Gribbles VETERINARY

Pathology in focus

February 2024

gribblesvets.co.nz

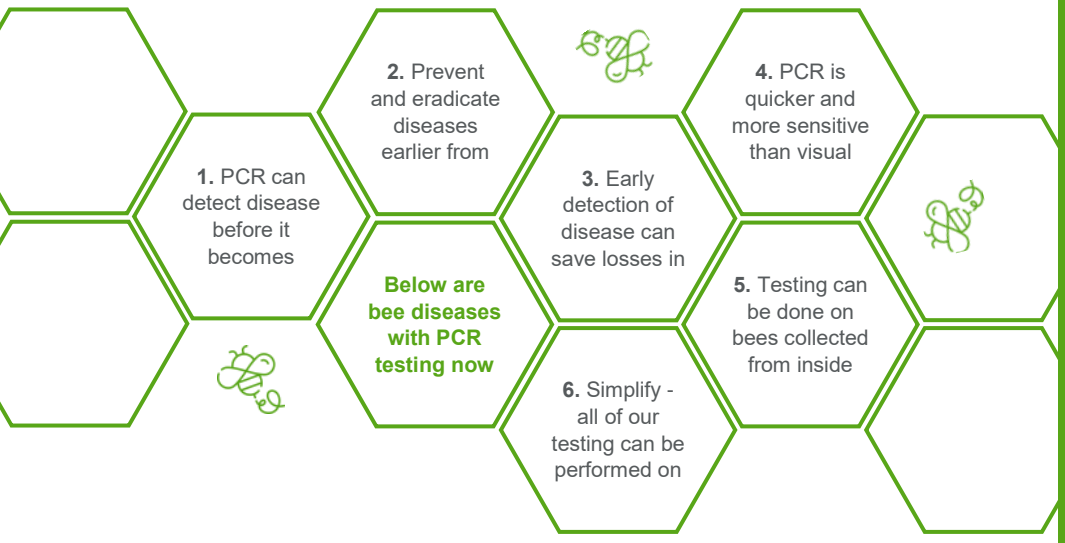
Photo credit: Hiveboxx, Unsplash

Bee smart with hive health

Saeed Sharif

Gribbles Veterinary is excited to have developed a comprehensive suite of PCR tests for New Zealand beekeepers to help determine the health status of bees in hives across the country. Why test your bees?

Like any type of farming, inspection for bee diseases is an important part of beekeeping. The healthier your colony, the more productive they will bee, and in turn will help ensure the honey produced is as sweet as. Bees are however not just producers of honey. Their pollination of crops and native plants helps ensure our ecosystems and local economy are kept buzzing.



American Foulbrood (AFB)

AFB is a devastating disease of honeybees, and it is classified as a notifiable disease in most countries including New Zealand.

Deformed Wing Virus (DWV)

DWV has been linked to the global decline of honeybees. Asymptomatic infected bees may have an impaired immunity and reduced lifespan.

Nosema apis* and *N. ceranae

Nosema are spore-forming microsporidian parasites of honeybees. Infection - even at high level - can be asymptomatic or cause general symptoms that could easily be confused with other factors affecting honeybee colonies.

Lotmaria passim

Lotmaria passim is a common intestinal trypanosome parasite in honeybees. It is a major cause of overwintering losses, especially when associated with Nosema infection.

Black Queen Cell Virus (BQCV)

BQCV causes mortality in queen bee pupae, with dead queen bee larvae turning yellow and then brown-black. BQCV is highly prevalent in New Zealand hives.

Sacbrood Virus (SBV)

SBV mostly affects worker larvae, but can also infect adult honeybees. The virus then multiplies within the infected larvae, and causes the larvae to die shortly after capping.

Chronic Bee Paralysis Virus (CBPV)

CBPV mostly affects adult honeybees, though it can also infect developing larvae. The virus can cause high levels of mortality and contribute to colony losses.

Kashmir bee virus (KBV)

KBV can show the same clinical symptoms as CBPV, and both can be present at high titres without showing any signs of disease.

Testing options include:

- Testing for one disease or up to 6 on the same sample (AFB, DWV, *Nosema*, *Lotmaria*)
- Api-virus 1 panel (DWV, BQCV, SBV, KSBV)
- Api-virus 2 panel (CBPV, KBV, ABPV, IAPV)*

* Acute bee paralysis virus / IAPV: Israeli acute paralysis virus.

