

Paws claws and piddle things



July 2023

Salmonellosis in indoor cats

CATHY HARVEY & LISA HULME-MOIR

Clinical history

After a short period of illness (quiet and hunched, with pale mucous membranes) an approximately 6 week-old female, intact pedigree kitten died despite supportive treatment. At autopsy the liver was enlarged with rounded margins and light brown with a prominent reticular pattern. The spleen was enlarged (90 x 10 to 30 x 5 mm) and mottled.

Histology findings

On histopathology of the liver and spleen, there were multifocal areas of haemorrhage and necrosis with degenerate neutrophils, and multiple fibrin thrombi. Some of the blood vessels with fibrin thrombi also contained intravascular short Gram-negative bacilli, consistent with a bacteraemia and septicaemia with disseminated intravascular

coagulation (DIC). There was no evidence of underlying viral infection.

Microbiology

A heavy growth of *Salmonella* Bovismorbificans was cultured from the tissues, presume enteric in origin, but a site of inflammation in the gastrointestinal tract was not found.

Discussion

On further history the mother was fed raw meat and had no access to outdoors. So in this case, infection was likely through directly eating raw infected meat or indirect exposure via *Salmonella* being shed in mother's faeces secondary to her eating contaminated meat.

Salmonella serotypes occur world-wide. They infect many animals and are excreted in the faeces, which infect other animals when ingested from water, soil, animal feeds, raw meat, offal and vegetable material. *S. Bovismorbificans* cases (diarrhoea and acute outbreaks involving pregnant or recently calved cows that cause deaths in cows and calves), have emerged as a major cause of salmonellosis in New Zealand cattle over the last seven years with concurrent rises in human, canine and feline cases.

In a recent review of *Salmonella* cases recorded in cats through Gribbles Veterinary laboratories (Hulme-Moir, 2022), the majority of isolates were Typhimurium, with smaller numbers of cases of Bovismorbificans, Saint Paul, Enteritidis, Brandenburg, Mbandaka and Victoria.

Distinct differences were noted in the signalment of cats infected with Typhimurium compared to non-Typhimurium serovars.

Photo 1. Enlarged spleen and liver at autopsy

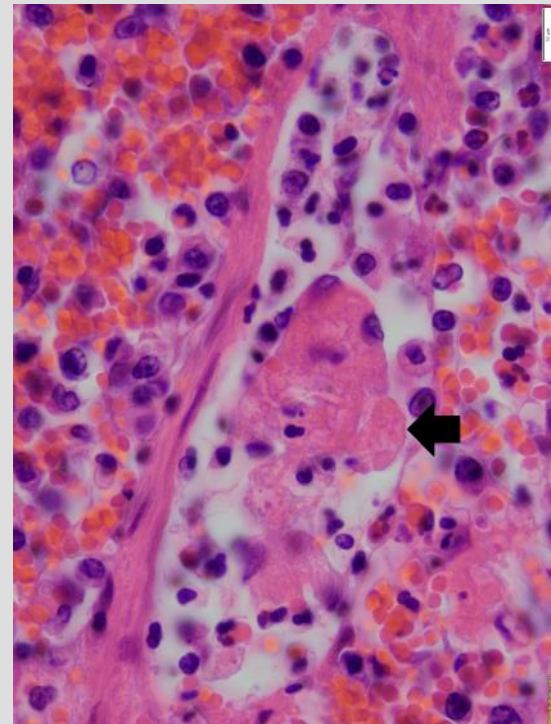
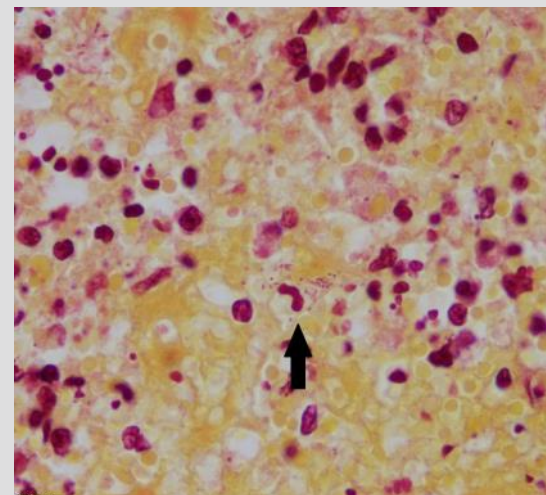


Photo 2. Histopathology, spleen – fibrin thrombi, H&E 1000x.

