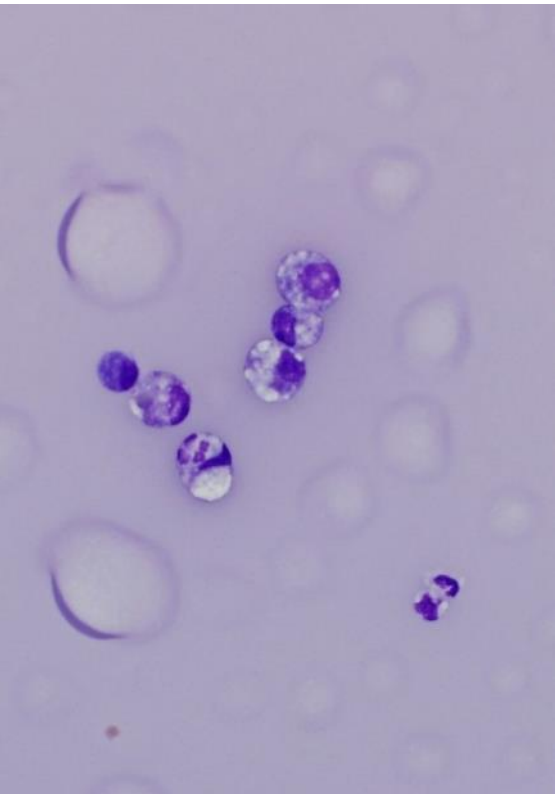
Paws claws and udder things

Gribbles VETERINARY

August 2021

What's inside?

Figure 1: Cytology from a peritoneal effusion in a cat suspected of having FIP. The sample is of low cellularity with mostly macrophages (with one displaying leukophagia) and rare neutrophils. The protein crescents ('fingernails') indicate a highly proteinaceous sample.



FIP diagnostics

HANIA KLOBUKOWSKA

Feline infectious peritonitis (FIP) is a disease not uncommonly seen throughout New Zealand. It is caused by feline enteric coronavirus (FECV) which exists as two pathotypes: the 'ubiquitous enteric biotype' and the 'virulent biotype.'

The enteric biotype has a prevalence that approaches 100%, especially in multi-cat households, and mainly causes a self-limiting diarrhoea. The virulent biotype causes FIP in cats. FIP develops in cats from mutations in an already present avirulent FECV. Although the prevalence of FECV in cats is high, only a very small proportion of these will go on to develop FIP and it is thought that the already present virus undergoes a mutation which allows it to replicate internally in monocytes and cause disease. There may also be genetic factors, in addition to having the mutant FECV, that predispose certain cats to the development of disease.

Diagnosis:

Diagnosing FIP can be challenging, as currently there are no reliable tests that can distinguish between the enteric and virulent biotypes of FECV. Veterinarians must employ a number of diagnostic tests and clinical nous to increase or decrease their levels of suspicion when dealing with suspect FIP cases. It is also important to note, that most existing diagnostic tests cannot differentiate between the avirulent and virulent biotypes of FECV.

The following information may be useful in navigating such cases.

Risk factors:

FIP is most commonly seen in young cats (6-months to 2-years old) that are purebred and male. Certain breeds are also at a higher risk e.g. Birmans and Ragdolls. Note that these rules are not exclusive, as we do see FIP in domestic breeds and older patients as well.

Clinical presentation:

The archetypical presentation of FIP is that of a cat that presents with a peritoneal and/or thoracic protein-rich effusion. These cats often have other non-specific clinical findings such as inappetance/ anorexia, vomiting, diarrhoea, weight loss etc. Other clinical presentations can include the more diagnostically challenging 'non-effusive' form of FIP, where internal organs are affected without an obvious exudate.

On necropsy, many of these cases do in fact have evidence of an effusion, however it is often minimal and so would have been difficult to collect ante-mortem. Any young cat that presents with neurological or ocular symptoms should be investigated for FIP. There are also some uncommon manifestations of the disease, such as solitary mural colonic or ileocecocolic masses – this is an example of a localised presentation of FIP.

Haematology and biochemistry:

Common alterations include a mild to moderate regenerative or non-regenerative anaemia, lymphopaenia and

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hyperproteinaemia (due to elevated globulins). There may also be derangements in other parameters which will likely reflect organ damage (e.g. azotaemia, elevated liver enzymes etc.).

