

Paws claws and padder things

Feline herpesvirus dermatitis

BERNIE VAATSTRA

A 12-year-old female neutered Domestic Short-hair cat developed a raised, crusted, circular lesion on the right upper lip. The lesion was pruritic and did not respond to treatment with glucocorticoids.

An incisional biopsy was submitted for histopathology.

Histopathology findings:

The epidermis was focally ulcerated and crusted (Figure 1). The dermis was infiltrated by large numbers of mixed inflammatory cells including many eosinophils. Follicles were often disrupted by inflammation. Small numbers of swollen sebocytes and keratinocytes contained eosinophilic intranuclear inclusions which marginated the chromatin (Figure 2.). The final diagnosis was feline herpesvirus dermatitis.

Discussion:

Feline herpesvirus-1 is a very common cause of upper respiratory disease in cats. Clinical

signs include sneezing, fever, anorexia, conjunctivitis, and serous nasal and ocular discharge. In addition corneal, oral, and cutaneous ulceration may occur in severely affected cats. It is estimated that 80% of recovered cats are latently infected carriers. Relapse may occur with stress or glucocorticoid therapy.

Feline herpesvirus dermatitis affects adults more commonly than kittens and may develop with or without concurrent respiratory signs. Ulcerated and crusted lesions characteristically involve the nasal planum although similar lesions may occur elsewhere, e.g. lips, ears, periocular skin, and paws.

Clinical differentials for herpesvirus dermatitis include mosquito hypersensitivity, eosinophilic granuloma and plaque, pemphigus foliaceus, FeLV dermatitis, calicivirus dermatitis, and actinic keratosis. Concurrent respiratory signs and adverse response to glucocorticoids aid the diagnosis.

Biopsy is useful but not always definitive since viral inclusion-bodies are not detected at all stages of infection. PCR testing of a fresh skin biopsy or swab from affected skin can confirm the presence of FHV-1, noting that false positives are possible with contact with nasal or conjunctival mucosa or secretions.

Treatment options include topical and systemic antivirals, lysine supplementation, and correction of any underlying causes of stress or immunosuppression (e.g. concurrent disease, glucocorticoid therapy). Vaccination helps protect against clinical disease but does not completely prevent infections or the development of carrier state.

Thank you to Jo Lin Chia of Lynfield Vets for submitting this interesting case.

Reference: Miller WH, Griffin CE, Campbell KL. Viral, Rickettsial, and Protozoal Skin Diseases. *In: Muller and Kirk's Small Animal Dermatology*, pp 347-8, Elsevier, St Louis, 2013

Figure 1. Skin biopsy with surface ulceration (arrow) and extensive dermal inflammatory infiltrates. H&E 100x.

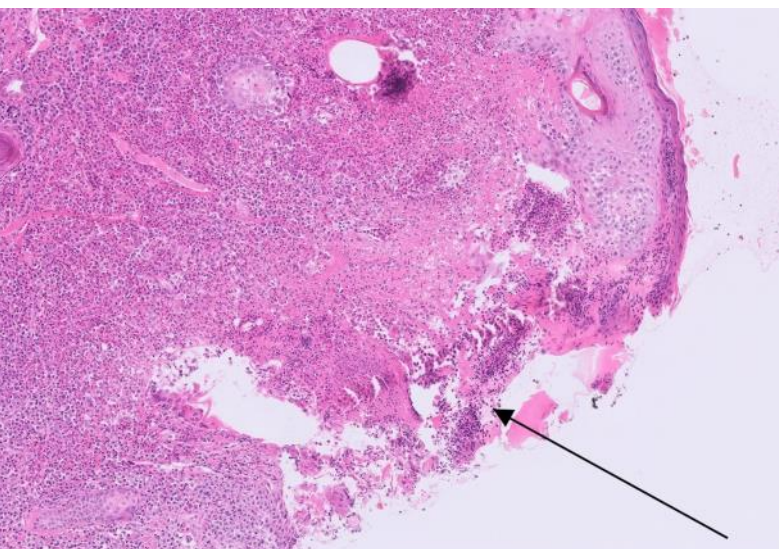
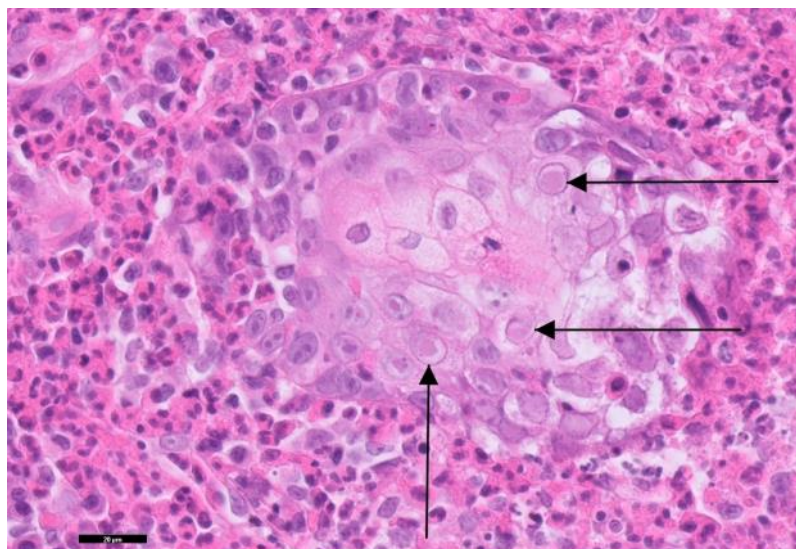


Figure 2. Skin biopsy showing sebaceous gland with eosinophilic intranuclear inclusion bodies and marginated chromatin (arrows) surrounded by eosinophils. H&E 600x.



