Awanui Veterinary

Pathology in focus

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Photo credit: Chris Abney, Unsplash

Let us be of acystance

Geoff Orbell

Clinical history

Lucy, a seven-year-old, spayed female Domestic Short-Haired cat presented to her veterinarian with a palpable subcutaneous mass in the jugular furrow on the left side of her neck. The owners opted for surgical excision and during surgery it was noted to be adherent to the adventitia of the underlying jugular vein. The mass was successful removed and the cat recovered uneventfully.

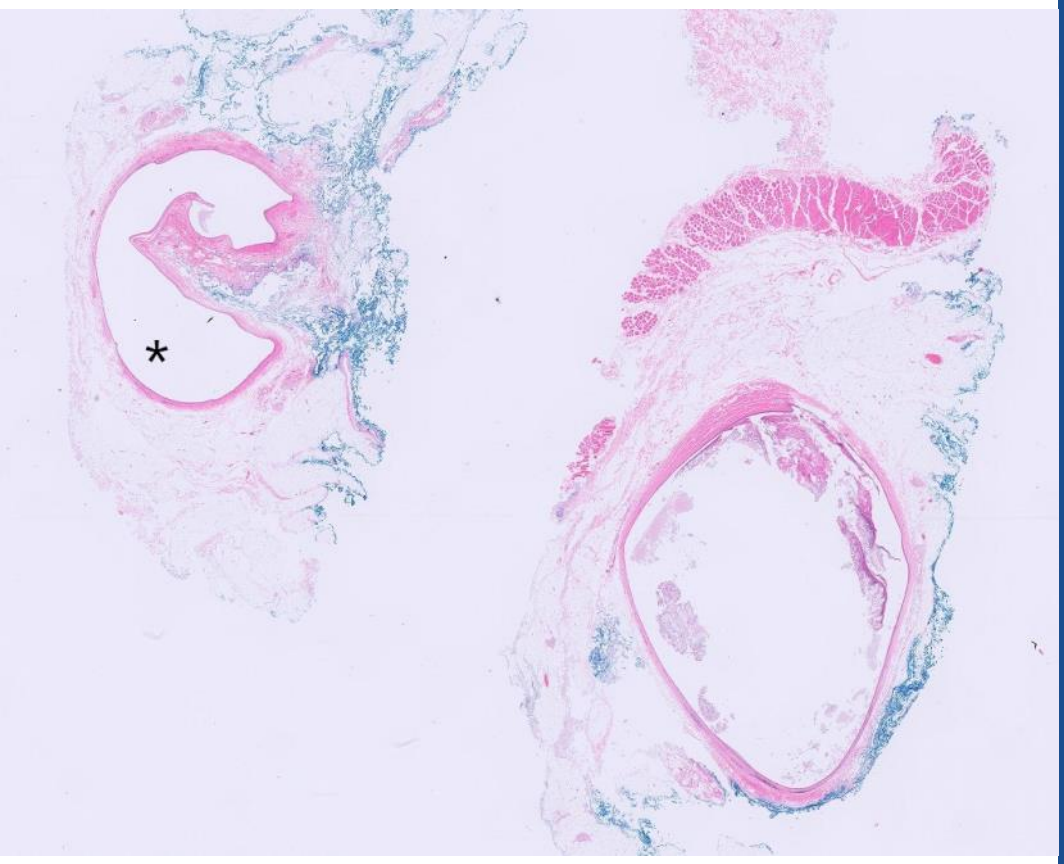
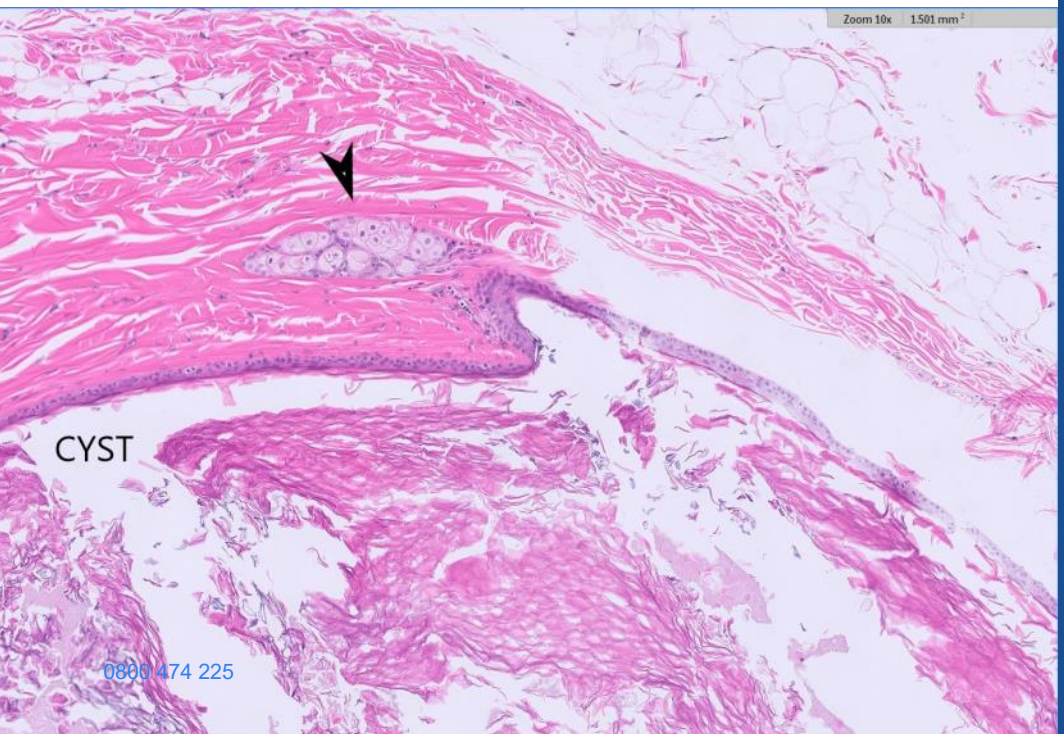


