Paws claws and udder things

Gribbles VETERINARY

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A pain in the ...

AMY WEEDEN

Perianal tumours are fairly common in dogs. Distinguishing between the two neoplasms, which are specific to this anatomic location, is often straightforward. However, if this is not the case, there are some clinical and cytologic differences that will usually provide a definitive diagnosis.

Circumanal gland tumours are also known as perianal gland tumours or hepatoid tumours, as the cells resemble hepatocytes microscopically. These tumors are androgen-responsive and usually found in intact male dogs, though they can be seen in either sex and in castrated/ speyed dogs.

Masses are usually found in the immediate perineal region, though they can also be seen in other locations in the caudal aspect of the dog (tail, prepuce, thigh, etc.). Most are benign, but circumanal gland carcinomas do rarely occur.

Aspirates tend to be moderately to highly cellular with variably sized, cohesive clusters of epithelium. The large cells resemble hepatocytes and tend to have distinct borders with a moderate to large amount of coarsely stippled, pinkish-blue cytoplasm. Nuclei are paracentral to eccentric and round to oval, with coarse chromatin and usually one or two variably distinct nucleoli. Typical features include moderate to low nuclear to cytoplasmic ratio, mild to moderate anisokaryosis (variability in nuclear size), and occasional bi-nucleation.

There are often "reserve cells", which are essential basal cells, admixed with the more mature large hepatoid cells. The reserve cells are small polygonal cells with smaller nuclei and a high nuclear to cytoplasmic ratio.

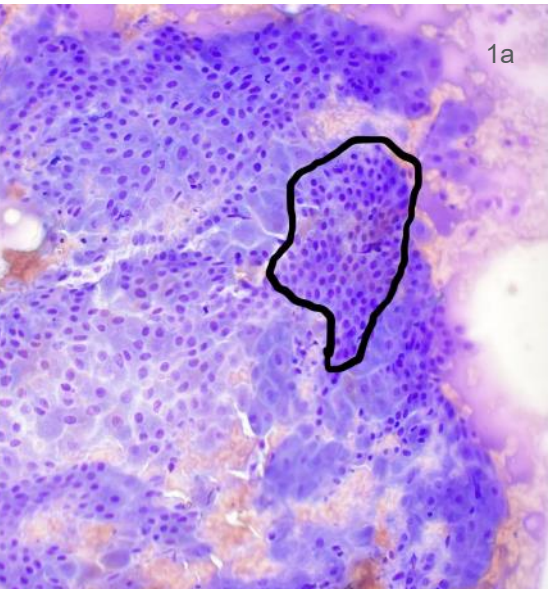
Cytology is useful to confirm that a tumour is of circumanal gland origin. While most are benign/adenomas, histopathology is generally required to confirm malignant potential, if this step is clinically warranted.

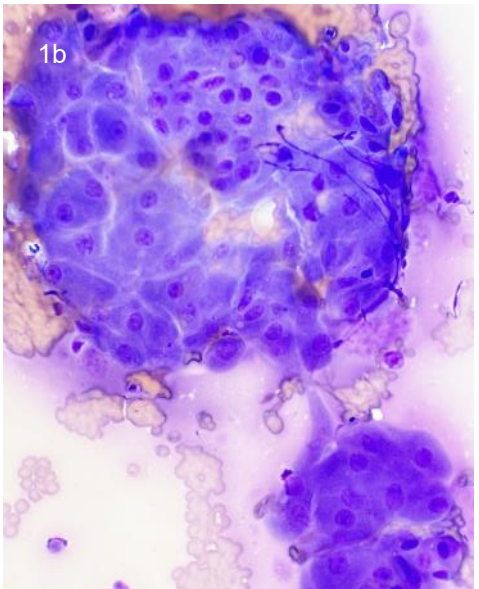
Anal sac apocrine gland adenocarcinomas arise from the anal sac epithelium and can invade surrounding structures. They are relatively common in the dog and rare in cats. According to some studies females are over-represented, but this is not a consistent finding across all studies.* Hypercalcaemia is a well-known paraneoplastic syndrome, but estimates of the frequency of this finding also vary. These tumours often metastasise to regional lymph nodes and sometimes distant sites. On cytology, the cells are usually found in clusters, which are often partially disrupted, displaying the "neuroendocrine appearance" of free nuclei surrounded by the cytoplasm of disrupted cells. When intact, the

