Awanui Veterinary

Pathology in focus

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awanuivets.co.nz

When big isn't better

Lisa Hulme-Moir

Although we only receive small numbers of cytology submissions from cattle, cytology can be a very useful tool for narrowing your differential list and helping determine an appropriate course of action, particularly if the lesion is unusual. The following is an example of a case where cytology enabled a diagnosis to be reached.

Clinical history

The veterinarian was called out to see an 11-year-old Friesian milking cow that had had a diffusely swollen udder of approximately 1 month duration (Figure 1). The swelling had not responded to non-steroidal anti-inflammatories. The cow was clinically well and milking well with no clinical mastitis. She was RMT negative and was not uncomfortable when milked. On clinical exam, no abnormalities were detected other than the diffusely swollen udder.

Dark bloody red fluid (6mL) containing small pink flocculent clumps was aspirated from the swollen udder and submitted to the laboratory for cytology.

Laboratory findings:

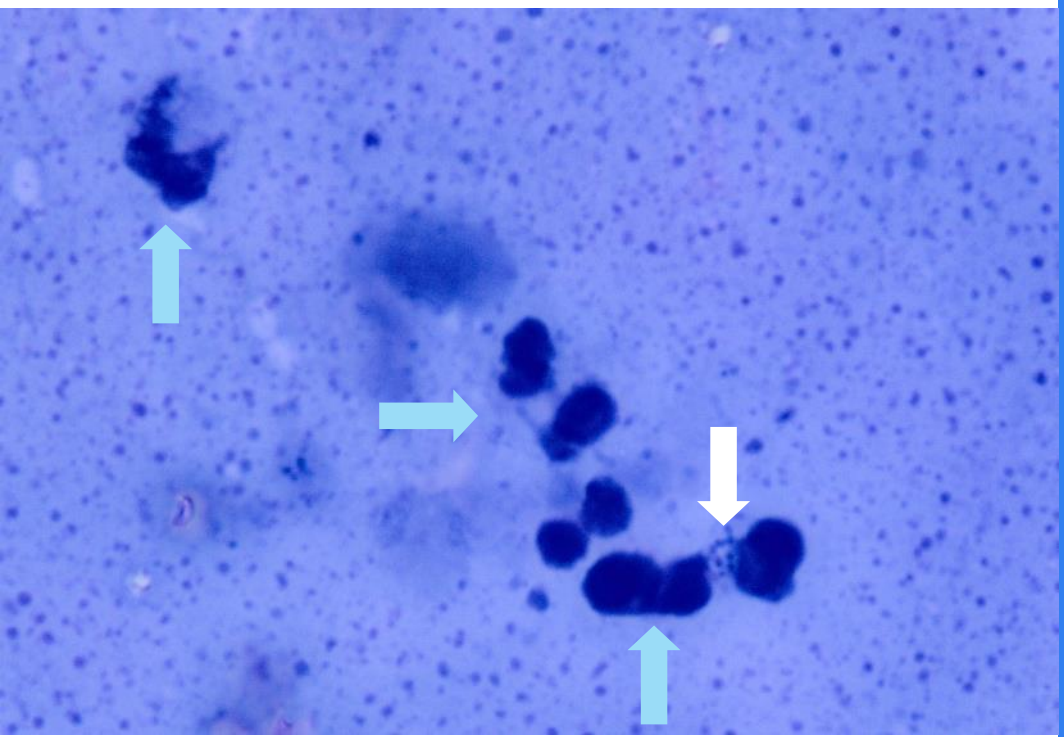
On examination of direct smears from the fluid, moderate numbers of red cells with smaller numbers of degenerate neutrophils and occasional lymphocytes were observed on a heavy, stippled protein background (Figure 2). Bacterial cocci were seen in some areas including within neutrophils, leading to a diagnosis of bacterial infection. A light growth of *Streptococcus canis* was obtained on subsequent culture.

