Paws claws and udder things

Gribbles VETERINARY

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Tumour on the dark side

SUNAO FUJITA

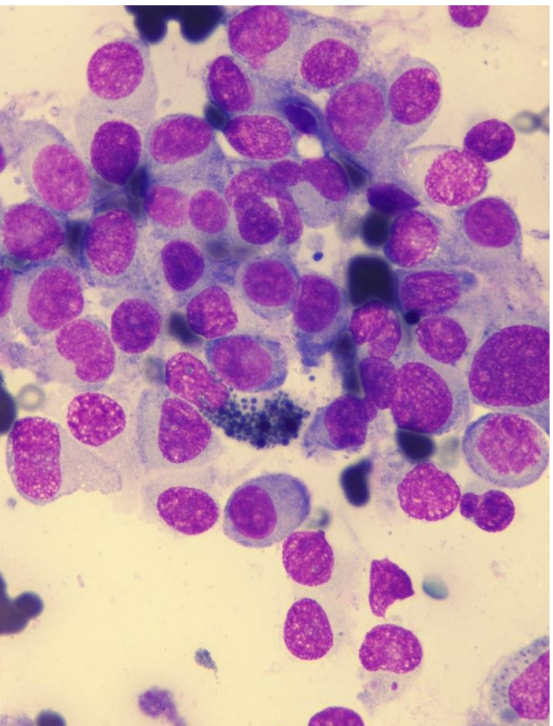
Clinical history

A 15-year-old spayed female, domestic short haired cat presented with a large granulomatous-type lesion on the right upper lip. Fine needle aspiration of the mass and biopsy were performed, and the smears and fixed tissue were sent to the laboratory for cytology and histopathology.

Cytologic findings

Large numbers of round to sometimes spindloid cells were observed on the slides stained with Diff-Quik stain. The cells were arranged in clusters. Their nucleus was round to occasionally indented in shape and contained finely to coarsely stippled chromatin with single to multiple variably sized sometimes angular nucleoli. These cells had moderate amounts of basophilic cytoplasm with moderate N/C ratios and showed moderate anisocytosis and anisokaryosis. Sometimes bi- to multi-nucleated cells and bizarre mitotic figures were noted. The cells rarely contained scattered dark green to black intracytoplasmic pigment, morphologically most consistent with melanin (figure 1).

Figure 1. Cytology from the lip lesion. The spindloid cell (centre of the photo) contains dark green to black coloured intracytoplasmic pigment, most consistent with melanin.



These cytologic findings suggest an anaplastic neoplasm. Given the intracytoplasmic granules, an amelanotic melanoma was suspected.

Histopathologic findings

The biopsy samples were composed of fragments of a densely cellular neoplasm. The neoplasm consisted of nests and bundles of round to spindloid cells. The cells had moderately abundant pale eosinophilic cytoplasm, large round to oval nuclei with finely dispersed chromatin, and large prominent central nucleoli. There was moderate atypia characterized by nuclear hyperchromasia, karyomegaly, and anisokaryosis. The mitotic rate was high at 44 per 10hpf equivalents. Atypical mitoses were observed. Scattered cells contained small dustings of pale brown cytoplasmic pigment (figure 2).