*Figure 1. Both cysts in the resected subcutaneous tissue. * indicates the branchial pouch cyst.*

Figure 2. Dermoid cyst containing abundant keratin lines by squamous epidermis associated with sebaceous glands (arrowhead).



Laboratory findings

Histologically there were two adjacent cysts which were lined by different epithelia (Figure 1). One cyst was lined by stratified squamous epithelium and contained abundant laminated keratin (Figure 2). Rare peripheral sebaceous glands in the surrounding stroma were identified communicating with the cyst which confirmed this was a dermoid cyst.

The second cyst (Figure 3) contained clear fluid and was lined by a solitary layer of columnar epithelium which was ciliated consistent with a branchial pouch cyst.

Discussion

True cysts are defined as epithelial-lined structures with no external opening. The most common one we see in veterinary medicine are epidermal inclusion or follicular cysts which are usually acquired due to some obstruction of the hair follicle which continues to produce keratin.

Dermoid cysts are similar to follicular cysts histologically but are usually identified in young animals less than one-year old, as they form early in gestation. They develop due to sequestration of skin ectoderm during embryogenesis, most commonly due to failure of ectoderm to fully separate from the neural tube, which is why some dermoid cysts can communicate with the spinal cord forming dermoid sinuses (e.g. Rhodesian Ridgebacks).

Dermoid cysts are much more common in dogs than cats and occur most commonly along the dorsal midline (including tail) and are often multiple and linearly arranged.

Continued overpage

Dermoid cysts in cats are much rarer and have been reported in the subcutis and retropharynx.

Branchial pouch cysts are much rarer in veterinary species but are also benign congenital lesions derived from different embryonic structures (branchial arches) than dermoid cysts. Histologically they can appear similar to dermoid cysts with keratinizing squamous epithelium but they lack associated adnexa. A proportion of them are lined with ciliated columnar epithelium which is a pathognomonic feature given their location.

Other congenital cysts derived from the branchial arches seen in veterinary medicine include thyroglossal cysts, ultimobranchial cysts and thymic cysts.

Dermoid and branchial pouch cysts are benign, slow growing lesions and will not recur if completely excised.

Acknowledgements to Ana at Kelburn Vets and Lucy's owner who gave us permission to publish this case.