Continued on following page.

Photo 3. Histopathology spleen – short Gram negative bacilli, 1000x.



Cats with Typhimurium showed a breed distribution that approximated the general cat population; however, non-Typhimurium cases were more common in pedigree cats and these cases tended to be younger and more frequently involving litters of kittens,

largely from breeding establishments.

As *Salmonella* serovars emerging in cattle and companion animals are causing disease in humans, hygiene precautions should be reinforced to owners with diarrhoeic animals

and discussion of the risk of salmonellosis is important, particularly with cat breeders.

Reference:

Lisa Hulme-Moir: Salmonella trends in companion animals in New Zealand. NZVA Conference 2022.

Our name is changing - introducing Awanui Veterinary

We are proud to announce that after over 20 years as Gribbles Veterinary our name and brand will be changing to Awanui Veterinary.

Our new name Awanui Veterinary, brings us together with the medical laboratory brands and network of services, laboratories, collection centres and people under a unified Aotearoa New Zealand name for the first time.

Moving to become Awanui Veterinary is a significant milestone for our organisation. Many may not be aware that Gribbles Veterinary is part of a nationwide network of laboratories that span Aotearoa. The eight medical laboratories also owned by Awanui Group will be changing their names to Awanui Labs.

Awanui translates to 'big river' and was chosen to represent the coming together of our services nationwide and speaks to the proud history and strong connection to the communities we support. Like our nation's rivers we intersect and join. We join together as Awanui.

Alongside the 2,000+ strong team across our network who contributed to this mahi (work), we were privileged to have partnered with Te Reo Māori and Mātauranga Māori experts in health who offered their perspectives to guide and shape the final decision of our name and design.

So, what will be different?

In the coming months, you will see Awanui Veterinary and the new branding appearing

at your local laboratories, where we have offices and people and, on our vehicles and staff clothing.

We recognise our valued Gribbles Veterinary customers know and trust our current name and brand in their region. Our customers will continue to see the same great people, in the same place, and can be confident in receiving first-class laboratory and pathology services, but with a different name.

Ka tū mātou i muri ki te hauora o Aotearoa
We stand behind the health of Aotearoa New Zealand

For more information about the brand change visit www.awanuigroup.co.nz.

 Awanui Veterinary

Taituarā ai mātou i te hauora o Aotearoa

We stand behind the health of Aotearoa New Zealand



Eosinophilic surprises

KATHRYN JENKINS

On blood smear evaluation and in cytology, eosinophils have distinctive morphological features that make them easy to identify. However, this is not always the case. Here are some surprising tips about the humble eosinophil, and a case report when all was not as it seemed on the haematology analyser results.

Typical eosinophils

Eosinophil granules have an affinity for eosin (the red dye in our routine stains), so that after staining the granules appear pink to orange-red in most species. However the shape, size and number of granules varies considerably between species. The cytoplasm of eosinophils is pale blue (in contrast to other granulocytes), and the nucleus appears less lobulated than neutrophils.

Many species have round granules, however domestic cats have rod shaped ones (Figure 1a). Dogs can have a large variation in size of granules and often display a few cytoplasmic vacuoles (Figure 1b). Granules in ruminant eosinophils are small (Figure 1c). Equine granules are very large, and in this species eosinophils are like finding 'raspberries' down the microscope (Figure 1d).

Grey eosinophils

Eosinophils can however be tricky. In Greyhounds and other sighthounds (and

occasionally in other dog breeds), we can see so called 'grey eosinophils'. In these cases the granules are poor to non-staining, and the cytoplasm often appears highly vacuolated (Figure 1e). This is especially apparent in quick stained smears (like Diff-Quik).

