



## CASE OF INTEREST

### Vertebral Angiomatosis in a Cat.

By Lucy Genovese, Veterinary Pathologist

A one year old male neutered domestic short haired cat presented for proprioceptive deficits in both hind limbs. The clinical condition was progressive despite treatment. Radiography revealed an abnormal disc space at the level of the 5th to 7th thoracic vertebrae and a bone scan revealed an abnormal 6th thoracic vertebra (T6). The cat was euthanased and an 11 cm portion of the thoracic vertebral column was submitted for pathologic examination.

Following partial decalcification the vertebral column was sectioned to reveal an irregular surface of the vertebral canal at T6 with compression of the spinal cord at this site.

Histologic examination of the T6 vertebra showed replacement of intertrabecular bone marrow by loose connective tissue containing numerous vascular channels.

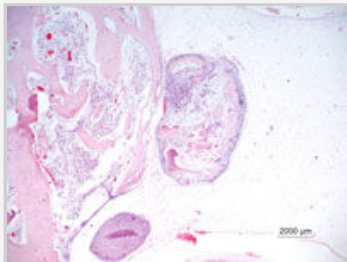


Figure 1. Histological section of the vertebra including the medullary cavity in which there is vascular proliferation. HE Stain.

These varied from medium-sized arteriolar and venular structures to numerous small capillary structures. The vessels were lined by a single layer of endothelial cells that were well differentiated. Some were bounded by concentric smooth muscle or pericytes.

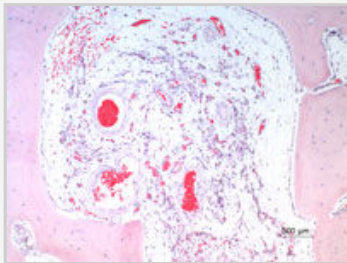


Figure 2. Histological section showing proliferation of variable sized blood vessels. HE Stain.

Atypia and mitotic activity were not noted. Bony trabeculae are thicker compared to adjacent vertebrae with normal bone marrow in the intervertebral spaces. Nodular protrusions of bone extended into the spinal canal and were composed of well differentiated bony trabeculae.

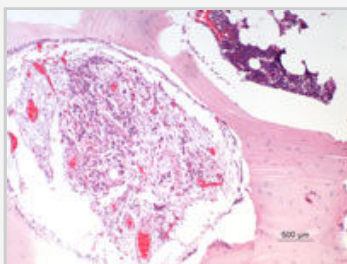


Figure 3. Replacement of medullary cavity by proliferative vessels. Note the normal adjacent medullary cavity containing darker staining haematopoietic tissue (2 o'clock). HE Stain.

Intertrabecular spaces contain proliferating small vessels surrounded by a slightly myxomatous connective tissue stroma. Intervertebral disc spaces are unremarkable. Sections of other vertebrae show normal bone and normal bone marrow without vascular proliferation.

Sections taken through the spinal cord at the level of T6 show relatively mild swelling of axonal sheaths, scattered axonal spheroids and a few macrophages within axonal sheaths.

## In this issue:

- [Latest news](#)
- [Case of interest](#)
- [Our Details](#)
- [Cytology tips](#)
- [Side Story](#)
- [Journal Articles](#)
- [Site Downloads](#)

## JOURNAL Articles(with e-links)

1. Peters S, Houwers DJ. A cat with diarrhoea associated with the massive presence of *Cynicomyces guttulatus* in the faeces. Tijdschr Diergeneeskd. 2009 Mar 1;134(5):198-9. [Article in Dutch]. [Link](#)

This is the first report documenting the presence of a high number of *Cynicomyces guttulatus* yeasts in the faeces of a cat. The animal was initially presented with acute complaints of vomiting and diarrhoea. The patient responded well to oral salazosul-fapyridine but the stools remained soft and *C. guttulatus* yeasts were still present. After a course of nystatin (15,000 IU/kg bw q24 PO for 4 days) the stools were normal and no yeasts were found (centrifugation/flotation/zinc sulphate). *C. guttulatus* occurs naturally in the digestive tract of rabbits, guinea pigs, chinchillas, rats and mice. It is occasionally found in massive numbers in the faeces of dogs with diarrhoea; some of these patients responded well to nystatin treatment. Recent experience indicates that the most effective dosage of nystatin for dogs and cats is 50.000 IU/kg q24 PO for 4 days.

2. Van Eps AW, Pollitt CC. Equine laminitis model: cryotherapy reduces the severity of lesions evaluated seven days after induction with oligofructose. Equine Vet J. 2009 Nov;41(8):741-6. [Link](#)

The histopathology of laminitis during its transition from the acute to the chronic phase has not been previously documented. Studying hoof lamellar tissues 7 days after induction of laminitis may provide insight into the intractable nature of the chronic phase of the disease. Laminitis was induced using oligofructose in 6 normal Standardbred horses. The dorsal hoof lamellar tissues of these and 12 normal horses were processed and examined by light microscopy. Serial sections of a lamellar tip affected by laminitis were used to create a 3 dimensional reconstruction. Transverse sections of dorsal hoof wall lamellae were significantly longer than normal. Many secondary epidermal lamellae were not connected to primary lamellae and existed as spherical or ovoid, discrete islands isolated in the lamellar dermis. The lamellar basement membrane was intact. Lamellar tissue has the ability to reorganise rapidly following an episode of acute laminitis. Although histopathological evidence of ongoing acute laminitis was absent by 7 days, there was marked disruption of lamellar architecture. The architecture and subsequent strength of the resultant lamellar interface could be greatly influenced for the better by strategies that minimise mechanical displacement during the acute phase of laminitis.

