

Bad blood

AREFEH RAVANBAKHSH

Clinical history

A 12-year-old female spayed German Shepherd presented to their veterinarian for examination of a mammary mass. The mass was described as firm, diffuse, painful on palpation, and measuring approximately 10cm x 2cm in size.

Approximately 11-months earlier, the patient had multiple mammary masses removed. Histological examination of the previous mammary masses had revealed mixture of benign and malignant mammary tumours.

Fine-needle-aspirates of the mammary mass were performed and the smears were submitted to the laboratory for cytology. An EDTA sample and fresh blood smear was also submitted for a full CBC.

Haematology results

CBC revealed a neutrophilia ($30.5 \times 10^9/L$; reference interval $3.6-11.5 \times 10^9/L$), left shift (bands $6.5 \times 10^9/L$; RI $0-0.5 \times 10^9/L$), and monocytosis ($4.7 \times 10^9/L$; RI $0.2-1.5 \times 10^9/L$) all consistent with a marked inflammatory leukogram. There was a stress lymphopenia (lymphocytes $0.4 \times 10^9/L$; RI $1.0-4.8 \times 10^9/L$), and few reactive lymphocytes. The erythroid mass was within normal range, HCT 0.42 (RI: 0.37-0.55 L/L). Platelet mass was also within normal limits.

On blood smear review a population of atypical cells were noted, mostly on the feather edge of the blood smear (Figures 1 and 2 A+B). The atypical cells were large rounded to polygonal, had small to moderate amount of basophilic to deep basophilic cytoplasm that were variably vacuolated. Nuclei were paracentral to eccentric, round, oval, or indented with coarse chromatin

pattern and one to multiple distinct and at times prominent nucleoli. The atypical cells were noted individually or forming small cohesive clusters.

Cytology of mammary mass

The sample was well preserved and highly cellular with mild to moderate blood contamination (Figures 3 A + B). A moderately to markedly atypical epithelial cell population was noted in variably sized clusters as well as scattered individually. Few clusters were associated with scant amount of pink proteinaceous material. The epithelial cells were polygonal to round and had small to moderate amount of deep basophilic cytoplasm, variably distinct cell junctions, and some had a variable degree of clear vacuolation. Nuclei were paracentral to eccentric, round, oval, or indented and

CONTINUED OVERLEAF

Figure 1. Circulating neoplastic cells on feather edge of blood smear.

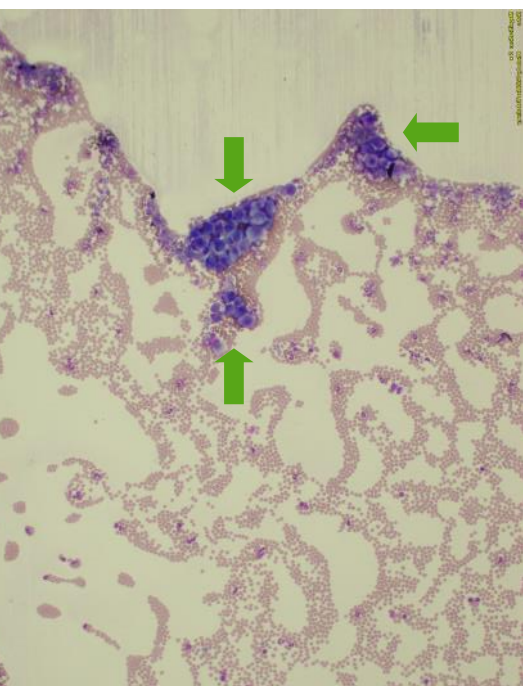
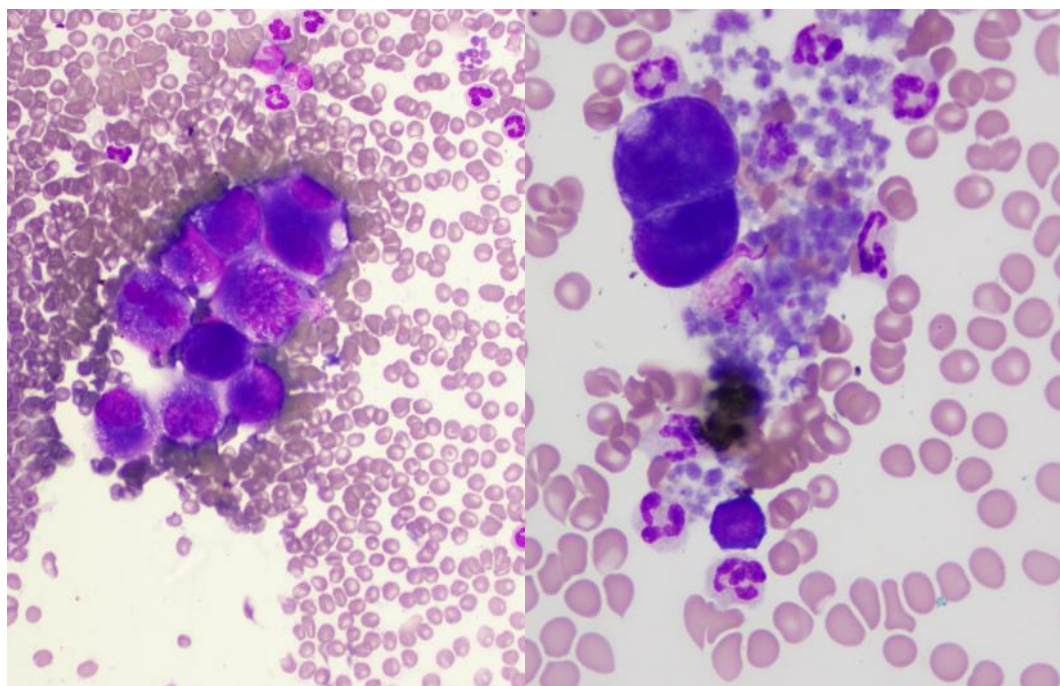