It is important to recognise grey eosinophils, as they can be mistaken for toxic neutrophils or vacuolated monocytes which may suggest an inflammatory process. Grey eosinophils have also recently been reported in cats.

Blue eosinophils

Anyone examining avian blood films may appreciate the wide variety of leukocyte morphology across the many species we see in New Zealand. Heterophils have red-orange elongated granules, and eosinophils can vary from having orange-pink granules to blue granules.

Blue eosinophils can be seen in some psittacine species (especially parrots and cockatoos), as well as our own Kakapo and Takahe (Figure 1f). To complicate the matter, toxic change in heterophils often results in the presence of blue to purple granules and blue cytoplasm, which can mimic blue eosinophils.

Analyser error

A recent case highlighted the value of blood film evaluation. A 4-year-old cat presented with inappetence, weight loss, and fever. On physical exam an enlarged kidney was palpated. Routine biochemistry demonstrated

mild hypercalcemia (3.02; ref 2.22-2.67 mmol/L), with mild hypoalbuminemia (26; ref 33-43 g/L). The CBC reported a mild non-regenerative anaemia, with a moderate eosinophilia (7.03; ref 0 – 0.9 x 10⁹/L), and mild monocytosis (3.64; ref 0 – 0.9 x 10⁹/L).

In contrast, on film review, eosinophils and monocytes appeared within normal reference values. There was a significant left shift with toxic change to neutrophils, and moderate numbers of large blast cells with prominent nucleoli (see Figure 2). The interpretation was supportive of lymphoproliferative disease (likely stage V lymphoma), with concurrent systemic inflammation. Subsequent cytology of the kidney was consistent with renal lymphoma.

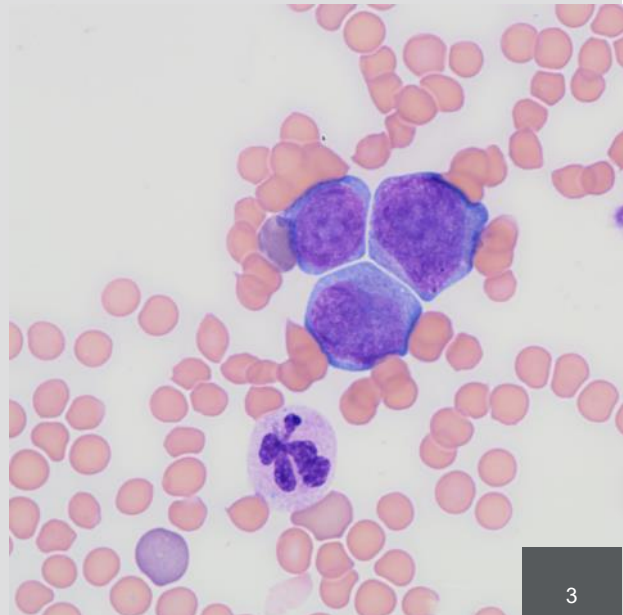
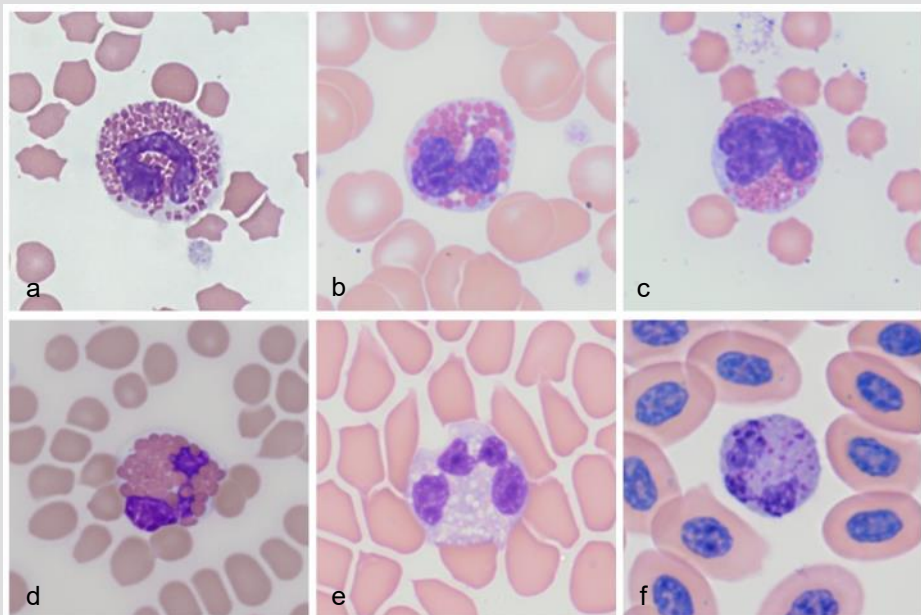
In this case, the analyser likely misidentified the inflammatory neutrophils as eosinophils, and the neoplastic blast cells as monocytes. Many haematology analysers use cell size and complexity to categorise cell type, which can differentiate leukocytes extremely well in healthy patients. However when atypical leukocytes are present, the analyser will place the cell into a category of best fit, and will usually "flag" the result. This means a blood film review is critical to check the automated data.