Discussion:

Streptococcus canis is a resident of the skin and mucous membranes of cats and dogs but does occasionally cause infection in other animal species. In cattle, it has occasionally been reported to cause chronic subclinical mastitis and can act in a contagious manner (Król et al 2015, Eibl et al 2021). In two outbreaks, genotyping linked the infections to cats present on the farms (Tokofsky and Zadoks 2005, Eibl at al 2021).

Figure 1. Swollen udder of one month duration in an adult dairy cow.

Figure 2. Photomicrograph of direct smear prepared from fluid aspirated from the udder. A few degenerate neutrophils (blue arrows) and red cells are scattered on a deeply basophilic proteinaceous background. Bacterial cocci in chains (white arrow) can be seen within the cytoplasm of one cell. Streptococcus canis was later cultured from the fluid.



Acknowledgements to Georgia Patterson and the team at Franklin Vets Paeroa for the great case.

References:

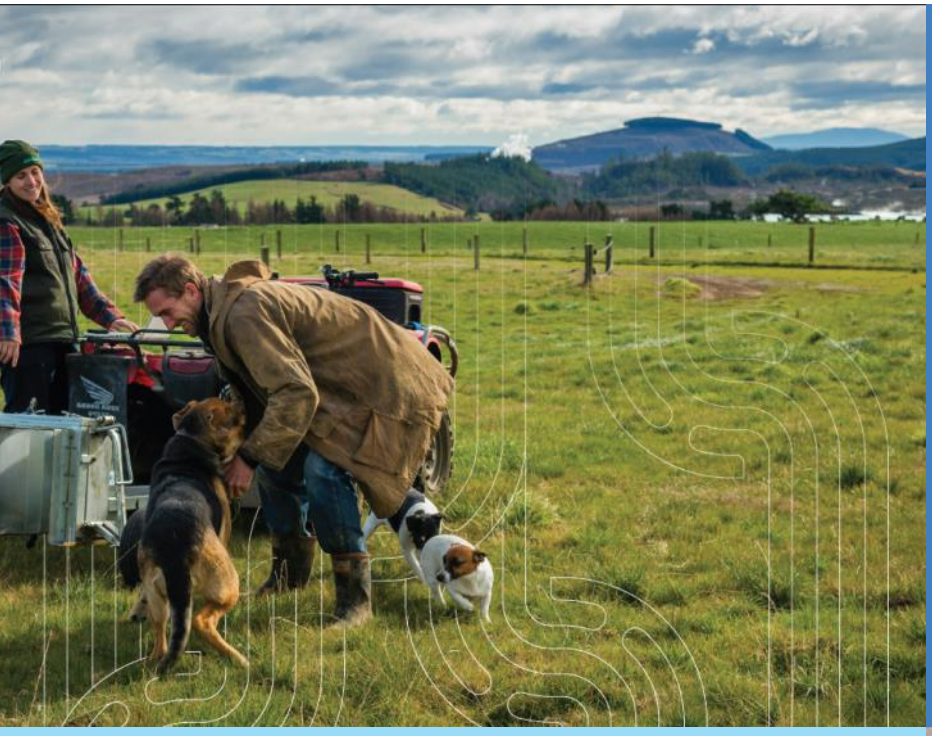
- Eibl et al. An outbreak of subclinical mastitis in a dairy herd caused by a novel Streptococcus canis Sequence Type (ST55). *Animals*. 11:550, 2021.
- Król et al. Short communication. Streptococcus canis is able to establish a persistent udder infection in a dairy herd. *J Dairy Sci.* 98:7090-7096, 2015.
- Tikofsky LL, Zadoks RN. Cross-infection between cats and cows: origin and control of Streptococcus canis mastitis in a dairy herd. *J Dairy Sci.* 88:2707-2713, 2005.