Reporting:

- Test turn-around time is 3-5 days
- Results are reported to the submitting veterinarian.

Test pricing:

- Testing for 1-6 disease tests (on the same sample)
  - > $75.00 for first disease test, then $15.00 for each subsequent test (RRP $84.38 +$16.88)
- Api-virus panels
  - > $75.00 (RRP $84.38)

How to arrange testing?

Sample kits (including a dedicated submission form) for bee-keepers can be ordered via the “shop” on our website (under kits). The cost of the kits is built into the test price, so you only need to charge clients once. Collect the bees, complete the form, send them to us. It’s that simple.

If you would like information on this new testing for your bee-keeper clients, you can download an information sheet here.

If you have any questions or require any further information, please just give our Dunedin team a call on 0800 474 225.

Unusual cause of neurologic signs in a young cat

Emma Gulliver

Clinical history

A one-year-old male, neutered, domestic shorthair cat was seen by the referring veterinarian for evaluation of ataxia and a head tilt. Routine haematology and biochemistry were within normal limits, and there were no abnormalities detected on skull radiographs. The cat otherwise seemed well in himself, however clinical signs were progressive and there was no response to treatment with clindamycin (Antirobe®), and his owners elected humane euthanasia.

Laboratory findings

A postmortem examination was performed. There was increased cerebrospinal fluid in the cranium and reddening of the meninges. Serial sectioning of the formalin-fixed brain revealed a pale pink, mottled, gelatinous mass within the brain stem. The mass was slightly right of midline with a maximal diameter of 12 x 11 mm, and extended approximately 3 cm in length from the level of the thalamus rostrally to the level of the caudal cerebellum caudally (figure 1).

Histopathology revealed a well demarcated, densely cellular and locally infiltrative mass focally expanding and effacing the brainstem. Sheets of polyhedral cells were supported by moderate fibrovascular stroma, often with a prominent glomeruloid-like arrangement. Cells had a small round centrally placed nucleus with condensed chromatin, and abundant clear to pale eosinophilic stippled cytoplasm. Mitoses were not seen.

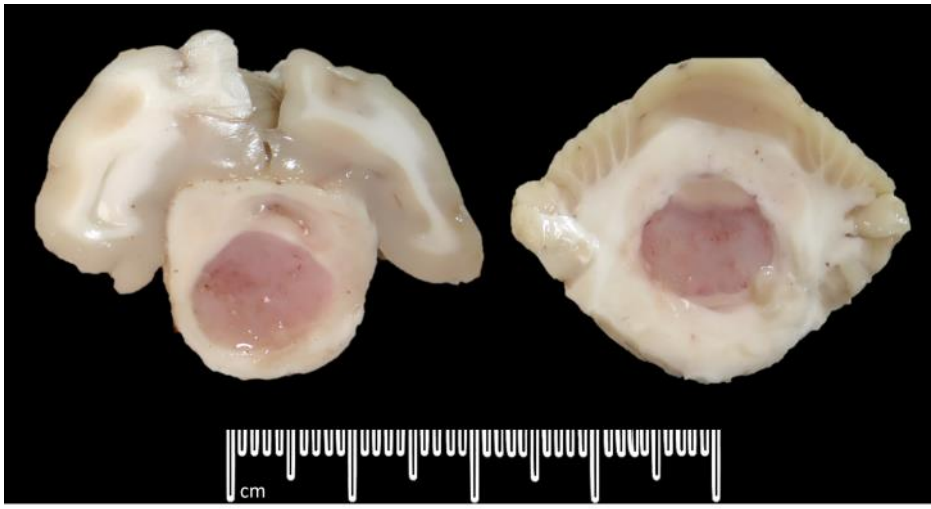
Laboratory diagnosis

Oligodendroglioma of the brainstem.

Discussion

Oligodendroglioma is a type of glioma arising from oligodendrocytes, the support cells which maintain myelin sheaths around axons in the central nervous system. While it is a relatively common neoplasm in dogs, where it represents up to 15% of primary brain tumours, it is a rare diagnosis in cats with only sporadic case reports in the literature. In both species, meningioma is the most common primary intracranial neoplasm, and is usually seen in aged animals.

Figure 1. Gross view of the transected brainstem, through the mid cortex (left) and caudal cerebellum (right). There is a pale pink gelatinous mass arising in the brainstem.