Ideally all blood films should be reviewed to identify atypical cells, and especially when an analyser flags a result, in unwell patients, or the results do not fit with what is clinically suspected.

References: see page 4.

Figure 1. Eosinophil appearance in different species. Cat (a), dog (b), sheep (c), horse (d), greyhound (e), takahe (f).

Figure 2. Cluster of three large 'blast'-like cells with prominent nucleoli.



Diagnostic integration - help us help you!

We are currently in the process of moving all ezyVet customers over to our complete integration system, giving practices access to our laboratory diagnostic testing directly via ezyVet. This will improve clinic efficiencies and do away with manual handling of test requests and results.

If you are an ezyVet customer and have not yet changed over to our complete integration

system, you can find out more information on our website [here](#).

We would also like to be able to offer a similar integration system to Vision and RxWorks customers, but before we begin working on it, we'd like your feedback on how we can make this work best for you. So when you have a few minutes, [please complete this brief questionnaire](#) and help us help you.



In brief

- > **Thank you to everyone** who visited our stand at the recent NZVA conference! It was wonderful speaking to so many of you and showing off our new branding for the upcoming name change. We're glad you're as excited about it as we are!
- > **We'll be closed Matariki weekend** - our laboratories will be closed the entire of the long weekend 14-16 July. We'll be open for business again on Monday 17 July.
- > **Don't forget to register** for our CPD session #3 coming up on 18 July. This time it is an equine session with Sandy Weltan and her "Approach to the coughing horse" along with Gary Turnbull from the Lincoln Institute presenting "The art of receiving feedback—overcoming triggered responses". [Find our more information and register here](#).
- > **Missed a one of our CPD sessions?** We've got you covered - find all the recordings on our [website here](#) under webinars.
- > **Interested in a leadership training event?** Gribbles Veterinary is proudly supporting The Lincoln Institute for a two-day live and face-to-face leadership training event - October 4-5 at Rydges Formosa Golf Resort. Numbers are strictly limited, so [check out all the details and register](#) or download a brochure [here](#). Be sure and get in quick!

References (from page 3)

Stacy NI, Ackerman SJ. A tribute to eosinophils from a comparative and evolutionary perspective. *J Allergy Clin Immunol*. 147:1115-1116, 2021; Holmes, E, Raskin R, McGill P, Szlodovits B. Morphologic, cytochemical, and ultrastructural features of gray eosinophils in nine cats. *Vet Clin Pathol*. 50:52-56, 2021; Veterinary Hematology - A Diagnostic Guide and Color Atlas. Harvey, J. 2012.



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VETERINARY



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- Dr Megan Alderson, Practice Owner, The Strand Vet (Auckland)

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