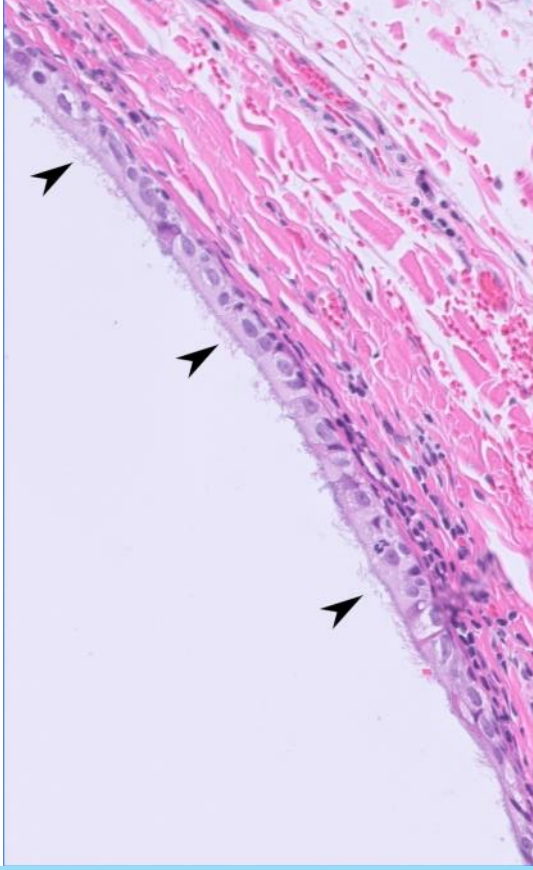


Figure 3. Wall of the branchial pouch cyst lined by simple columnar epithelium which is ciliated (arrowheads).

Pathologist spotlight

Geoff Orbell earned his Bachelor of Veterinary Science from Massey University and then worked for four years in mixed practice in New Zealand and the UK. After completing a pathology residency and Master's in Veterinary Studies at Massey University, he taught veterinary pathology at Washington State University and successfully passed the ACVP Board exams. Geoff has since worked as a veterinary pathologist in laboratories across Australia and New Zealand and is now a registered Specialist in Veterinary Anatomic Pathology.

Geoff has a passion for both anatomic and clinical pathology, and his client-focused, practical approach is one of his key strengths. He has developed expertise in production animal pathology, herd health investigations, dermatopathology, and oncologic pathology.

Outside of work, Geoff enjoys spending time with his family on their sheep and beef farm. When he gets the chance, he loves to dive, hunt, fish, and brew all-grain beer.

What's your diagnosis?

A monthly spot quiz

Test your skills with this gross photo:

One of four 15-month old heifers found to have lumpy, spreading lesions on their heads. Also present were ulcers in the folds of the hard palate, lumps in nasolabium, cheek and upper lip, plus swellings in the submandibular areas.

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

Of grave concern

Sandra Bulla

Clinical history

A 10-year-old male, neutered domestic cat presented at his local veterinarian with multiple dermal/subcutaneous nodules. The nodules were moderately firm and were present all over the trunk in variable sizes, with the larger nodule being 3cm wide. They were not painful, and the cat was well otherwise. Fine needle biopsy was taken from one of the nodules and sent to our laboratory for cytology.

Cytology findings

Examination of the slides revealed a homogenous population of large lymphocytes. These cells had small amounts of dark basophilic cytoplasm and a round nucleus with multiple large prominent nucleoli (Figure 1). The cytologic diagnosis was large cell lymphoma.