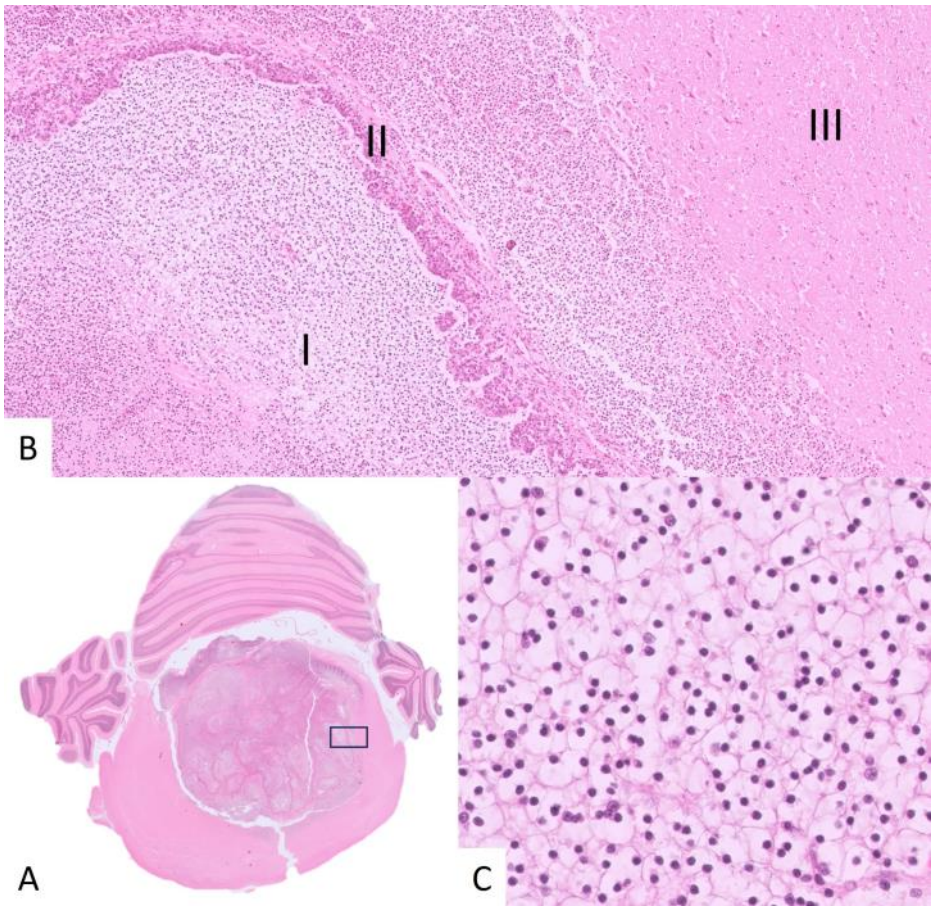


Figure 2. Histology of the brainstem at the level of the cerebellum. (A) The normal cerebellum can be seen around the brainstem, which is expanded with a mass lesion. (B) Higher power view of the box indicated in (A). The mass is comprised of neoplastic oligodendrocytes (I) which are supported by microvascular proliferation (II) and are relatively well demarcated from the adjacent white matter of the brainstem (III). 50x, H&E (C) Typical appearance of neoplastic oligodendrocytes, with a small, round, centrally placed and densely staining nucleus, and abundant clear to pale eosinophilic cytoplasm with distinct boundaries. 400x, H&E.

The clinical history and young age of this cat initially raised concern for more common differential diagnoses which may result in similar neurological signs. These included bacterial otitis media, central nervous system FIP, bacterial or fungal meningitis, toxoplasmosis or

cerebral abscessation. The gross appearance of the mass overlapped with cryptococcosis, which can occasionally form a gelatinous mass lesion in the tissues (a 'cryptococcoma'), although this would be an unusual presentation.

Gliomas may arise within the grey or white matter of the brain or spinal cord, hence, may lead to a variety of clinical signs which may be sudden in onset and are generally progressive. These may include vestibular signs (head tilt, circling, ataxia), seizures, paraparesis/ tetraparesis and changes in behaviour. A clinical diagnosis typically requires advanced imaging (MRI or CT) for identification of a mass lesion. Some gliomas can be diagnosed using intraoperative cytology, although histopathology is more commonly done in veterinary species. There are reports of treatment with surgical excision or radiation, however this diagnosis unfortunately carries a poor prognosis.