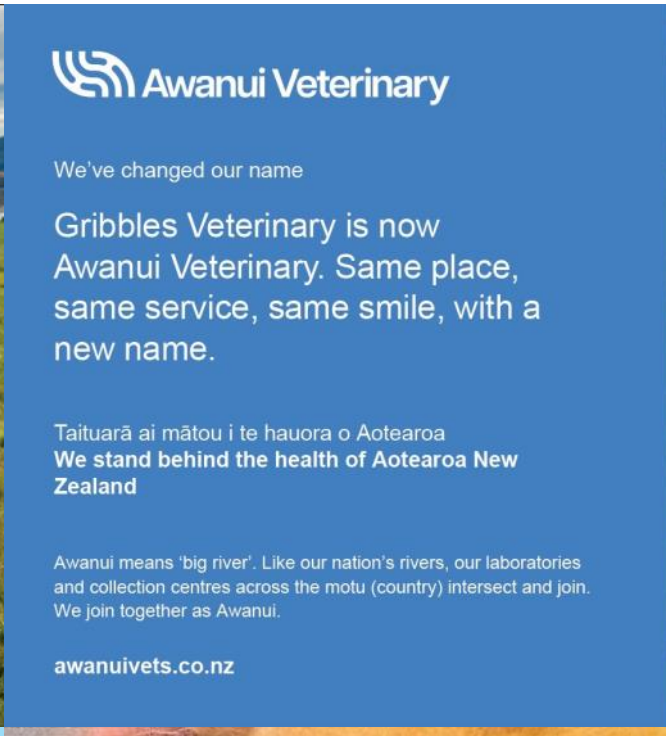
Awanui day-to-day changes

Despite occurring a bit later than initially anticipated, we are very excited to have a new name and new look. Hand in hand with the name change are other changes which may impact you. So here's a run down of some things you may need to know:

- The change is just in our trading name and there will be no change to the way you interact with us financially, this will be APHG NZ Investments Ltd T/A Awanui. Our legal name remains Gribbles Veterinary Pathology Ltd.
- Our email addresses will change to @awanuigroup.co.nz, but emails to @gribbles.co.nz addresses will still be received.
- We recommend you check your junk mail if you are missing emailed results or other communications as they may be moved to junk since are being sent from a new domain. Please add us to your favourites.
- If you have a saved link to our website on your computer desktop you can update it to. awanuivets.co.nz. The old Gribbles website address will reroute you to our new URL. Links to the Lab-Portal and eResults can be found on our website.
- Our 0800 number will remain the same - 0800 474 225.
- New Awanui Veterinary submission forms will be available when you order new pads, but the Gribbles forms are still fine to use.
- Gribbles branded courier bags are also still fine to use and we will be replacing these with Awanui branded bags soon.

If you have any questions please contact your local laboratory.





What's your diagnosis?

A new monthly spot quiz

Test your skills with this gross photo: ulcerated lumps on nose (and ears) of a 4-year-old Golden Retriever.

What's your diagnosis? *(Answer can be found on last page).*

New qPCR assay for generic detection of Parapoxvirus

Saeed Sharif & David Tisdall

Parapoxviruses (PaPVs; genus Parapoxvirus) infect a wide range of species generally causing localised cutaneous lesions. The genus comprises four species: Orf virus (ORFV), Bovine papular stomatitis virus (BPSV), Pseudocowpox virus (PCPV), and Parapoxvirus of red deer (PVNZ). The most common hosts of PaPVs are ruminants, including sheep and goats (infected by ORFV), cattle (infected by BPSV and PCPV), and deer (PVNZ). Wildlife, including seals and sea lions can also be infected. All PaPVs are known to be zoonotic, infecting humans after direct or indirect contact with infected animals.

Disease presentations

Orf is a common disease of sheep, causing papules and vesicles on the lips ('scabby mouth') and sometimes around the nostrils and eyes (Figure 1). Lesions can also develop on the udders when ewes suckle infected lambs. Lesions heal within about one month however infective virus can persist in dried scabs in the environment for long periods. Vaccination with a live, non-attenuated virus is practiced in some countries, including New Zealand.

Pseudocowpox occurs in dairy herds worldwide. Infection can occur on muzzles of nursing calves and on the teats of milking cows, infection occurring through small abrasions during milking or by mechanical virus transmission by flies.