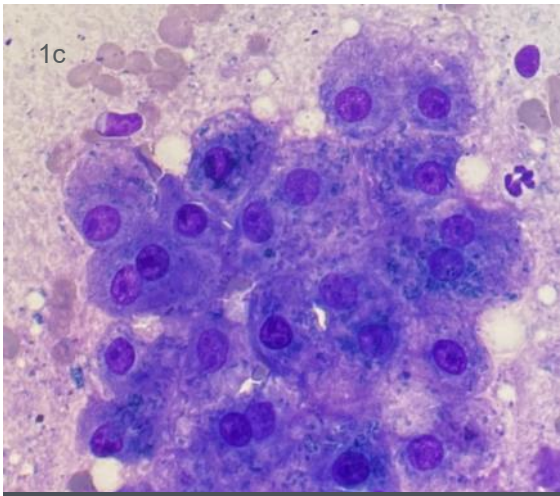
Figure 1a. Lower-power view of a multi-layered cohesive cluster of epithelial cells from a circumanal/perinanal gland tumour. The outlined cells are reserve cells with smaller nuclei and a high nuclear to cytoplasmic ratio. This is a mixture of the large hepatoid cells with a moderate to large amount of cytoplasm and the smaller reserve cells. Cell borders are fairly distinct, and linear borders/junctions are visible between cells.

Figure 1b. A high-power view of a smaller epithelial cluster from the same aspirate.

Figure 1c. A cluster of hepatocytes to show the similarities in appearance (why we call these hepatoid tumours). The green pigment in the hepatocytes is likely lipofuscin (this is not a feature of perianal gland cells).







cells are round or polygonal. The degree of atypia is variable (some are highly atypical), but most have few criteria of malignancy. The cells often have a uniform appearance with a moderate amount of pale to medium blue, sometimes vacuolated cytoplasm. Nuclei are round to oval with stippled chromatin and small, indistinct nucleoli.

If after all this comparison, these images and entities still look similar to you, don't despair. You are always able to send the samples to us, and we'll do our best to provide you with a diagnosis.

Clinical feature	Circumanal / perianal gland tumour	Anal sac apocrine gland carcinoma
Sex predisposition	Intact males	Females or none (see text*)
Location	Perianal or regional skin	Arises from the anal sac epithelium
Paraneoplastic hypercalcaemia	Not reported	Present in some cases
Likelihood to metastasise	Low, as most are adenomas	Moderate to high

Cytologic feature	Circumanal / perianal gland tumour	Anal sac apocrine gland carcinoma
Clustering of cells	Yes	Yes
Cell borders	Generally distinct	Usually poorly distinct with many free nuclei
Cellular atypia	Mild to moderate	Usually mild
Tissue it resembles	Liver (hepatoid appearance)	Neuroendocrine/endocrine

Figure 2a. Low-power view of an anal sac apocrine gland carcinoma aspirate. Note the high cellularity and cell clustering.

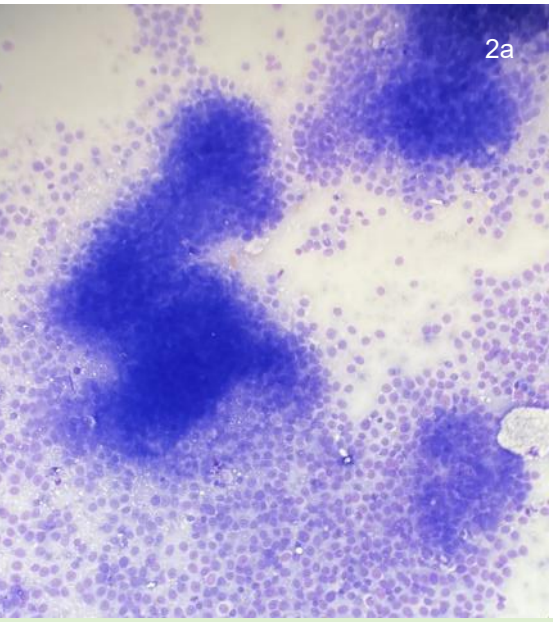


Figure 2b. In the high-power view you can see that cell borders are typically indistinct and many of the cells are partially disrupted. This is often referred to a neuroendocrine/endocrine appearance. Note that in this malignant tumour, the nuclei are uniform in size. Cytologic atypia is generally not predictive of biologic behaviour in these neoplasms.