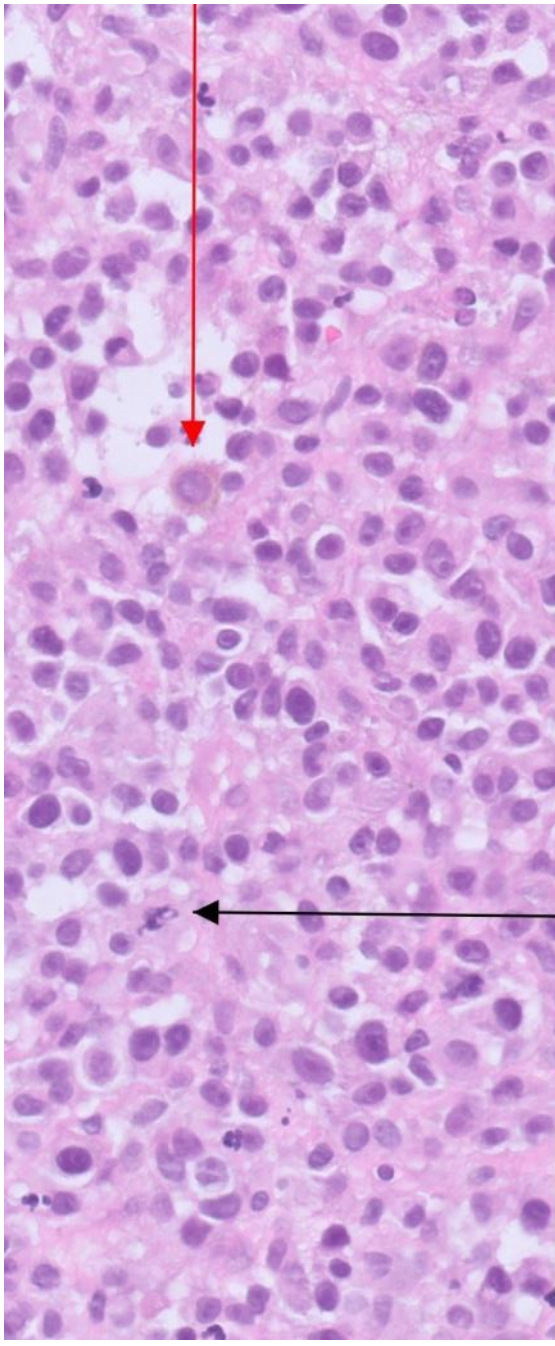


Figure 2. Histopathology from the lip lesion. Red arrow – a lightly pigmented cell; black arrow – a bizarre mitotic figure.

Diagnosis

Melanoma.

Discussion

Cytologic diagnosis of melanocytic tumour is often straightforward but can be confounded when the cells lack characteristic intracytoplasmic melanin. In this case, most of the neoplastic cells do not contain

melanin pigment, which was problematic for cytologic confirmation of melanoma but the presence of rare cells with melanin was suspicious for a poorly differentiated (amelanotic) melanoma. Amelanotic cells may appear vacuolated and clear cell or balloon cell variants can have large amounts of clear cytoplasm on cytology samples, which have been reported in dogs and cats[1].

Unlike dogs, melanomas are uncommon in cats, and usually uveal or cutaneous with rare oral melanomas are seen. Cutaneous melanomas account for 0.5% of all skin tumours and are commonly seen on head, tail, distal extremities, and lumbar region[2]. No sex predisposition is noted[3]. The mean age of cats with melanoma is 7.9 years (range 4.0-16.0 years)[3]. Cats with auricular melanomas are significantly younger (median age 7.9 years) than cats with cutaneous non-auricular melanomas (median age 13.3 years)[3]. It has been implicated that UV light may affect development of auricular melanomas[3].

Most cutaneous melanomas are malignant in cats. Generally, the prognosis is poor due to recurrence and regional metastasis in up to half the cases[2]. Metastatic rates have been reported to range 5-30% in feline non-ocular melanomas[3]. Nonocular melanomas exhibit a wide variation in biological behaviour and predicting clinical outcomes is challenging with no widely accepted prognostic criteria. Some studies have suggested prognostic factors including low pigmentation, mitotic index (4-5 per 10 HPF), tumour size, mucosal location, and intra-tumoral necrosis[3, 4, 5]. Amelanotic features are most commonly considered to be associated with a poor prognosis[3]. One study has reported that while median survival time for cats with pigmented melanomas is 179 days, cats with amelanotic melanoma has median survival time of 71 days[3].

Surgical excision is a primary option of treatment for non-ocular melanomas in cats. It has been reported that median survival time for cats treated by surgery is 143 days, but others without surgical treatment has a shorter median survival time (71 days)[3].

In this case, poor pigmentation, high mitotic index, and nuclear atypia were confirmed and warranted a guarded prognosis. The cat was euthanised at approximately 3 weeks after histologic diagnosis.

Melanoma should be included in differential list when cytology reveals a neoplastic lesion composed of round to spindloid cells that do not contain melanin pigment.

Acknowledgements to Dr Michelle Ross from Manley Vet Hospital for this interesting submission.

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International recognition

Congratulations to Dr Emma Gulliver, a Pathologist at our laboratory in Auckland, who recently became a Diplomate of the American College of Veterinary Pathologists.

"Emma has joined a distinct group of around 2200 global members of the American College of Veterinary Pathologists (ACVP), known as Diplomates" says General Manager James Richardson.

"The Diplomate is an internationally recognised qualification for veterinarians who hold a doctorate/degree in veterinary medicine, complete a three-year residency for training in anatomic and/or clinical pathology and successfully pass the certifying examination. This culminates in the accomplishment of becoming a Specialist Veterinary Anatomical Pathologist.