BPSV causes lesions on the muzzle, margin of the lips and buccal mucosa mainly in cattle less than two years of age (Figure 2). Suckling calves may produce lesions resembling pseudocowpox on their mother's teats.

PVNZ causes scabby lesions on the muzzle, lips, face, ears, neck, and velvet, causing significant economic losses (Figure 3).

Laboratory diagnosis

Currently laboratory diagnosis of PaPV infection in New Zealand relies on histology. Molecular techniques are widely used for detection of PaPVs, and differential diagnosis of more serious diseases like foot-and-mouth disease virus, Bluetongue virus and bovine herpes virus 2 is important.

New tests now available

Awanui Veterinary is now offering a rapid, reliable, and cost-effective qPCR assay for the generic diagnosis of Parapoxviruses. More specific qPCR assays may become available to differentiate PaPV species.

Figure 1. Facial lesions in sheep & hand infection caused by parapoxvirus (orf). *(Photos: Lamlac.co.uk & J. Micro. Inf. Dis. March 2013)*

Figure 2. Papules caused by bovine papular stomatitis virus on the ventral surface of the tongue of a six-month-old calf. *(Photo: Surveillance 39, 2012)*

Figure 3. Multiple circular raised erosive lesions on the velvet of a 2-year old stag, caused by parapoxvirus of red deer. *(Photo: Surveillance 39, 2012)*

The test can be used where proliferative lesions are found on the skin or oral mucosa of suspect cases. The samples can include scab material, skin lesion or dry swabs of lesions.

The turn-around time is 3-5 working days and the price is $70.26 ex. GST per test.

Splenic masses in dogs - differentials & diagnostic tips

Bernie Vaatstra

Many vets will be able to recount removing astonishingly large splenic masses from dogs. Splenectomy may occur in the context of an emergency - after splenic bleed or torsion, for example - or after detection of an incidental mass on palpation.

Since it is difficult to determine malignant potential based on gross appearance alone, these spleens often end up in the laboratory for processing. Large splenic samples have areas of coagulated blood and necrosis, are densely cellular and slow to fix in formalin, and are messy to process. They are generally challenging for pathologists and histology technicians and care is required in case selection and sample submission.

So, what are the differentials for these large splenic masses? A survey of 83 splenic masses received through one of our laboratories over the course of two years revealed the diagnoses outlined in Table 1.

Diagnosis	No. cases	Percentage of cases
Nodular hyperplasia	24	29%
Haematoma	23	28%
Haemangiosarcoma	22	27%
Lymphoma	5	6%
Histiocytic sarcoma	3	4%
Myelolipoma	3	4%
Other	3	4%
Total	**83**	

Table 1. Diagnoses of splenic masses over a two year period.

Of these differentials, nodular hyperplasia, haematoma and haemangio-sarcoma are clearly most commonly encountered, with the others being uncommon. The spleen may also harbour metastatic tumours such as mast cell tumour, melanoma, multiple myeloma, and neuroendocrine carcinoma.

Figure 1. Splenic mass from a dog appropriately submitted whole and bread-loafed to aid fixation. Histological diagnosis was nodular hyperplasia (mixed) with haematoma.

The gross appearance of the splenic mass may suggest more likely differentials but is never entirely reliable. A large solitary mass may be more likely to be nodular hyperplasia nodule, stromal sarcoma, haematoma, or myelolipoma. Scattered smaller nodules could be lymphoma, metastatic neoplasia, disseminated vascular neoplasia, or histiocytic sarcoma, but again, could also be multiple hyperplastic nodules. Multiple irregular, ragged dark red masses would raise concern for haemangiosarcoma. A diffusely enlarged spleen suggests conditions such as haemolytic anaemia, lymphoproliferative disease, histiocytic sarcoma, EMH, and splenitis.

Given the variable gross appearance and differing prognoses of splenic masses, histopathology remains an essential component in diagnosis and management. Ideally, the entire spleen should be fixed for several days in an appropriate quantity of 10% neutral buffered formalin (10:1 formalin to tissue ratio, or as close to as practicable). To aid fixation, the spleen can be partially bread-loafed (Figure 1). The fixed spleen can then be removed from the formalin, wrapped in gauze or paper towels, and placed in sealed, zip lock bags within an outer sturdy container containing absorbent material.

