

WSC 2020-2021  
Conference 21, Case 1.

Tissue from a horse.

**MICROSCOPIC DESCRIPTION:** Nasal mucosa and submucosa **(1pt.)**: The deep submucosa is expanded and the edematous superficial submucosa and eroded mucosal lining is elevated by a diffuse inflammatory infiltrate composed of numerous macrophages **(1pt.)** and multinucleated giant cells **(1pt.)** (both foreign-body and Langhan's type) containing abundant golden-yellow granular pigment (hemosiderin/hemotoidin) **(1pt.)**. This infiltrate also contains moderate numbers of lymphocytes **(1pt.)** and fewer neutrophils **(1pt.)** and plasma cells. There is abundant hemorrhage **(1pt.)**, primarily in deeper regions, and widespread erythrophagocytosis **(1pt.)** by macrophages and neutrophils. Areas of hemorrhage contain abundant fibrin **(1pt.)**, and also granular to globular aggregates of yellow hematoidin pigment ("ceroid sequins") **(1pt.)**. In areas in which the underlying tissue is not obscured by hemorrhage, there is diffuse proliferation of mature collagen studded with plump fibroblasts as well as thin-walled capillaries. **(1pt.)** There is mineralization of both collagen fibers as well as vascular basement membranes. **(1pt.)** There is marked edema **(1pt.)** and minimal diffuse hemorrhage which extends into the overlying superficial submucosa along with low numbers of siderophages. Multifocally, the overlying respiratory epithelium is segmentally eroded.

**MORPHOLOGIC DIAGNOSIS:** Nasal mucosa: Rhinitis, granulomatous **(1pt.)**, chronic, focally extensive, severe, acute and subacute hemorrhage **(1pt.)**, hemosiderosis **(1pt.)**, and hematoidin deposition.

**NAME THE CONDITION:** Progressive ethmoid hematoma **(3pt.)**

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

WSC 2020-2021  
Conference 21 Case 2.

Tissue from a horse.

**MICROSCOPIC DESCRIPTION:** Colon. The submitted section of colon is markedly and transmurally thickened **(1pt.)**, primarily by expansion of the submucosa and serosa by numerous poorly formed pyogranulomas **(1pt.)** that segmentally efface the muscularis and extend into the adjacent mesentery. Pyogranulomas range up to 5mm in diameter, and are composed centrally of large numbers of admixed viable and necrotic neutrophils **(1pt.)** and macrophages **(1pt.)** containing large numbers of 1-2um coccobacilli **(1pt.)**, and abundant intra- and extracellular cellular debris. Peripherally, bacilli-laden macrophages and fewer multinucleated giant cells predominate **(1pt.)**, and at the periphery, there are concentric layers of loosely arranged collagen with interspersed plump fibroblasts **(1pt.)**, and occasional aggregates of low to moderate numbers of lymphocytes. In one focus, the pyogranuloma breaches and effaces the muscularis **(1pt.)** and extends into the serosa. In both the markedly edematous **(1pt.)** submucosa and the serosa, lymphatics and small veins are widely ectatic and often contain non-occlusive fibrinocellular thrombi **(1pt.)** composed of lymphocytes and macrophages. In both locations, the tissue between is infiltrated by low numbers of macrophages, neutrophils, and lymphocytes. There is moderate autolysis of the mucosa, and the lamina propria is expanded by mild edema and infiltrate of low numbers of macrophages and lymphocytes which separate remaining colonic glands. **(1pt.)**

Lymph node (per contributor – but this is really a stretch): Diffuse, nodular architecture is completely effaced **(1pt.)** by a necrotic pyogranuloma as previously described. The peripheral layer of bacilli-laden macrophages is lacking in this sample and extensive fibrosis extends into the adjacent mesentery, separating, surrounding and replacing lobules and individual adipocytes. Low numbers of macrophages, lymphocytes and neutrophils are scattered throughout the fibrous connective tissue, in higher numbers in proximity to the focus of necrosis. There are mildly ectatic lymphatics with fibrinocellular thrombi in the fibrotic areas.