Figure 2 A+B. Higher magnification images of circulating neoplastic cells noted on blood smear review.



contain coarse chromatin with one to few prominent, round, oval, or irregular nucleoli. There was moderate to marked anisokaryosis, and frequent bi- or multi-nucleated forms and evidence of nuclear moulding and cell crowding. Occasional mitotic figures were noted some of which displayed asymmetrical mitosis. Non-degenerate neutrophils and macrophages were mildly increased.

Diagnosis

Malignant neoplasia, most consistent with carcinoma, with evidence of circulating neoplastic cells.

Discussion

Cytology can be a great diagnostic tool to further investigate if a mass in the region of the mammary glands is of mammary origin, or due to other pathology in the vicinity of the mammary glands (example a mast cell tumour or abscess in close proximity to the

mammary chains). Cytology alone however can be poorly predictive of biological behaviour (benign vs malignant) when it comes to mammary tumours, and histopathology is needed to further differentiate mammary tumours.

Presence of circulating neoplastic cells with morphology which mirrored that noted in the mammary mass cytology, marked cytological atypia of the majority of exfoliated epithelial cells, and history of previous mammary carcinoma, all helped provide clues to support diagnosis of carcinoma in this case.

This case highlights the importance of including a blood smear examination as part of a haematology work-up (CBC). If only the machine generated values were assessed without a concurrent blood smear examination, the presence of circulating neoplastic cells would not have been detected.

In canine mammary carcinomas, detection of

circulating tumour cells is a rare finding.¹ In human breast cancer patients, the presence of circulating tumour cells is prognostically significant.² Circulating tumour cells in human patients indicates increased risk of metastasis and higher numbers of circulating neoplastic cells have been inversely