Continued overleaf.

If it is impractical to fix the entire spleen, 4-6 samples should be collected from the mass/spleen interface since that tends to be the region where any neoplastic cells are best preserved and most plentiful.

Histopathology will often provide a definitive diagnosis but has some limitations. For masses complicated by necrosis and haematoma, areas of malignancy can be obscured. In addition, nodular lesions often have mixed cell populations - lymphoid, histiocytic or stromal – and one or more of these populations may be malignant (Sabattini et al. 2022). Further, while we endeavour to select the most representative portions of a splenic mass for processing, it is not possible to exclude the possibility of missing a diagnostic focus given histological sections generally consist of roughly 40 x 20mm of tissue measuring up to 5 µm thick. As an example, one study of dogs with splenic haematomas found that up to 10% may have had undetected malignancy based on clinical follow up (Patten et al. 2016). The histological diagnosis should therefore always be interpreted alongside relevant clinical findings, haematology and biochemistry.

References:

Patten SG, Boston SE, Monteith GJ. Outcome and prognostic factors for dogs with a histological diagnosis of splenic hematoma following splenectomy: 35 cases (2001-2013). *Can Vet J.* 57:842-6, 2016.

Sabattini S, Rigillo A, Foiani G, Marconato L, Vascellari M, Greco A, Agnoli C, Annoni M, Melchiotti E, Campigli M, Benali SL, Bettini G. Clinicopathologic features and biologic behavior of canine splenic nodules with stromal, histiocytic and lymphoid components. *Front Vet Sci*. 12:9:962685, 2022.

From page 3: What's your diagnosis? *Eosinophilic furunculosis. The clinical history, clinical signs and images submitted, together with the histopathology, conform to a classic syndrome known as eosinophilic furunculosis of the face. This is thought to be an immune-mediated problem related to a hypersensitivity to arthropod bites, and is characterised by a sudden onset of clinical signs as described. Wasps, bees, hornets, spiders and ants have all been implicated. Affected dogs are usually young, large breed dogs with access to the outdoors.*

In brief

- **Easter** - all of our laboratories will be closed the entire of Easter weekend (29 March - 1 April). We recommend you do not send samples overnight on Thursday 28 March as they will likely be unsuitable for testing on receipt.
- **Export testing reminder**

  If you're submitting samples from animals that are being sent overseas, please ensure:

  > the sample collection date is clearly written on the submission form.

  > The animal ID on the sample must exactly match the animal ID on the submission form. This includes all letters, numbers, symbols and the order written.

  > A microchip number and export date for companion animals is included.

  > ALL fields on the submission form are completed.

  Missing information and discrepancies will need to be confirmed which may delay result reporting.

Contact us

- contacting Awanui Veterinary couldn't be easier.

EMAIL

auckland.vetlab@awanuigroup.co.nz
palmerston.vetlab@awanuigroup.co.nz
christchurch.vetlab@awanuigroup.co.nz
dunedin.vetlab@awanuigroup.co.nz

PHONE

0800 474 225

WEBSITE

www.awanuivets.co.nz

FACEBOOK

www.facebook.com/AwanuiVets

CATEGORY MANAGERS

- Rachel Howie - Rachel.howie@awanuigroup.co.nz - 027 604 8690
- Paul Fitzmaurice - Paul.fitzmaurice@awanuigroup.co.nz - 027 644 6892

LABORATORY MANAGERS

- Auckland - Miriam Reddy - Miriam.reddy@awanuigroup.co.nz - 09 574 4717
- Palmerston North - Tara Gowland - Tara.gowland@awanuigroup.co.nz - 06 350 2944
- Christchurch - Daniel Westlake - Daniel.westlake@awanuigroup.co.nz - 03 363 6717
- Dunedin - Denise Carian-Smith - Denise.carian-smith@awanuigroup.co.nz - 03 489 2632

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