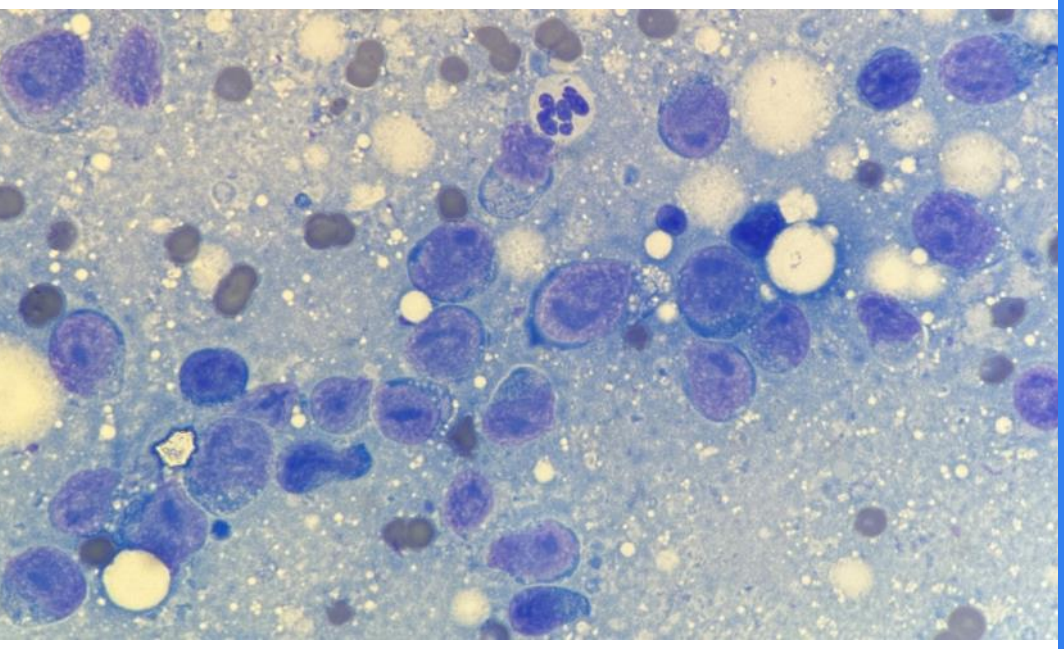


Figure 1. Aspirate of a skin nodule from a cat. Cytology shows predominance of large lymphocytes with prominent nucleoli.

Discussion

Although both lymphoma and skin neoplasia are very common occurrences in cats, cutaneous lymphoma is rare. Due to the paucity of cases reported, little is known about this disease. Patients present with various clinical signs, including itching, alopecia, scaly skin, skin redness, loss of skin colour, ulcers, nodules, pustules, and plaques. The distribution of skin changes can be highly variable, and patients can have a multifocal disease distribution. Lesions are most reported on the limbs, trunk and head, and any patients present with varying types of lesions (Siewert et al., 2022).

As seen in dogs and humans, cutaneous lymphomas in cats are classified in two forms, depending on the distribution of the neoplastic lymphocytes in the skin.

The epitheliotropic form, which is characterized by neoplastic cells exhibiting tropism for the epidermis with secondary extension into the dermis, is less common in cats. The cell of origin of this type of neoplasia is most often T-cells, and it can be further classified as mycosis fungoides or pagetoid reticulosis on histopathology.

The non-epitheliotropic cutaneous lymphoma affects the dermis and subcutis without involvement of the epidermis and can be either of T-cell or B-cell origin. This is the more common condition in cats and can be subclassified as indolent T-cell lymphoma (or cutaneous lymphocytosis), diffuse T-cell lymphoma, T-cell-rich large B-cell lymphoma, and lymphoplasmacytic lymphoma (Roccabianca et al., 2016).

Although both epitheliotropic and non-epitheliotropic forms often have a similar clinical appearance, some presentations are more commonly seen in one of the subtypes of feline cutaneous lymphoma. The epitheliotropic form often presents lesions that include exfoliative erythroderma, patches, plaques, erosions and ulcers, lesions at mucocutaneous junctions and in the oral cavity. The non-epitheliotropic lymphoma usually presents as non-pruritic solitary or multifocal plaques and/or nodules that are often ulcerated. These lesions can occasionally have erythema, crusting and scaling.

Despite the differences seen between the two forms and the subtypes, immunophenotype, cell size, and the presence of epitheliotropism was not found to be associated with response to treatment (Siewert et al., 2022).

Cutaneous lymphoma is mostly seen in older cats with no apparent breed or sex predispositions. Prognosis is grave, with median survival time of 6-12 months.

Aetiology is still poorly understood in feline cutaneous lymphoma. For more common lymphomas there is an evident association with viruses (feline leukaemia virus and feline immunodeficiency virus), but such a relationship has not been

established for the cutaneous form. However, it appears that the occurrence of cutaneous lymphoma can be related with inflammatory reactions in cats. There are reports of cutaneous lymphomas developing at injection sites and this specific presentation of cutaneous lymphoma shared some clinical and pathological features with feline injection site sarcomas and with lymphomas developing in the setting of subacute to chronic inflammation reported in human beings (Roccabianca et al., 2016). Another interesting distinct presentation was a cutaneous non-epitheliotropic T-cell lymphoma that developed at the site of a previous traumatic bone fracture and metal orthopaedic implant (Jegatheeson et al., 2018).

Additionally, there is a specific form of cutaneous lymphoma that originates near or around the tarsal joint and clinically appears as a subcutaneous mass. The reason for this location is still uncertain. Although further investigation is required to better characterise this disease, most of these cases appeared to be non-epitheliotropic, of high grade, and of B-cell phenotype (Burr et al., 2014).