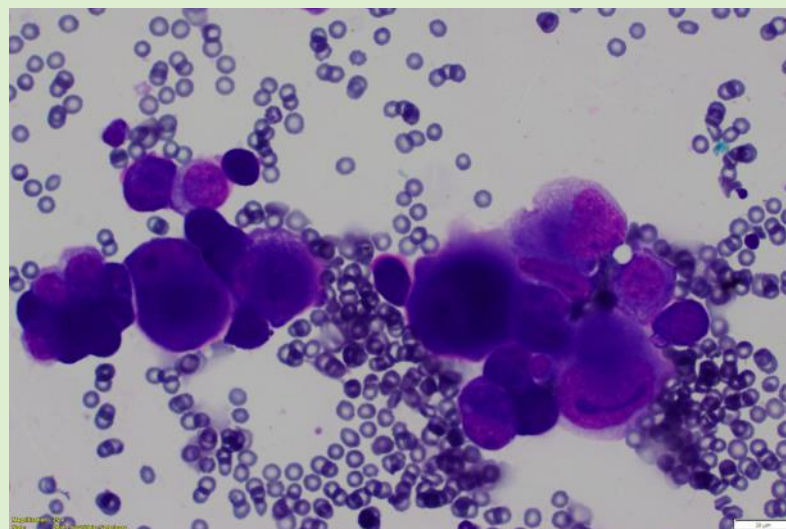
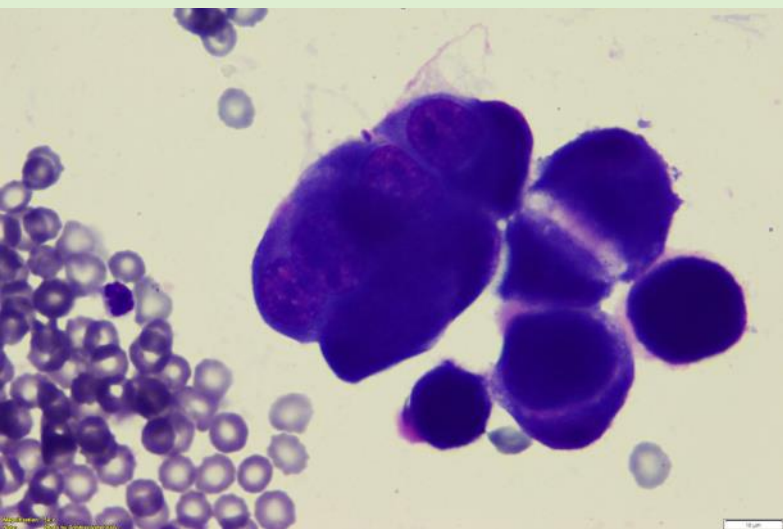
associated with patient survival.³

References:

1. Piane L. et al. What is your diagnosis? Abnormal cells on a blood smear from a dog. *Vet Clin Pathol.* 3:461-2, 2014
2. Jaillardon L. et al. Mammary gland carcinoma in a dog with peripheral blood and bone marrow involvement associated with disseminated intravascular coagulation. *Vet Clin Pathol.* 2:261-5, 2012
3. Park H, Brown SR, and Kim Y. Cellular

Thank you to Dr. Sophia Xu and Forrest Hill Veterinary Clinic for submitting this interesting case.

Figures 3 A+B. Images of cytology samples taken from a mammary mass



No thanks to needles!

We occasionally receive samples with sharps in the specimen bags. This includes needles and scalpel blades.

Please DO NOT send used sharps items with your samples to our laboratories – it is an unacceptable and dangerous practice. The used sharps pose an extreme hazard

risk during transport and to our staff in the laboratory, and the items are of no use to us for diagnostic testing.

PLEASE dispose of all sharp items appropriately into sharps bins in your clinics before bagging up the samples to send to us. Thank you!



Two done and two to go!

Gribbles Veterinary and Lincoln Institute are again collaborating to provide a series of complimentary virtual learning events for veterinary clinic staff throughout New Zealand.

Each online event will combine a punchy and impactful pathology topic with a non-clinical professional mastery topic to compliment the technical content. The outcome of this series is to make your job both a little easier and a lot more fulfilling.

We've had an outstanding number of registrations and attendees for the first two sessions, and feedback received has been just wonderful.

- Session 1 "How to diagnose the cause of sudden death in companion animals" and "Managing angry and emotional clients"

was held on May 18.

- Session 2 "Cytology 101 – the top 5 skin tumours in cats" and "Too busy for diagnostics? How to avoid overwhelm and master your time amongst the chaos of busy practice!" was held on June 8.

The next session "The coughing horse" will be on July 18. Keep an eye out for the registration email.

Recordings from the first two sessions can be found on our [website here](#), and can be viewed whenever you have time and as often as you like. Certificates of attendance are also available if you require them. Simply [email us](#) with the details of which sessions you have watched and we will email them through to you.



Anthelmintic resistance update

SARAH RIDDY

We are very happy to share an update on anthelmintic resistance in sheep using data collected at Gribbles Veterinary laboratories for the season November 2022 to May 2023.