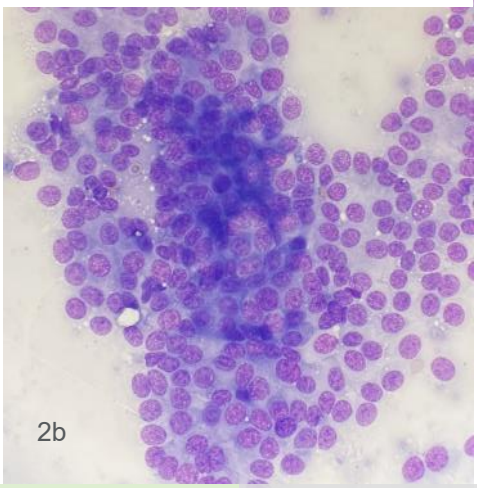
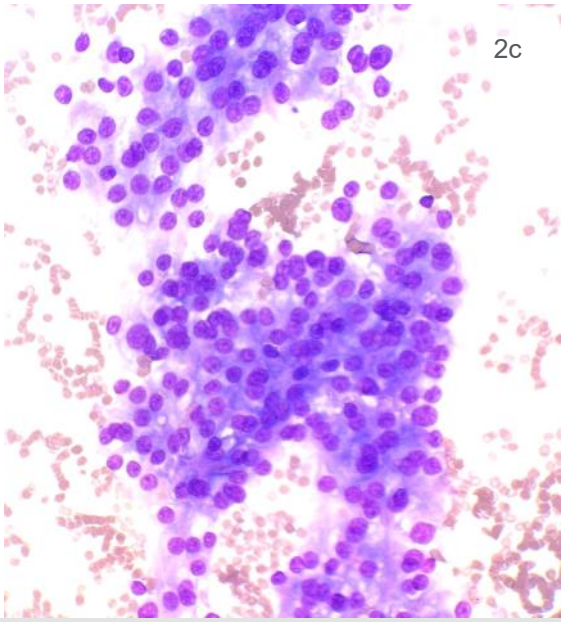


Figure 2c. For comparison, note the similarities in this aspirate from a thyroid lesion.



2022 Price book

A revised 2022 version of our price book was emailed out to our distribution list last week. The new price book comes into effect on 1 July, 2022.

We have made all efforts to limit price rises this year, however the impact of COVID has increased the price of reagents, services and referred testing from all of our suppliers and we are no longer able to absorb them in our day-to-day running costs.

Pricing for consumable items is available via our online store (a user account is required for all online orders).

If you missed out on the email, contact us we will email you out a copy. Ensure you don't miss out on future updates by signing up to our mailing list here. Please contact either your local Laboratory or Territory Manager should you wish to discuss these changes.

Salmonella - a head's up

Many of our laboratories are reporting increased numbers of Salmonella isolates over the past month or more (from companion animals especially). MPI have advised us there is a cluster they are currently monitoring.

The increase is occurring nationwide, but of note is a higher than normal occurrence in dogs from the upper North Island.

Serovars on the increase include:

- *Salmonella* Give
- *Salmonella* Agona

We recommend you culture faecal samples from dogs with diarrhoea (prior to instigating any indicated treatment).

Feline pyothorax

BERNIE VAATSTRA

Clinical history:

A two-year-old, domestic shorthair cat died on arrival at the veterinary clinic. The owner reported the cat had been unwell and produced brown, syrupy urine the previous day. Concern was raised about the possibility of malicious poisoning, since there had been a spate of suspicious cat deaths in the neighbourhood. The cat was sent to our Palmerston North laboratory for a post-mortem examination.

Post-mortem findings:

The cat weighed 2.6 kg and was judged to be in thin body condition and moderately dehydrated (sunken eyes, tacky subcutaneous tissues). Scant blood staining was present around the nares and mouth. The thorax contained brown, turbid, flocculent, foul-smelling exudate with flecks of yellow material (Figure 1).

The pleural surfaces and pericardium were thickened, red-brown and velvety. The lungs appeared collapsed but floated in formalin. No other significant abnormalities were detected on gross examination.

Fresh thoracic exudate was collected for culture and a smear was made for cytological examination. Tissues were collected for histology.

Figure 1. Exudate within the thoracic cavity and lining the pleural surfaces, feline pyothorax.

Laboratory findings:

Cytology of the pleural exudate revealed numerous degenerate neutrophils and phagocytic macrophages and fewer plasma cells, eosinophils and lymphocytes within a background of amorphous granular debris and numerous bacterial rods and filaments.

Histologically, the pleural surfaces were lined by thick layers of mixed inflammatory cells, fibrin, necrotic debris, and bacteria (Figure 2). Bacterial colonies were Gram-negative on Gram's stain.

Culture produced a heavy growth of a Gram-negative organism, most closely resembling *Bacteroides fragilis.*

Discussion:

Pyothorax is a well-recognised, life-threatening condition in cats resulting from accumulation of septic exudate within the thoracic cavity. Clinical signs include dyspnoea, abnormal lung sounds, lethargy, and weight loss. The most prominent clinicopathological findings are leucocytosis and hyperglobulinaemia (Sim et al, 2021).

Bacterial isolates include *Pasteurella multocida, E.coli, Streptococcus* spp., *Staphylococcus* spp., and anaerobes such as *Actinomyces, Nocardia*, and *Bacteroides* spp.