Acknowledgements to the owners of this beloved cat and the small animal team at Franklin Vets Pukekohe who submitted this case.

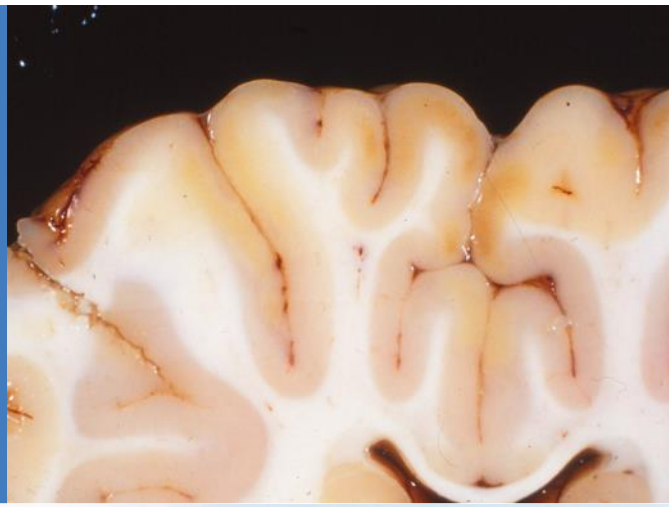
References

- Meuten DJ. Tumors in domestic animals. 5th ed. John Wiley & Sons. 2016.
- Rissi DR, Miller AD. Feline glioma: a retrospective study and review of the literature. *Journal of feline medicine and surgery*, 19:1307-1314, 2017.

What's your diagnosis?

A new monthly spot quiz

Test your skills with this gross photo: a cross section of the brain from a 4-month-old calf. What's your diagnosis? *(Answer can be found on last page).*



WormFEC programme reminder

Rachel Howie

The WormFEC Programme is provided by AgResearch in association with Beef & Lamb New Zealand (Sheep Improvement Limited – SIL). This service provides breeding values for several parasite resistant traits, along with an overall index of resistance.

A faecal egg count (FEC) index is calculated for individual sheep. FEC data is registered with SIL along with data collected for other traits (e.g. lamb growth, twinning rate etc.) to generate breeding values that can be applied to assist in stock management decision making.

Note: WormFEC data can only be entered into the SIL system when generated from a AgResearch approved provider such as Gribbles Veterinary.

Overview:

- **Pre-drench composite/pooled FEC** – confirm worm burden greater than 500 epg prior to drenching
- **Drench check** – 10 FEC per mob/treatment group to confirm drench is effective (samples collected 7-12 days after drenching).
- **Challenge composite/pooled FEC** – testing of samples collected each week after drenching to monitor epg. FEC expected to exceed 800 epg by week six. 30 animals sampled per mob/treatment group and submitted for composite testing.
- **Individual progeny FEC testing** – individual FEC test and result reference to animal ID (testing of ≥30 or all animals per sire line recommended).

See our website here for more information.

Diagnosis of canine exocrine pancreatic insufficiency

Karen Bailey

There has been a recent update to the interpretation guidelines for canine serum Trypsin-Like Immunoreactivity (TLI).

TLI is the test of choice for Exocrine Pancreatic Insufficiency (EPI) in dogs. EPI occurs when there is inadequate synthesis and secretion of digestive enzymes by pancreatic acinar tissue, though clinical signs (polyphagia, weight loss, voluminous pale faeces etc.) may not be seen until exocrine secretory capacity is less than about 15% of normal.

There are several causes of EPI, with pancreatic acinar atrophy the most common in German Shepherds and Rough Coated Collies, breeds particularly prone to this condition. In other dog breeds and also in cats, chronic pancreatitis is the most common cause. Heritability, likely polygenic, has been demonstrated in German Shepherds, with signs most commonly becoming apparent between the ages of 6 months and 6 years. Reduced serum TLI concentrations may precede the onset of clinical disease.

Trypsinogen is made exclusively by acinar cells in the pancreas. Measurement of this zymogen (inactive precursor of pancreatic protease, in this case trypsin) provides a good index of pancreatic function. The TLI test detects both trypsinogen and trypsin so “trypsin-like” is used in its name, but the active form, trypsin, is only found in serum when there is pancreatic inflammation.