3. Aleman M, Katzman SA, Vaughan B, Hodges J, Crabbs TA, Christopher MM, Shelton GD, Higgins RJ. Antemortem diagnosis of polyneuritis equi. J Vet Intern Med. 2009 May-Jun;23(3):665-8. [link](#)

An antemortem biopsy of the left sacrocaudalis dorsalis lateralis muscle was performed under sedation. To date a confirmed diagnosis of PNE has only been possible

The change is slightly more prominent in the lateral and ventral tracts in the sections examined. These changes were considered consistent with mild Wallerian degeneration.

This well differentiated vascular proliferation is consistent with angiomatosis rather than a neoplastic process. A small number of cases of vertebral angiomatosis are reported in the cat and affected individuals have been between 1 and 2 years of age. All reported cases have involved thoracic vertebrae. Angiomas may arise as a developmental abnormality or may be acquired following trauma. Given the young age of these cats a developmental abnormality is most likely. No history of trauma was given for this individual.

Two cases reported in the literature describe a favourable outcome following surgical decompression. Vertebral angiomas should be considered a differential for new bone formation and spinal cord compression in young cats, alongside osteomyelitis, migrating foreign body, neoplasia and congenital defect.

References:

1. Kloc, P. A. et al Vertebral angiomas in a cat. Veterinary Radiology and Ultrasound (2001) 42; 43-45.
2. Schur D et al. Spinal cord compression in a cat due to vertebral angiomas. Journal of Feline Medicine and Surgery (2010) 12;179-182

through postmortem evaluation of the cauda equina and other peripheral nerves. In this report, we demonstrate the value of the muscle biopsy and other ancillary testing to reach an antemortem diagnosis. The muscle biopsy allowed the identification of massive cellular infiltrations into intramuscular nerve branches, a finding that has not been previously reported in PNE. Such cellular infiltrations into terminal intramuscular nerve branches have been described in experimental models of autoimmune neuritis in mice.<sup>18</sup> The presence of CD8+ T-cells in excess of CD4+ T-cells is consistent with underlying immune-mediated disease.<sup>18</sup> The combination of a muscle biopsy with the neurological examination, CSF evaluation, ultrasonography should enable a definitive clinical diagnosis of PNE to be reached premortem and allow early intervention and treatment of the disease.

LATEST NEWS

Fatal Transmissible Amyloid Encephalopathy: A New Type of Prion Disease Associated with Lack of Prion Protein Membrane Anchoring

A major feature of prion diseases is the refolding and aggregation of a normal host protein, prion protein (PrP), into a disease-associated form which may contribute to brain damage. In uninfected individuals, normal PrP is anchored to the outer cell membrane by a sugar-phosphate-lipid linker molecule. The report shows that prion infection of mice expressing PrP lacking the anchor can result in a new type of fatal neurodegenerative disease. This disease displays mechanisms of damage to brain cells and brain blood vessels found in Alzheimer's disease and in familial amyloid brain diseases. In contrast, the typical sponge-like brain damage seen in prion diseases was not observed. These results suggest that presence or absence of PrP membrane anchoring can influence the type of neurodegeneration seen after prion infection.

The researchers' findings were published in [Open access Journal Plos Pathogens](#).

SIDE STORY

Moves To Loosen Controls On Pet Passports Could Spark Return Of Rabies To UK

Moves by the European Commission to loosen controls on pet passports could spark the return of rabies to the UK, warn specialists in this week's Veterinary Record.

The Commission wishes to harmonise the regulations for all pets travelling between EU member states and abandon additional controls for rabies, ticks, and tapeworms on the grounds that these diseases are now rare and pose little threat.

For further information on this topic visit: [www.medicalnewstoday.com](http://www.medicalnewstoday.com).

CYTOLOGY TIPS - Joint Fluid

- Submit an air dried smear with any joint fluid to aid cellular preservation. Smearing should be undertaken immediately after aspiration.
- Samples should be submitted in EDTA for cytology but if a delay is expected a separate plain sample with one drop of formalin can also be sent.
- One or two drops of joint fluid can also be placed onto a swab in charcol medium for culture if sepsis is suspected.
- If the sample becomes bloody during aspiration then you can discard the first bloody fraction and submit the clear fluid if enough is available. Blood contaminated taps are of little use.

Cytology of joint fluid examines for elevated mononuclear cells (often raised in degenerative joint diseases) and for polymorphonuclear leukocytes - mostly neutrophils for signs of inflammatory joint disease.

The presence of neutrophils does not indicate sepsis. Acute or active synovitis or erosive joint diseases are inflammatory in nature. Polyarthritides including auto-immune diseases like rheumatoid arthritis and others caused by systemic inflammatory diseases are often neutrophilic but the neutrophil populations are usually non-degenerative.

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