Albumin to globulin ratios (A:G ratio) may be of high diagnostic value, as levels >0.8 make FIP highly unlikely.

Effusion analysis:

FIP effusions are of high diagnostic value and are typically high protein with low cellularity. Cytologic examination of these usually reveals a dominance of macrophages and neutrophils on a very proteinaceous background (see Figure 1 - previous page). Cytological examination of effusions can also help rule out other differentials for effusive disease (such as septic processes or neoplasia).

The A:G ratio can also be measured in effusions and similar to the biochemistry interpretation, levels >0.8 make FIP highly unlikely.

Serology:

Serum evaluation of antibody levels does not differentiate between the avirulent and virulent biotypes of FECV. Most cats have circulating antibodies to FECV and as mentioned, only a small proportion of infected cats go on to develop FIP. The presence of antibodies (even high titres) may hence be of limited diagnostic value, furthermore, approximately 10% of cats with FIP can be seronegative, especially if they are end-stage.

FECV antibodies can also be examined in effusions however the diagnostic value of this is similarly low as serum evaluation.

Assessing FECV antibodies may be of value in assessing disease status in multi-cat households for disease prevention and/or control.

RT-PCR:

Gribbles Veterinary has the capacity to detect FECV antigen via RT-PCR in effusions. This test does not differentiate between the avirulent and virulent FECV biotype.

When performed on effusions, the sensitivity and specificity is high according to a number of reported studies. Detection of high viral loads in an effusion has high diagnostic value in a cat suspected of having FIP. Very occasional false-positive results can occur so, as previously emphasised, this test should not be used in isolation.

The RT-PCR can also be performed on fresh tissues (e.g. aspirates from lymph nodes or other affected organs) however the diagnostic sensitivity and specificity is not as high as using fluid. RT-PCR on fresh tissues may be a more practical option in cases that are not clinically effusive. Alternatively RT-PCR can be attempted on peritoneal lavage samples from cases that are not clinically effusive however the diagnostic accuracy of this is not well established.

Histology/immunohistochemistry (IHC):

Immunohistochemical detection of FECV antigen within characteristic histopathologic tissue lesions is considered the gold standard for FIP diagnosis. Currently Gribbles Veterinary has the capacity to perform histopathology in such cases however IHC can only be performed at an external overseas laboratory. In most cases histopathology is performed on post mortem samples as it is an invasive procedure to do in a live, sick cat.

Histopathology of FIP lesions is generally characteristic in representative samples and is characterised by a vasculitis/phlebitis with associated pyogranulomatous and/or lymphoplasmacytic cellular infiltrates. Distribution of lesions varies amongst animals, however the most common sites to see pathology are the peritoneum/mesentery, kidneys and lymph nodes, and a full set of tissues should always be sampled to increase diagnostic accuracy. Any cat with neurological and/or ocular symptoms should have those corresponding organs assessed histologically.

Conclusion

Ante-mortem diagnosis of FIP can be a challenge to even the most experienced clinician, and it must be reiterated that no single ante-mortem test is perfectly accurate. Given that the prognosis for FIP is poor without treatment, and may end in euthanasia, a number of tests should be employed so the clinician can arrive at a relatively certain diagnosis before committing to further decisions about patient management.

References online here.

Case of the month

LISA HULME-MOIR

Many of us are familiar with the classic cases of young bull terrier type dogs coming in with demodicosis. However not many may have Demodex at the forefront of our minds when working up skin disease in older animals.

A recent case highlights the value of skin cytology and the need to keep demodicosis on the differential list for older dogs, especially those on immunosuppressive therapy.

Clinical history:

Skin scrapes and tape preparations were received from a middle-aged, female Bassett hound, who had a hot-spot on the mid-dorsal back (Figure 1). She had a history of atopic dermatitis, which was currently being well-controlled with oclacitinib.