**MORPHOLOGIC DIAGNOSIS:** 1. Colon: Colitis, pyogranulomatous **(1pt.)** and necrotizing, chronic, multifocal to coalescing, severe, with pyogranulomatous lymphangitis **(1pt.)** and edema, and numerous intrahistiocytic coccobacilli. **(1pt.)**

2. Lymph node (presumptive): Lymphadenitis, necrotizing **(1pt.)** and pyogranulomatous, diffuse, severe, with numerous intrahistiocytic coccobacilli.

**CAUSE:** *Rhodococcus equi* **(3pt.)**

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

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Conference 21, Case 3.

Tissue from a horse

**MICROSCOPIC DESCRIPTION:** Adrenal gland: Within the adrenal cortex **(1pt.)**, there are multiple discrete foci of coagulative necrosis **(2pt.)** comprising 66% of the cortex **(1pt.)**, which incorporate one or more layers or are occasionally full-thickness, **(1pt.)** and are outlined by variable combinations and concentrations of necrotic neutrophils **(1pt.)**, cellular debris **(1pt.)**, hemorrhage**(1pt.)**, and polymerized fibrin which extend into the adjacent cortex. There are smaller foci of adrenocortical necrosis characterized by individualization of adrenocortical epithelial cells, granular eosinophilic cytoplasm **(1pt.)**, nuclear loss, and hemorrhage and fibrin thrombi in surrounding sinusoids. **(1pt.)** Small veins also contain occlusive fibrin thrombi **(2pt)**. Marked congestion and hemorrhage is present at the corticomedullary junction **(1pt.)** and within the adrenal capsule. Diffuse, remaining cells of the zona fasciculata and zona reticularis are mildly expanded by the accumulation of discrete cytoplasmic vacuoles (lipoidal degeneration),.. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Adrenal gland, cortex: Necrosis **(1pt.)**, coagulative and lytic **(1pt.)**, multifocal to coalescing, with hemorrhage **(1pt.)**.

**CAUSE:** Sepsis or endotoxemia **(2pt.)**

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

WSC 2020-2021  
Conference 21, Case 4.

Tissue from a horse..

**MICROSCOPIC DESCRIPTION: Colon (1pt.):** There is diffuse and extensive autolysis (**1pt.**) within the submitted section and significant postmortem overgrowth of robust rod-shaped bacilli (**1pt.**)– both within the wall, vessels, and adherent to the autolytic mucosa - (with subsequent gas production) as well as fewer large colonies of coccobacilli. The submucosa is markedly and diffusely expanded by marked congestion, edema (**1pt.**), hemorrhage, polymerized fibrin (**1pt.**), and a dense band (which may represent necrotic Peyer’s patches (**1pt.**)) of innumerable necrotic neutrophils (**1pt.**), large numbers of macrophages (**1pt.**) and abundant cellular debris, which extend into less affected areas of the submucosa. Within these areas, vessels and lymphatics often contain fibrin thrombi (**1pt.**), and the walls of some thrombosed vessels are expanded by brightly eosinophilic extruded protein and cellular debris (vasculitis). (**1pt.**) The mucosa contains cross- and tangential sections of larval nematodes (**1pt.**) which expand and occasionally replace colonic glands. These nematode larvae range from 20um with a pointed tail and minimal organ differentiation (L3) to large nematodes which range up to 140um with a thick cuticle, pseudocoelom, meromyarian-platymyarian musculature (**1pt.**), large lateral cords, and an intestinal tract composed of few uninucleated cells (**1pt.**) which occasionally contains blood pigment. (**1pt.**) Edema and severe congestion extends into the muscularis as well as serosa, but vessels are free of thrombi. There is intimal mineralization of serosal arteries (“intimal bodies”).

**MORPHOLOGIC DIAGNOSIS: 1. Colon: Colitis, necrosuppurative (1pt.),** multifocal to coalescing, with Peyer’s patch necrosis (**1pt.**), necrotizing vasculitis (**1pt.**), and severe submucosal hemorrhage, fibrin, and edema.

2. Colon, mucosa: Cyathostome larvae, numerous.

**CAUSE: Cyathostome (small strongyle) larvae (1pt.),** endotoxemia (**1pt.**) (*Salmonella* is a good guess)

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