

NEUROLOGICAL DISEASE, TAWNY FROGMOUTH (*Podargus strigoides*) (CASE 2027.1)

CASE HISTORY

Tawny frogmouth, not using legs and only making small flapping motions with wings., very thin, vocalising. Treated with Dexamethosone IM, 0.1ml vitamin B IM, 0.2ml Stanabolic IM. Poor prognosis – euthanasia elected.

GROSS PATHOLOGY

External findings: No significant findings.

Hydration: very good; **Muscle Mass:** reduced, **Fat deposits:** absent

Internal findings: The ventriculus contains partially digested rodents. No visible lesions. The ovary is small and inactive.

HISTOPATHOLOGY

Lesions are not evident within the following tissues: small intestine, pancreas, colon, ventriculus, myocardium, kidney, parathyroid gland.

Liver: Lysed red cells segmentally coat the hepatic capsule (euthanasia). Kupffer cells contain small quantities of cytoplasmic brown, waxy pigment. Erythrophagocytosis is evident within the sinusoids.

Skeletal muscle: Many myocytes exhibit contraction band formation (possible artefact).

Spleen: The splenic parenchyma is devoid of discrete lymphoid cuffs and follicles, and contains prominent reticuloendothelial cells.

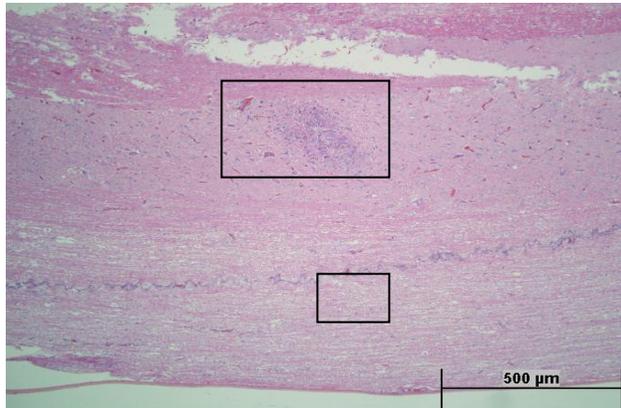


Fig 1. Longitudinal section, spinal cord. H&E

Spinal cord: There is a focal accumulation of macrophages and multinucleate giant cells within the white matter of the cord (Fig 1, 2). Cross sections of nematode larvae are evident within the granuloma. There are multiple dilated axonal chambers and digestion chambers within the ventral white matter tracts (Fig 1, 3).