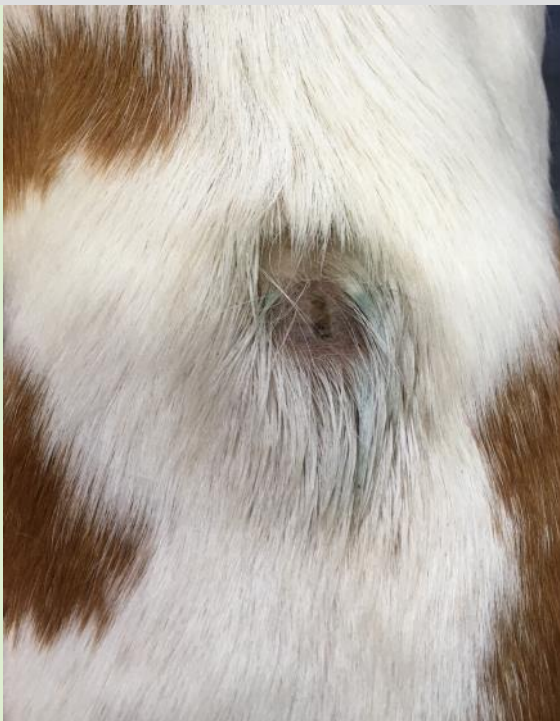

Figure 1. A. Circular lesion on the mid-dorsal back of a dog on oclacitinib therapy for atopy.

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Cytology:

Suppurative inflammation with intracellular bacterial cocci confirmed the presence of a bacterial pyoderma. Additionally, many Demodex mites, up to 10 per slide, were seen (Figure 2).

Discussion:

In a recent consensus statement issued by the World Association for Veterinary Dermatology, the finding of more than one Demodex is considered indicative of clinically relevant demodicosis.[1]

Many dogs with adult onset demodicosis have an underlying cause of immunosuppression identified. Common underlying causes include hyperadrenocorticism, hypothyroidism, leishmaniasis (not present in New Zealand), T-zone lymphoma and other neoplasms, corticosteroids and other immunosuppressive drugs including chemotherapy.[2,3] In this case, it is likely that the oclacitinib contributed to the proliferation of the mites. This risk is listed as a precaution on the prescribing information for this product. Secondary bacterial infection is a common sequelae of demodicosis.

It has been suggested in some quarters that we may start to see less demodicosis with the rise in use of isoxazolines for routine parasite control. These have been found to be highly effective in controlling Demodex.[1] On further enquiries with the present case, the owners had been using a supermarket brand of parasite control. The dog had an excellent response to treatment of the lesion with a topical anti-inflammatory and antimicrobial preparation, plus institution of routine parasite control with an isoxazoline product.

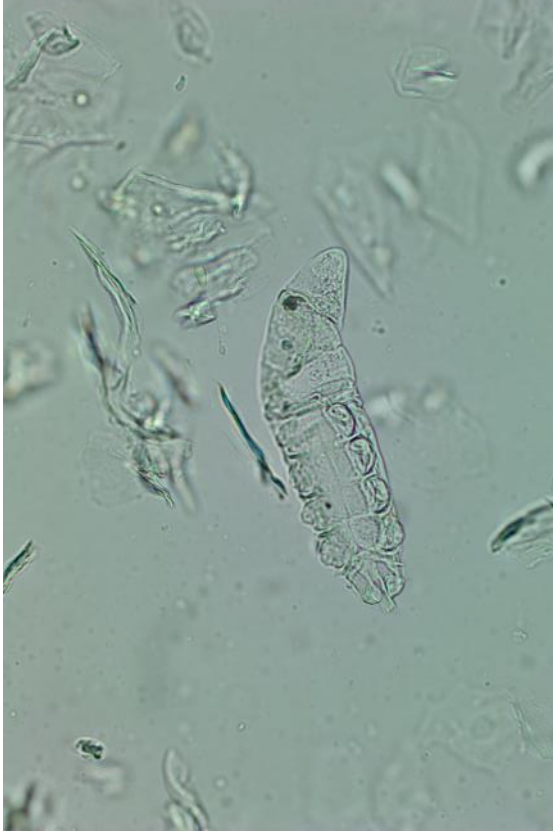

Figure 2. In addition to bacterial pyoderma, many Demodex mites were seen on skin scrapes and tape preparations from the lesion.