This year's report is compiled from data from 135 complete ovine faecal egg count reduction tests (FECRT), with a total data set of 2451 points.

Key points to take away from this season's report are as follows:

- > % of resistance to key drench-actives



remains steady when compared with last season's report. There was no significant reduction of resistance noted.

- > *Trichostrongylus* resistance to Triple-active anthelmintic remains at high prevalence, with 33% of samples tested against this combo showing resistance. This is consistent with 33% seen last season.
- > *Teladorsagia* is showing a significant percentage of resistant samples to several single-actives, and also Benzimidazole/Levamisole (52%) and Levamisole/Abamectin (24%) dual-actives.
- > There was a decrease in samples tested from several districts this year due to extreme weather events.
- > Gribbles Veterinary is seeing a decrease in single-actives used in FECRT on farm as single-active drenches become harder to source.

The consistency of these results compared to last season's report highlights the high levels of resistance seen last season are not oddities, but a true representation of the farms tested. The importance of addressing and correctly managing anthelmintic

resistance will continue to be a major factor in obtaining high productivity and animal welfare on farm.

Gribbles Veterinary is committed to the continuation of this annual report. To ensure that your clinics data can be included in future report, please ensure you correctly fill out all the fields on the FECRT submission form ([here](#)). 1599 data points were excluded from this data due to the test anthelmintic not being clearly identified on the submission form and/ or insignificant numbers of a genus seen in a FECRT.

See the full report, with breakdowns for both the North and South Island [here](#).

For comparison, last season's report can be found [here](#).

If you have any questions about this report, please feel free to contact:

- The parasitology team at your local Gribbles Veterinary laboratory;
- Your local Gribbles Veterinary Territory Manager;
- Rachel Howie, Production Animal Category Manager.

In brief

- > **Get free testing** in exchange for cat and dog blood samples! We need normal bloods to update the reference intervals for our haematology analysers, validate new assays in development and new methods for existing assays. Find more information on [our website](#) and request a submission pack [here](#).
- > **Our Mastitis Toolbox** is very popular especially the new tests. Have you seen the options that might benefit your farmers? Check out [more information here](#). Pricing can be found in the latest

version of our ePrice-book - [get a copy today!](#)

- > **Do you use in-clinic analysers?** We'd love you to [complete a quick survey](#) for us. Results from this survey will provide an overview of the diagnostic services in play, enabling us to better plan for the future in a way that suits your clinic's needs.
- > **ezyVet users**, please be sure and select the most appropriate test when requesting from your system. If

inappropriate tests are selected we will notify you at the time of receipt. Please note, this may result in a change in test fee.

- > **ACTH testing vouchers** - Boehringer has advised that they will honour all free testing up until the end of June (promotion expired 16 June). So dig out your vouchers from that pile of paperwork on the counter and send to us with your submissions before the end of next week!

NZVA conference

We'll be at the NZVA conference in Wellington from 28-30 June and you can find us on stand 40/41.

Please do stop by and say hello if you're also there, check out our big surprise, chat with the team and don't forget to collect a sticker for your passport competition!

We look forward to seeing you.



Gribbles
VETERINARY



Contact us

Contacting Gribbles Veterinary couldn't be easier.

EMAIL

auckland.vetlab@gribbles.co.nz
hamilton.vetlab@gribbles.co.nz
palmerston.vetlab@gribbles.co.nz
christchurch.vetlab@gribbles.co.nz
dunedin.vetlab@gribbles.co.nz

PHONE

0800 474 225

WEBSITE

www.gribblesvets.co.nz

FACEBOOK

www.facebook.com/GribblesNZ

Or please feel free to contact your local territory manager:

- Rachel Howie
Category Manager, Production animals
rachel.howie@gribbles.co.nz - 027 604 8690
- Chrissy Bray
Category Manager, Companion animals
Chrissy.bray@gribbles.co.nz - 027 569 1169
- Ryan Johnson - Territory Manager
Ryan.johnson@gribbles.co.nz - 027 476 7714
- Dan Lacey - Territory Manager
Dan.lacey@gribbles.co.nz - 027 476 7713
- Peta Schiessel - Territory Manager
Peta.schiessel@gribbles.co.nz - 027 250 1647