

WSC 2014-2015, Conference 9

Case 1. Tissue from a deer.

**MICROSCOPIC DESCRIPTION:** Cerebrum: Approximately 40% **(1pt)** of the section is effaced by a focal area of lytic necrosis **(2pt)** consisting of a central area of amorphous eosinophilic and basophilic cellular debris **(1pt)**, which contains multifocal aggregates of mineral **(1pt)** (abscess) **(2pt)**. All histologic features of the immediately adjacent gray matter are hypereosinophilic (coagulative necrosis) **(1pt)** and necrotic blood vessels contain fibrin thrombi **(1pt)**. Peripheral to this necrotic zone, there is profound gliosis **(1pt)**, spongiosis **(1pt)**, and neovascularization **(1pt)**. These vessels are surrounded by large cuffs of lymphocyte **(1pt)**s with fewer macrophages, plasma cells, and neutrophils **(1pt)** admixed with edema and cellular debris, and are lined by hypertrophic endothelial cells. They are often bordered by moderate numbers of 10-20um wide vacuolated Gitter cells **(1pt)**. Neurons are often shrunken, angular and brightly eosinophilic (degeneration) **(1pt)**. These changes are present but in diminishing severity in increasing distance from the abscess, and the cuffs surrounding more distant vessels have a higher density of lymphocytes and fewer macrophages and neutrophils.

**MORPHOLOGIC DIAGNOSIS:** Cerebrum: Abscess, focally extensive, with gliosis, spongiosis, and lymphoplasmacytic perivascular cuffs. **(3pt)**

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

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Case 2. Tissue from a penguin.

(Note: In my section, the myocardial changes are quite mild, and this would be a poor descriptive slide. Perhaps there were multiple sections submitted, but my section does not have the necrosis or thrombosis described by the contributor. However, it is important to get a feel for this parasite and know to look for it in the myocardium - especially in penguins – because it would be an excellent “two-fer” if combined with another pathologic process. Bhw)

**MICROSCOPIC DESCRIPTION:** Heart: Multifocally within the myocardium, there are infrequent areas in which the myofibers exhibit mild size variation **(2pt.)**, hyalinization **(2pt.)**, and loss of cross-striations (degeneration) **(2pt.)**. The intervening interstitium is mildly expanded by clear space (edema) as well as mildly increased amounts of fibrous connective tissue. There are individual and small numbers of lymphocytes scattered throughout the myocardium **(2pt.)**. Multifocally, capillary endothelial cells **(1pt.)** are expanded by apicomplexan schizonts **(2pt.)** which contain numerous round basophilic 2-3um **(1pt.)** merozoites **(2pt.)**.

**MORPHOLOGIC DIAGNOSIS:** Heart, myocardium: Myocarditis, lymphocytic, multifocal, minimal to mild, with numerous intraendothelial apicomplexan merozoites. **(2pt.)**

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

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

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Tissue from a bearded dragon.

**MICROSCOPIC DESCRIPTION:** Scaled skin: The dermis is markedly expanded by numerous discrete granulomas **(1pt.)** which often coalesce **(1pt.)** and result in ulceration of the overlying epidermis. The granulomas range up to 400um in diameter with a central area of brightly eosinophilic cellular debris which is surrounded by numerous epithelioid macrophages with amphophilic granular to foamy cytoplasm **(1pt.)**, fewer multinucleated foreign body macrophages **(1pt.)**, and admixed moderate numbers of heterophils, fewer lymphocytes and cellular debris. Multifocally, the granulomas are centered on cross- and tangential sections of 3-5um non-septate **(1pt.)** hyphae **(1pt.)** with parallel walls. Granulomas are bounded by a thin rim of fibroblasts. The intervening dermis contains variable combinations and concentrations of heterophils **(1pt.)** macrophages and lymphocytes, which often outline congested capillaries, as well as multifocal areas of increased fibrous connective tissue **(1pt.)** There is a 2cm linear area of full-thickness epidermal necrosis **(1pt.)** in which the epidermis is replaced by a thick serocellular crust measuring up to 5mm which is composed of keratin debris, hemorrhage, edema, fibrin, and numerous degenerating macrophages, cellular debris, mineral and chromatophore pigment, fungal hyphae and arthroconidia, as well as occasional plant material. **(2pt.)** At the edges of the ulcer, the epidermis is intact and demonstrates a lack of differential staining (coagulative necrosis). **(1pt.)** The adjacent non-ulcerated epidermis is covered by a 500um thick hyperkeratotic scale, and a band of thick chromatophore pigment is present at the adjacent intact dermoepidermal junction. **(1pt.)** The dermis at the edge of the granulomatous inflammation is expanded by abundant basophilic mucin and low to moderate numbers of infiltrating heterophils and macrophages. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Scaled skin: Dermatitis, granulomatous, multifocal to coalescing, with focally extensive epidermal necrosis and intra-and numerous fungal hyphae and arthroconidia. **(3pt.)**

**CAUSE:** *Chrysosporium* anamorph of *Nannizziopsis vriesii*: **(2pts)**

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

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Case 4. Tissue from a frog.

**MICROSCOPIC DESCRIPTION:**

Liver: Approximately 20% of the section **(1pt.)** is replaced by discrete spherical granulomas **(1pt.)** composed on a central area of brightly eosinophilic cellular debris **(1pt.)** and degenerate and necrotic macrophages, surrounded by spindle-shaped epithelioid macrophages **(1pt.)** enmeshed in concentric layers of fibroblasts **(1pt.)** and fibrous connective tissues **(1pt.)**, admixed with fewer heterophils **(1pt.)** and rare lymphocytes, and multinucleated macrophages of the foreign body **(1pt.)** and Langhans types **(1pt.)**. The granulomas are often centered on low numbers of closely-apposed 10-15um **(1pt.)** round budding yeasts **(2pt.)** (sclerotic bodies) with a convoluted dark brown wall **(1pt.)**. Adjacent hepatocytes are compressed and atrophic **(1pt.)**, with numerous macrophages and fewer heterophils filling sinusoids at the edge of the granulomas. There are mildly increased numbers of melanophages throughout the section.

**MORPHOLOGIC DIAGNOSIS:** Liver: Granulomas, multiple, with low numbers of dematiaceous yeasts. **(3pt.)**

**NAME THE CONDITION:** Chromomycosis **(2pt.)**

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