitis, necrotizing and hemorrhagic, diffuse, severe with marked lymphoid necrosis, multifocal vasculitis, and numerous large colonies of bacilli. **(2pt)**

2. Liver: Hepatitis, necrotizing, multifocal to coalescing, severe, with numerous large colonies of bacilli. **(2pt)**

CAUSE: *Yersinia enterocolitica* or *pseudotuberculosis* **(3pt)**

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

WSC 2015-2016, Conference 4
CASE 4. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Eye: The anterior lens capsule is ruptured in multiple sites **(1pt)**, and the anterior ten percent of the lens **(1pt)** is infiltrated by innumerable degenerate heterophils **(1pt)** admixed with abundant cellular debris and homogenous hyalinized fragments of lens protein **(1pt)**. Lens fibers adjacent to the purulent exudate are rounded up and swollen (bladder cells) **(1pt)**, or ruptured and coalesced into irregular granular coagula. There is circumferential degeneration of lens fibers which dissolve into Morgagnian globules at the posterior capsule, and at the apical margin, there are aggregates of 2um microsporidian spores **(2pt)** subjacent to the lens capsule. Multifocally, there is spindle cell proliferation subjacent to the lens capsule (lens fiber metaplasia) **(1pt)** which extends through area of rupture into the posterior segment . There is a focal synechia **(1pt)** between the posterior iris and anterior lens capsule in one area of rupture, and in this area the iris is thickened by mild edema and infiltrated by low numbers of viable heterophils **(1pt)**. The anterior face of the iris is vascularized and markedly congested. The posterior segment **(1pt)** (between the iris and lens) is filled with innumerable degenerate neutrophils admixed with abundant cellular debris, proteinaceous fluid, and fragments of lens protein, and low numbers of melanomacrophages. The posterior chamber **(1pt)** is filled with polymerized fibrin, small amounts of hemorrhage, and moderate numbers of degenerate heterophils. The retina is detached **(1pt)** and there is hypertrophy of the underlying retinal pigmented epithelium. The choroid is multifocally expanded by low to moderate numbers of lymphocytes **(1pt)**, and similar numbers of lymphocytes infiltrate the optic nerve. There are moderate numbers of lymphocytes surrounding vessels of the peripheral cornea and there is increased vascularization of the central cornea **(1pt)**.

MORPHOLOGIC DIAGNOSIS: Eye, globe: Endophthalmitis, fibrinosuppurative, diffuse, severe, with multifocal lens rupture, posterior synechia, retinal detachment, and intralenticular microsporidia. **(3 pt.)**

CAUSE: *Encephalitozoon cuniculi* **(1pt)**

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