References

1. Mueller et al. Diagnosis and treatment of demodicosis in dogs and cats. *Vet Dermatol*. 2020; 31:4-e2.
2. Pinsenschaum et al. Is there a correlation between canine adult-onset demodicosis and other diseases? *Vet Record*. 2019; 185:729.
3. De Lorimer and Campbell. Canine T-zone lymphoma: an apparent risk factor for adult-onset demodicosis. *J Small Anim Pract*.2020; 61:323-324.

Thank you to Antonius Hatmodjo, Vetora Waikato and the owners of Molly the Bassett hound for allowing us to share this interesting case.

Water trough check-up

new

Could your clients be pouring valuable trace element supplementation down the drain?

Mineral supplementation comes at a price, so with your clients in mind, we've developed a testing system that allows you to check-up on the mineral content of stock water supplies to ensure levels are adequate, but are not drowning in it! Whether farmers rely on a trough dispensing system or nature itself, our water trough check-up is the answer.

Testing options:

Our recommended water trough animal supplementation panel includes:

- Copper
- Cobalt
- Selenium
- Zinc

Plus there is also an option to include iron with the panel.

Testing kit:

To make things simple, we have put together a kit that provides everything you need for the check-up:

- Easy to follow water sampling instructions.
- A dedicated submission form that allows you to choose the panel or individual tests.
- Sample containers and a transport bag.

Farmer's can collect the samples and return them to you, complete the form, and send to us. Easy!

Check it out today and ensure your farmers' trough water systems are delivering optimum trace minerals to their valuable stock.

Proofing fail!

Even though we know ENLOSED isn't actually a word, we figured there was no point chucking away thousands of stickers because we had a proof-read fail and missed out a C. So feel free to have a bit of a laugh (if you noticed the mistake), and still use them on your sample bags with canine progesterone samples! We know what the sticker means, and will treat them with priority on receipt.

If you're keen to get some ENCLOSING action and would like to use these stickers to expedite your progesterone testing, head over to our "shop" and order yours today.

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PROGESTERONE SAMPLE ENLOSED

Consumable of the month

Do you order laboratory consumable items from us online or via our order form? If you need just one blood tube or swab, or enough for a herd, we've got you covered.

Our featured consumable item in August is **microscope slide holders / cases**.

These slide holders are essential if you ever need to send glass microscope slides to the laboratory for testing. Whether it be cytology smears or blood films with your EDTA for CBC, every clinic needs to have a stash of these available.

When glass slides are submitted without the protection of a slide holder, they mostly arrive broken into pieces and are unsuitable for testing (as well as being hazardous to staff handling them). So don't waste your client's time and yours sending slides naked, always use a slide holder!

They are available from our online shop in two sizes - single-slide or 4-slide. The holders are very sturdy and reusable, so you can label them with your clinic name and we will return them to you.

Please note: Ensure each individual slide is labelled (in pencil) with the client's name and not just the slide holder. If smears from more than one site are submitted, also ensure the site is written on the slide along with the client name.

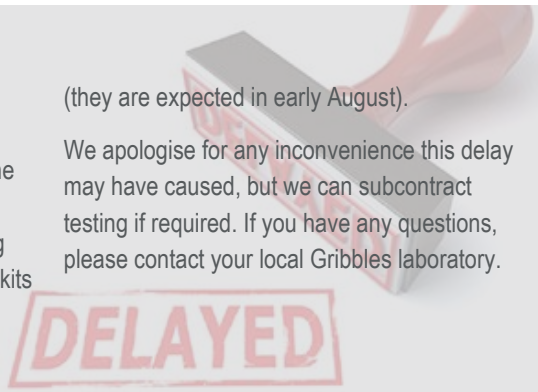
If you tune into our Facebook page this month, you could win yourself a set of 10 single slide holders in our monthly giveaway!

Free-T4 testing delayed

Our Free-T4 by equilibrium dialysis testing service is currently delayed due to issues the USA supplier is experiencing with shipping radioactive materials to New Zealand.

Unfortunately due to the short shelf life of the radioactive materials in the test kit, we are unable to carry back up kits. We are holding samples frozen until receipt of the new test kits (they are expected in early August).

We apologise for any inconvenience this delay may have caused, but we can subcontract testing if required. If you have any questions, please contact your local Gribbles laboratory.



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