In conclusion, feline cutaneous lymphoma is a rare but aggressive disease. Considering that the skin changes often seen can be similar to numerous non-neoplastic conditions, including parasitic or infectious diseases; and allergic disorders, such as eosinophilic granuloma complex, it should always be a differential diagnosis for any swelling, nodule, lesion or mass within the dermis or subcutis, regardless of bodily location. Given this ability to mimic benign skin diseases, it is possible that proper diagnosis and treatment is often delayed, which may contribute to the poor prognosis in these patients. This reinforces the value of the collection of fine needle biopsies from skin lesions on older cats once they first present at the veterinary clinic. Lymphoma is very often easily diagnosed on cytology, which will allow a prompt initiation of a therapy protocol if needed.

References

Burr HD, Keating JH, Clifford CA, Burgess KE. Cutaneous lymphoma of the tarsus in cats: 23 cases (2000–2012). *J Am Vet Med Assoc.* 244:1429-1434, 2014.

Jegatheeson S, Wayne J, Brockley LK. Cutaneous non-epitheliotropic T-cell lymphoma associated with a fracture site in a cat. JFMS Open Rep. 2018 Mar 9;4(1): 2055116918760357.

Roccabianca P, Avallone G, Rodriguez A, et al. Cutaneous Lymphoma at Injection Sites: Pathological, Immunophenotypical, and Molecular Characterization in 17 Cats. *Vet Pathol*. 53:823-832, 2016.

Siewert J, Pellin MA, Husbands BD, Curran KM, Scavelli D, Sampene E. Feline cutaneous lymphoma: an evaluation of disease presentation and factors affecting response to treatment. *J Feline Med Surg*. 24:389-397, 2022.

A goodbye and a welcome

After eight years leading the Awanui Veterinary/Scientific team, James Richardson, our General Manager has decided to make some personal changes. His journey with Awanui ended on October 22nd.

Before leaving James commented: "*Leaving this role has been an extremely difficult decision for me, I am deeply passionate about the animal health industry and the vital role Awanui plays in helping you achieve positive health outcomes for our clients' animals.*

Reflecting on this time, I am incredibly proud to have been part of the Awanui Veterinary/Scientific team—a group that has driven significant improvements within the business and for our clients. I take great pride in the exceptional service the team continues to deliver, and I will deeply miss saying goodbye to such a talented and dedicated team with whom I have had the sincere pleasure of working over the past eight years."

We are excited to share that Trish Snegirev has taken on the role of Operations Manager. She is a qualified laboratory scientist with a decade of experience, mainly in infectious diseases. After her time in the laboratory, Trish gained significant experience in sales of diagnostic and point-of-care equipment, along with holding senior management roles. She looks forward to returning to the laboratory and engaging with our customers.

Trish is based in our Auckland laboratory and can be contacted on 021 229 7979.

Parasite management

- things for your clients to think about this November

Sheep:

- Do they need to drench and when?
  - > Do a FEC test on several lamb mobs to understand their worm challenge level.
- Is their first lamb drench working?
  - > Drench check 10 individual lambs.
- Do they know what drenches are effective on their farm?
  - > Is it worth doing FECRT this summer? Their FEC tests will inform you when there are enough eggs to start the FECRT.
- Considerations for pre-weaning/ weaning lamb drench
  - > A 'traditional' first choice of lamb drench may no longer be appropriate.

Cattle:

- Considerations for drenching
  - > Dairy beef calves should not need drenching until after weaning.- Ensure they know what they are treating. FEC testing can help determine if dirty backsides are a result of worms, coccidiosis or other diseases.

Check out our ovine parasitology toolbox for more information, FECRT testing submission forms can be found here, and thanks for Beef+Lamb NZ for the great reminders and information on their Parasite Management calendar.

From page 4: What's your diagnosis? *Histology, along with bacterial culture confirmed a diagnosis of actinobacillosis (aka woody tongue). This bacteria is part of the normal oral mucosal flora in sheep and cattle, and typically gains access to deeper tissues via traumatic injury. Lesions are generally found on the head and neck, and local lymph nodes are frequently involved. Lesions can be associated with quite a bit of fibrosis - as seen in this case, and this can potentially affect adequate anti-microbial penetration. Treatment may be unsatisfactory in long standing cases.*

Contact us

- contacting Awanui Veterinary couldn't be easier.

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