Serum TLI is stable in serum, so samples do not need to be frozen/ kept on ice for shipping. Oral pancreatic extract supplementation does not affect serum TLI so if supplementation has already started there is no need to stop this before testing.

Recent work at the Gastrointestinal Laboratory (GI Lab) at Texas A & M University identified that some dogs, with TLI results within the existing reference interval, had signs that could not be attributed to another cause and they responded clinically to enzyme supplementation. An assay shift was suspected. Testing of 100 healthy dogs supported this, resulting in a changed reference interval. It is not known exactly when this assay shift occurred. While further studies are underway to refine the clinical cut offs, provisional changes in diagnostic thresholds and recommendations have been instituted.

Results <2.5 ng/mL are still diagnostic for EPI. Results 2.6 – 10 ng/mL are equivocal. However, based on historical information from 500,000 dogs, EPI is considered likely in symptomatic patients if the result is <7.5 ng/mL, so a trial of supplementation could be considered. Results 10-50 ng/ mL are considered normal. Results >50 ng/mL raise concern for pancreatitis unless a canine pancreatic lipase (cPL) test is normal.

The test used at GI Lab is the same as that used at Gribbles in New Zealand so, while we await the results of the prospective studies, we too have adopted these new provisional guidelines, which you may have noticed in recent reports since 24 October 2023 (see below*):

Old interpretation guidelines for canine TLI:

- <2.5 ng/mL indicative of EPI
- 2.5 - 5.0 ng/mL suspicious result, advise retesting in 4 weeks
- 5.0 - 35.0 ng/mL normal, not EPI
- >35 ng/mL may occur with pancreatitis.

New interpretation guidelines for canine TLI:

- <2.5 ng/mL diagnostic for EPI
- **2.6 - 7.5 ng/mL*** subnormal cTLI concentration, highly suggestive of EPI. Assess response to pancreatic enzyme replacement therapy to confirm diagnosis
- **7.6 - 10.0 ng/mL*** subnormal cTLI concentration, EPI cannot be excluded. If signs are consistent with EPI, consider assessing response to pancreatic enzyme replacement therapy to confirm diagnosis
- **10.1 - 50.0 ng/mL*** result is within the reference interval
- **>50 ng/mL*** the clinical significance of a cTLI concentration >50.0 µg/L is uncertain. If you have also run a cPLI and this is within the reference interval pancreatitis is unlikely.

Comments:

Elevations sometimes occur in postprandial samples. Food should be withdrawn for at least 12-15 hours before sampling. Concurrent active pancreatitis may also elevate TLI levels.

Please be aware of this change when comparing current and historical results.

Summary:

Using the updated guidelines, some dogs previously classified as having suspicious or low normal results (i.e. <10 ng/mL) may warrant re-evaluation, especially if clinical signs remain supportive of EPI.

Amazing resource

Rebecca Allan

I listen to a very cool veterinary podcast called the Vet Vault. In a recent episode, they interviewed an Australian veterinary epidemiologist, Jane Heller, who cofounded AMR Vet Collective, a not for profit organisation aiming to educate veterinarians about antimicrobial resistance.

It has some amazing teaching tools and resources, including guidelines on appropriate antibiotic usage and antimicrobial stewardship in a number of different species. They have a social media presence on Facebook and Instagram, which she encourages everyone to follow and there are “sharable tiles” that veterinary clinics can click and share with their clients.

Have a look and see what you think!

In brief

- **Errata** - The bile acid price in the avian/reptile section of our current price book should be $32.05 ex. GST.
- **Website updates**
  - > **Serum folate** shows limited stability at room temperature so serum samples for folate analysis should be kept in at 4°C for no longer than 48 hours. If samples are being held for more than 48 hours, serum can be stored frozen at -20°C for up to one month.
  - > **ACTH stimulation test protocol** has been updated to remove confusion around the use of syringes.
  - > We’re closed Waitangi day

From page 4: What’s your diagnosis? *This photo shows good lesions of polioencephalomalacia. The normal cortical tissue is grey, or a light pale brown as in this case. The abnormality is the yellow discolouration of the grey matter. It more extensively affects the sulci but also affects some gyri. This is a classic lesion when seen, but many cases are not as obvious as this and in the acute stages you may not see any gross changes, but we can see changes histologically.*

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- contacting Gribbles Veterinary couldn’t be easier.

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