The route of infection is not always identified but suggestions include thoracic penetrating injury (bite wounds), migrating foreign body,

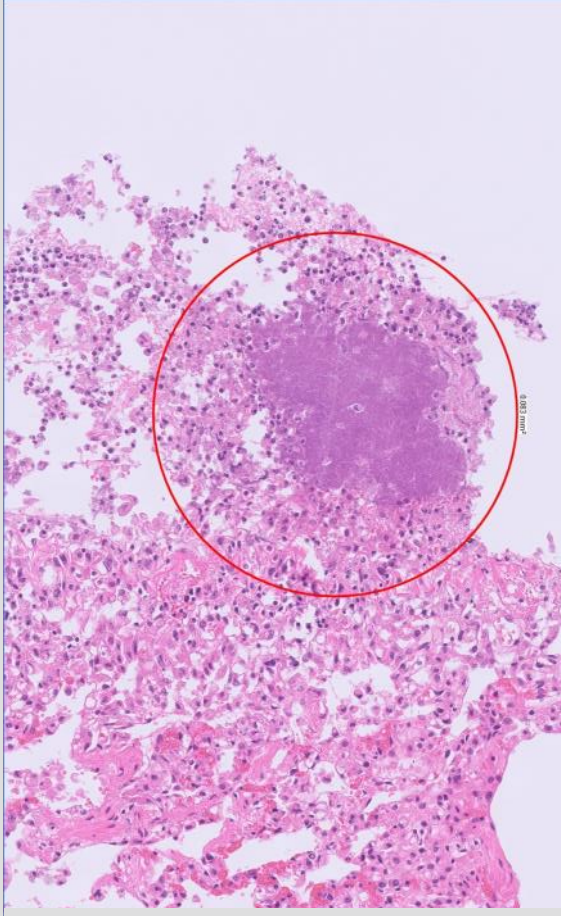


Figure 2. Inflammatory cells surround a large bacterial colony on the surface of the lung. Feline pyothorax, H&E 20x

haematogenous and lymphatic spread, oesophageal rupture, and progression of inhalation pneumonia (Barrs et al, 2005).

> Cats in multi-cat households are at increased risk.

Bacteroides species reside in normal feline oral cavities and in cats with gingivitis. One study reported *Bacteroides* spp. constituted 44.5% of the anaerobic isolates from subcutaneous abscesses and 33.7% from pyothorax cases (Love et al, 1989). Isolation of a heavy growth in this case, suggested a cat bite wound as the route of infection.

Many thanks to Mark Ross from Carevets Gisborne for submitting this interesting case.

References:

Barrs VR, Allan GS, Martin P, Beatty JA, Malik R. Feline pyothorax: a retrospective study of 27 cases in Australia. *J Feline Med Surg*. 7:211-22, 2005.

Love DN, Johnson JL, Moore LV. *Bacteroides* species from the oral cavity and oral-associated diseases of cats. *Vet Microbiol*. 19:275-81, 1989. doi: 10.1016/0378-1135(89)90073-4. PMID: 2718354.

Sim JJ, Lau SF, Omar S, Watanabe M, Aslam MW. A Retrospective Study on Bacteriology, Clinicopathologic and Radiographic Features in 28 Cats Diagnosed with Pyothorax. *Animals (Basel)*. 11:2286, 2021.

Will we see you at conference?

The NZVA conference in Hamilton is fast approaching. We'll be there on stand 46 and would love say hello!

All of our sales team will be attending for you to catch up with or meet, plus a couple of our fabulous pathologists are giving presentations on Wednesday.

We'll also have prizes up for grabs, so please make sure you stop and check us out.

2022 NZVA Conference

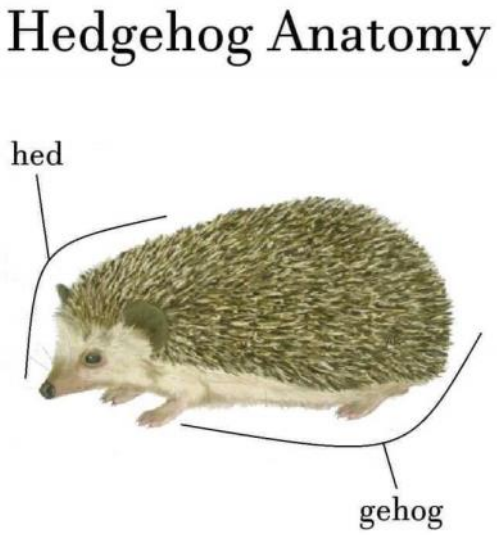
Claudelands Events Centre, Hamilton

20-22 June 2022

For a laugh!

If you follow us on Facebook, you'll be familiar with our regular Friday slot. Here's our most popular one from the past month.

. . . and if you don't follow us, head over and hit the LIKE button now!



PLEASE NOTE:

> All of our laboratories will be **closed** for the entire Matariki long weekend (24-26 June).

> Due to a number of our anatomical pathologists out of action at the moment, you may experience some delays with histology results over the next week.

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