

WSC 2014-2015, Conference 1

Case 1. Tissue from a dog.

(NOTE: Of the four slides this week, this one is really the only descriptive challenge.)

MICROSCOPIC DESCRIPTION: Spinal cord: Multifocally and randomly **(1pt)** within the grey and white matter, there are variably-sized areas of cavitation and necrosis **(1pt)** (parasite migration tracts) **(1pt)** which are infiltrated by moderate numbers of neutrophils **(1pt)** and eosinophils **(1pt)**, admixed with fewer macrophages, rare lymphocytes, hemorrhage, and cellular debris. Within necrotic areas, myelin sheaths are widely dilated **(1pt)** and occasionally contain swollen to fragmented axonal remnants (Wallerian degeneration), contain mildly increased numbers of astrocytes, and neurons are occasionally mildly swollen and eosinophilic, with a loss of Nissl substance (degeneration) **(1pt)**. Areas of white matter necrosis contain low to moderate numbers of macrophages with abundant vacuolated cytoplasm **(1pt)** (Gitter cells) **(1pt)**. Centrally, within one area of necrosis within the lateral funiculus, there is a cross section of an adult spirurid **(1pt)** nematode measuring 250um in diameter, with a thick smooth eosinophilic cuticle, polymyarian-coelomyarian musculature, a pseudocoelom which contains abundant dark red material, large lateral chords, and a large centrally located gastrointestinal tract. **(2pt)** Within the adjacent, intact white matter, primarily within lateral funiculi, there are scattered dilated axons with mildly swollen dilated axons (spheroids) and blood vessels are surrounded by cuffs **(1pt)** of up to 4-5 layers of variable combinations and concentrations of neutrophils, eosinophils, lymphocytes and macrophages, and a similar infiltrate multifocally expands the overlying meninges **(1pt)**, separating and surrounding spinal nerves.

MORPHOLOGIC DIAGNOSIS: Spinal cord: Meningomyelitis, necrotizing and eosinophilic, multifocal, marked, with adult spirurid nematode. **(3pt.)**

CAUSE: *Spirocerca lupi* **(2pt)**

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

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Case 2. Tissue from a rhesus macaque.

(Note: This slide is difficult to get a significant amount of points from, so you have to be very eloquent and detailed, as every change is worth multiple points...)

Liver: Diffusely **(1pt)**, hepatic architecture is effaced **(2pt)**, and over 90% of the functional parenchyma **(2pt)** is replaced by a pink, waxy, homogenous material **(2pt)** (amyloid) **(2pt)**. The amyloid expands the space of Disse **(1pt)**, elevating the endothelial lining of the sinusoids and often filling them. It surrounds, separates, and compresses adjacent atrophic **(2pt)** hepatocytes primarily within centrilobular and midzonal areas (but occasionally in all regions of the lobule), which are shrunken **(1pt)** and contain a moderate amount of a brown granular pigment **(2pt)** (likely lipofuscin). Within attenuated sinusoids, there is mild hyperplasia of Kupffer cells. Within the few remaining portal triads, there are low numbers of lymphocytes and plasma cells **(1pt)**.

MICROSCOPIC DESCRIPTION: Liver, space of Disse: Amyloidosis, diffuse, severe, with marked hepatocellular atrophy and loss **(3pt)**.

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

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Case 3. Tissue from a dog.

(Note: This is not a good descriptive slide. Your precious time is best spent elsewhere...)

Haired skin: The dermis and panniculus **(2pt)** is expanded and replaced by a poorly demarcated, unencapsulated, mildly cellular, infiltrative neoplasm **(2pt)**, which is composed of well-formed unmyelinated nerve bundles **(2pt)** surrounded and separated by dense bands of thick, poorly cellular fibrous connective tissue **(2pt)**. Nerve bundles range up to 150um in diameter **(1pt)** and oriented in various planes with respect to the epidermis, and contain numerous mildly hypertrophic Schwann cells. The epineurium is markedly expanded **(2pt)** and often entraps numerous smaller proliferating nerve bundles as well and at its periphery blends into poorly cellular collagen bundles which are oriented in multiple planes and entrap atrophic adipocytes **(2pt)** from the surrounding panniculus. The overlying epithelium is multifocally and mildly hyperkeratotic. **(1pt)**

MICROSCOPIC DESCRIPTION: Haired skin: Neuroma **(5pt)**.

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

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Case 4. Tissue from a foal

(Note – also not much of a descriptive slide. Note the changes, definitely read the writeup, when available- and move on. I'm not going to put points on this one, because you either find the inclusions or you don't.)

Cardiac muscle. Approximately half of the cardiomyocytes contain one or more randomly placed, 3-5u in diameter, round to rhomboid amphophilic cytoplasmic inclusions which are randomly spaced within the myofibers. Inclusions are surrounded by a clear halo due to displacement of myofibrils. Rarely, affected fibers are swollen and hyalinized (degeneration).

Similar inclusions are seen within neuronal cell bodies or axons in the brainstem, but in far fewer numbers. Within accompanying skeletal muscle, inclusions are present in only 10% of rhabdomyocytes and are generally larger, ranging up to 10um in some cells.

MICROSCOPIC DESCRIPTION: Skeletal muscle; cardiac muscle; brainstem neurons: Glycogen storage inclusions, diffuse, many.

Name the condition: Glycogen branching enzyme deficiency.