"Emma is originally from Australia and joined the Gribbles Auckland team in February 2023 after having completed her Master of Veterinary Science at Massey University. She is an integral part of the team, and we are really proud of her achievement. Well done Emma."

Time to think about parasites?

November is a great time to take stock and check parasite levels in sheep and lambs prior to drenching.

Is drenching required?

Target drenching to when parasites are actually present in your flock. Reduce the advancement of anthelmintic resistance by drenching only when required.

> Do 10x individual faecal egg counts (FEC) on lambs to understand the worm challenge level.

Is the current drench working?

Review drench effectiveness regularly. Regular checks will help reduce the advancement of drench resistance by identifying poor drench technique and highlighting potential emerging drench resistance early. Post-drench parasite burden indicates a possible breakdown of drench performance, this can be due to:

- Incorrect drench selection
- Incorrect dosage rate
- Poor drench technique
- Emerging resistance

Ensure the current on-farm drench programme is effective at reducing parasite burden with a drench review:

> 10x pre-drench FEC and a pooled larval culture; 10x post-drench FEC and a pooled larval culture, OR (less preferred)

> Post-drench FEC and pooled larval culture.

Is anthelmintic resistance present?

If a drench review test has indicated that there is a breakdown in drench performance, then further investigation is required to detect if anthelmintic resistance is present in the flock. Faecal egg count reduction tests (FECRT) with larval cultures will identify a resistance problem.

Investigation programmes should be customised for each farm and will depend on:

- Size of farming operation
- Result of drench review tests
- History of anthelmintic resistance on farm and in the area
- Current and historic drenching regimes
- Farmer engagement and budget
- Farming operation—ability to test multiple drench groups.

Gribbles' pathologists and parasitologists are always available to advise on drench investigations, tailoring a testing approach to each farm situation.

Ovine drench efficacy investigation tests available (pre-drench, post-drench and control*):

> Individual FEC

> Standard larval culture *(composition of parasite species only)*

> Quantitative larval culture *(composition of parasite species and total counts of all third-stage larvae recovered)*

*A minimum of 10-15 individual FEC and a pooled standard or quantitative larval culture is recommended pre-drench, for the control group and also for each anthelmintic group post-drench.

Got an itch?

GEOFF ORBELL

The onset of spring often coincides with an increased number of dogs, cats and horses presenting with pruritus and secondary skin and ear infections due to atopic dermatitis or feline atopic skin syndrome (FASS).

The diagnosis of atopic dermatitis is based on history, clinical presentation and ruling out other causes of pruritus including external parasites, secondary infections, contact allergy and food allergy. Once a diagnosis of atopic dermatitis has been made, then immunotherapy may be considered as part of the long-term management. Immunotherapy is formulated for an individual based on the results of an allergy test which can be with either an intradermal skin test or a serum allergy test. The majority of cats, dogs and horses will respond favourably to immunotherapy including at least a 50% reduction in pruritus, secondary skin and ear infections and medications needed i.e. anti-pruritic and antimicrobial.

The response rate to immunotherapy does not appear to vary according to the type of allergy test performed. Intradermal testing is a referral procedure as dermatologists are trained in the interpretation of the reactions. Serum allergy testing is often utilised in addition to intradermal allergy testing by dermatologists and may be preferred in some cases.

Serum allergy testing could be considered in cases where clients are interested in immunotherapy and:

- Referral to a dermatologist for intradermal skin testing is not an option e.g. due to location
- Clipping the coat is not desirable, e.g.

show animals

- Sedation is contraindicated due to increased risk from concurrent disease/ conditions e.g. Brachycephalic dogs

Gribbles Veterinary currently offer the HESKA Allercept® IgE serum allergy test as a highly specific serological test, based on 48 Australasian environmental allergens including pollens from grasses, weeds and trees, insects and moulds.