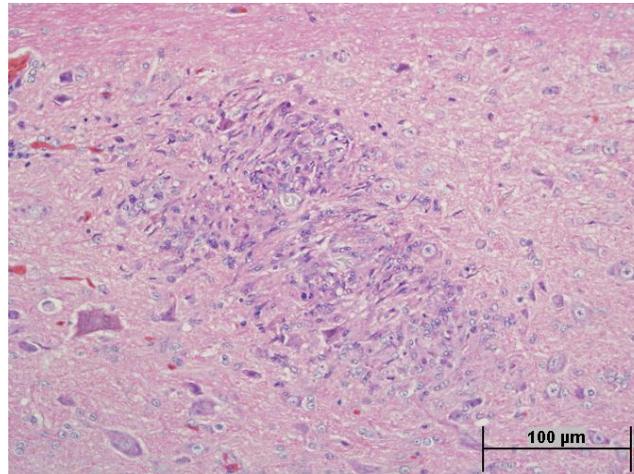


Fig 2. Spinal cord (see upper inset Fig 1). H&E 40x

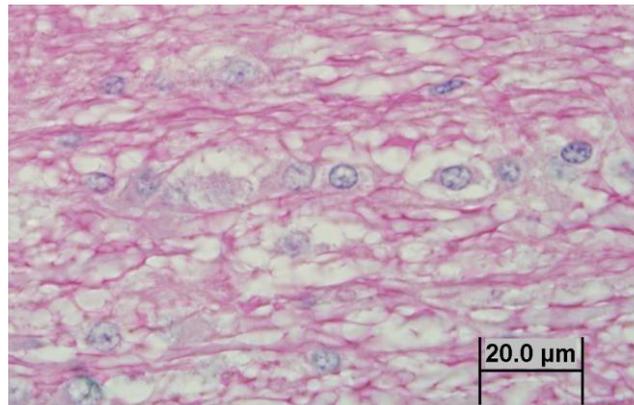


Fig 3. Spinal cord (see lower inset Fig 1) H&E 100x

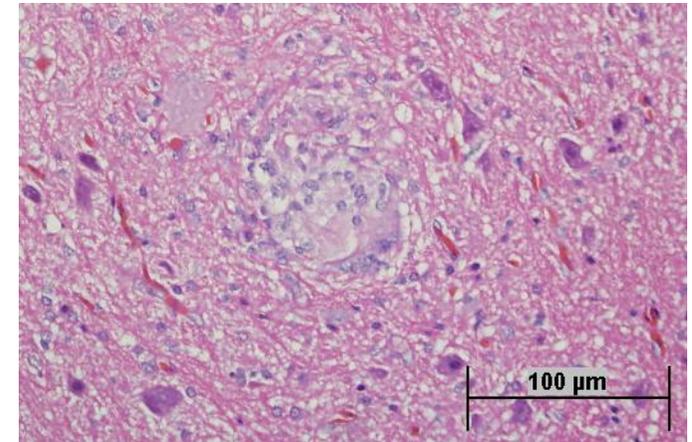


Fig 4. Cerebellum. H&E 40x

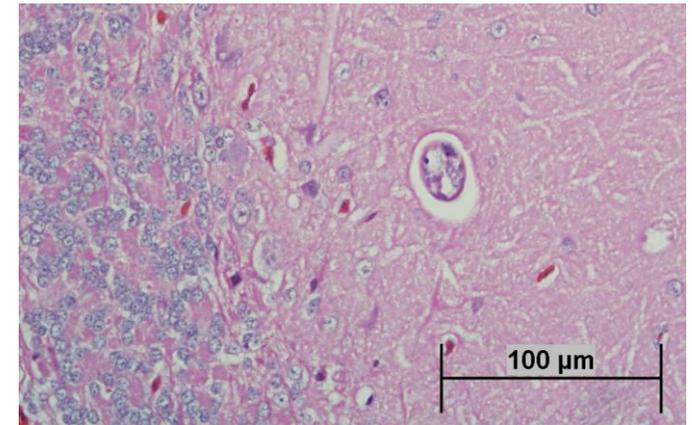


Fig 5. Cerebellum H&E 40x

Task: Describe the changes in the preceding sections. State morphological diagnoses and describe their pathogenesis. What are some likely aetiological agents for this condition? What other conditions would be on your clinical differential diagnosis list for neurological disease in Tawny frogmouths?

Brain: There are multiple granulomas within the Brainstem, cerebellar folia, and cerebral cortex. These granulomas are composed of aggregates of macrophages and multinucleate giant cells. Cross sections of nematodes are also evident within the parenchyma of the brain, but are not associated with the inflammatory foci (Fig 5).

Lung: The pulmonary parenchyma is congested. Erythrocytes within blood vessels have lysed (euthanasia artefact). Airways are segmentally epithelialised. These airways contain moderate numbers of granulocytes. There are several small interstitial granulocyte aggregates within other regions of the lung.

PARASITOLOGY

Sections of frozen and fixed brain were sent to Dr. David Spratt, CSIRO Ref #W/L HC# N5210.

Angiostrongylus cantonensis

Fixed tissues: 3 male, 2 female adult nematodes, one L4, and one L3 moulting to an L4

MORPHOLOGICAL DIAGNOSIS

Euthanasia

Multifocal granulomatous encephalomyelitis -

Angiostrongylus cantonensis

Wallerian degeneration - ventral white matter tracts of the spinal cord

COMMENTS

There was no evidence of traumatic injury on gross physical examination. Microscopic examination of the tissues revealed numerous nematode larvae within the brain and spinal cord. Some of these parasites were associated with granulomatous inflammation, while other foci of granulomatous inflammation most likely mark the tracks of previous parasite migration. *Angiostrongylus cantonensis* was confirmed upon examination of frozen and fixed brain tissue.

Neural angiostrongylosis has been reported in a wide range of mammalian species, including domestic species, human and non-human primates, and marsupials. Interestingly, no reference to this condition in birds could be found in the literature. The condition was once restricted to the tropics but is now becoming more common in more temperate

regions, such as Sydney, and has been introduced to novel locations, such as Louisiana (see ref below). The Genus name *Parastrongylus* is sometimes used.

REFERENCES

KIM DY. STEWART TB. BAUER RW. MITCHELL M. *Parastrongylus* (=Angiostrongylus) *cantonensis* now endemic in Louisiana wildlife. Journal of Parasitology. 2002, 88(5): 1024-6.

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