Requirements of sampling include:

> A minimum of 2mL of blood in a serum tube (sent on ice)
> Patients should be exhibiting clinical signs at the time of sampling

Serum allergy tests are considered to be less affected by drugs than intradermal allergy tests, but the following guidelines are recommended:

- Oral short-acting glucocorticoids at anti-inflammatory doses for less than 2 months; no withdrawal needed.
- Oral short-acting glucocorticoids at higher doses or for more than 2 months; 4–6-week withdrawal
- Injectable long-acting glucocorticoids; 28 day withdrawal
- Topical short-acting glucocorticoids (skin, ear and eye medications); no withdrawal needed
- Topical long-acting glucocorticoids (e.g. sustained release ear medications);14-day withdrawal
- Cyclosporine when administered for less than 2 months; no withdrawal needed
- Oclacitinib (Apoquel®), lokivetmab (Cytopoint®), antihistamines, NSAIDs, essential fatty acids; no withdrawal needed.

Results are usually available within 3 weeks and do not include an interpretation, therefore consultation with a veterinary dermatologist is recommended. Several veterinary dermatologists within New Zealand are able to formulate and dispense immunotherapy.

Gribbles Veterinary is able to send a copy of the HESKA Allercept® results to a specified veterinary dermatologist on request.

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Introducing your local laboratory managers

With the introduction of a new laboratory manager in our Dunedin laboratory in late September, we thought we'd take the time to reintroduce the entire laboratory management team.

Auckland - Miriam Reddy

Miriam has worked as laboratory scientist in medical and veterinary (haematology) laboratories in Auckland and the United Kingdom. She has worked in the field of pathology for over 15 years, and has been laboratory manager since 2022. Miriam can be reached by phone 09 574 4717 or email Miriam.reddy@gribbles.co.nz.

Palmerston North - Tara Gowland

Tara has worked as a laboratory technician in medical and veterinary (microbiology) laboratories since 2002. She had extensive technical and quality management experience before becoming the laboratory manager in 2019. Tara can be reached by phone 06 350 2944 or email tara.gowland@gribbles.co.nz.

Christchurch - Daniel Westlake

Daniel studied analytical chemistry and his scientific career has moved him around the United Kingdom and New Zealand working in various technical, scientific sales and management roles since. Dan has been managing the Christchurch laboratory since 2022. He can be reached by phone 03 363 6717 or email Daniel.westlake@gribbles.co.nz.

Dunedin - Denise Carian-Smith

Denise has over 20 years laboratory experience predominantly in veterinary and analytical chemistry, and quality management. She has recently taken over the laboratory management role in Dunedin and can be reached by calling 03 489 2632 or email denise.carian-smith@gribbles.co.nz.

Your local laboratory manager is always happy to have a chat, discuss any diagnostic requirements, receive feedback or to help resolve any issues that might occur. Please feel free to reach out to them at any time.

Vitamin B12 method change

As mentioned in previous communications regarding changes to vitamin B12 testing, we are no longer able to reliably source the radioactive labelled Co57 required to carry out the RIA method for measurement of vitamin B12 in serum, plasma and liver samples.

Extensive comparative testing has been carried out over the last few months and validation of a new assay is now complete. We have changed to the Roche chemiluminescent vitamin B12 assay for all testing.

What changes will you notice?

Reference intervals have been modified for serum, plasma and liver testing to compensate for the different test methodology now being used. You will therefore be unable to directly compare B12 results obtained by the new assay with historical results.

- **Liver B12 sheep and cattle -** results correlated well against the RIA method. The reference intervals were adjusted based on the comparison and regression analysis. Note: The dilution ratio for liver samples was adjusted to ensure results fall within the technical limits for the assay.
- **Serum B12 sheep** - results correlated well with the RIA method. The reference intervals were adjusted based on the comparison and regression analysis.

Serum B12 cattle

Initially, results did not correlate well due to the varying proportion of B12 analogues detected by the RIA method. Comparison testing was then carried out against another commercially used and comparative method, and regression analysis was used to calculate a new reference interval.

We did see some unexpected results for cattle B12 sera at the lower end of the reference range. This was due to the detection limit (74 pmol/L) being very close to the lower limit of the adjusted reference interval of 83 pmol/L. These samples were retested at another commercial laboratory for comparison and any amended results were issued to affected customers. The number of affected samples was very small.

Further recalibration and validation work was carried out for serum B12 testing for cattle samples close to the detection limit for this test. Results are now providing a good indication of adequate levels in cattle.

If you have any questions please just contact your local laboratory or territory manager.

Canterbury anniversary day - Our Christchurch laboratory will be closed on Friday 17 November for the regional anniversary day. They will however be open normal business hours on Saturday 18 November. ***Please note:*** *This closure may impact turn-around-times for histology cases throughout the country as much of our tissue processing is performed in our Christchurch laboratory.*

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