Meet Dr Alice Fraser

We are delighted to announce and welcome Dr Alice Fraser to our professional team of veterinary pathologists based in our Palmerston North laboratory.

Alice Fraser will be a familiar face to many of you as she has previously worked for Gribbles Veterinary between 2004 and 2014. Alice graduated from the Royal (Dick) School of Veterinary Studies, Edinburgh University with a Bachelor of Veterinary Medicine and

Surgery, and completed her pathology residency at the Faculty of Veterinary Medicine, Liverpool University. She is a fellow of the Royal College of Pathologists. Alice has many subsequent years of veterinary pathology experience here in New Zealand.

Her interests include production animal pathology and herd health monitoring (particularly dairy and sheep/beef).



Dairy cattle *Salmonella* study

Salmonella is endemic in dairy cattle in New Zealand and can cause large outbreaks of scouring and mortality. The effects of *Salmonella* on-farm can be devastating and pose a serious risk to the health, productivity and welfare of affected animals. *Salmonella* is also a common cause of gastro-intestinal disease in humans, with livestock acting as a reservoir for infection.

Update on *Salmonella* in New Zealand

There has been an increase in diagnoses of salmonellosis on dairy farms in recent years in New Zealand.

Ongoing national surveillance of veterinary laboratory diagnoses in the past five years shows the emergence and rapid spread of *Salmonella* serotype Bovismorbificans in the cattle population, throughout the country

and more recently *Salmonella* Give. Public health surveillance during the same period shows a mirroring trend in the number of diagnosed human cases of *Salmonella* Bovismorbificans.

Who are we and what do we do?

The EpiCentre (Massey University), in collaboration with dairy industry stakeholders, has been conducting a survey and a case-control study since 2021, and ongoing into the 22-23 dairy season, to identify risk factors for Salmonellosis outbreaks in dairy.

Information from this study will help manage the risk of salmonellosis outbreaks, thus improving on-farm production and protecting animal welfare. It will also improve the health and wellbeing of farmers and their families, and public health.

Dairy veterinarians how can you help?

This study relies on awareness and the willingness of dairy veterinarians to participate. If a positive diagnosis of salmonellosis in cattle is made from samples you submitted to your local Gribbles Veterinary laboratory, you will receive some communication from us on behalf of this study. [It will look like this.](#)

You can help out with the study, by sending the respective farmer a copy of the linked "[farmer](#)" document, as well as a link to the study web-page so they can complete a short survey.

Study webpage link:

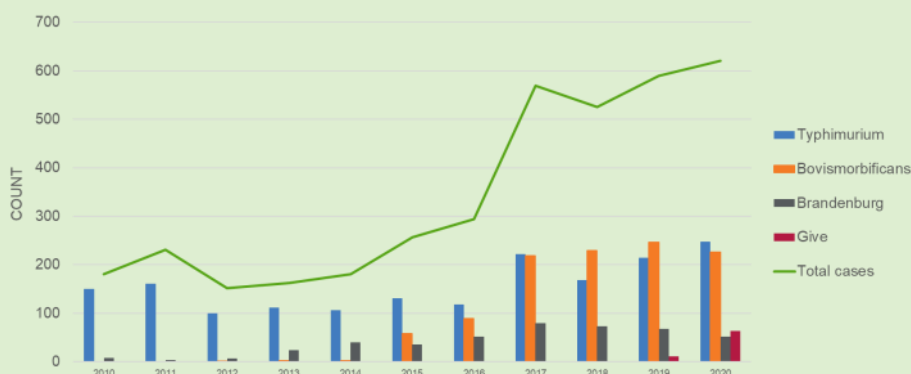
www.massey.ac.nz/salmonella

You can also:

- > **Visit the salmonella study webpage** at www.massey.ac.nz/salmonella and download a farmers flyer from the "Salmonella Study Resources" section, to include in your practice newsletter and raise awareness among farmers.
- > **If you suspect a salmonella outbreak** on a dairy farm this milking season, please send samples to your local Gribbles Veterinary laboratory for confirmation.

Together we can reduce the impact of salmonellosis on dairy farms.

Figure.1: Laboratory confirmed *Salmonella* cases in cattle (2010-2021) (source: MPI)



Transitioning terminology

AMY WEEDEN

You may have noticed the terms “urothelial cell” or “urothelium” being used in urinalysis, cytology, or histology reports over the last several years. There has been a shift in human medicine and, later, in veterinary medicine from the use of transitional epithelium to urothelium to describe the specialized stretchy epithelial tissue that lines the renal pelvis, ureters, bladder, and proximal and mid-urethra.

I'm not certain what prompted the alternate nomenclature, and there does seem to be some debate about which name is preferable. Urothelial is more descriptive of location, but this could be confusing, as urothelium is not present throughout the entire urinary tract (e.g. the renal tubules are composed of cuboidal to columnar epithelium, and the distal urethral lining is composed of squamous epithelium).

Transitional epithelium is specific to the structure and function of the epithelium and is descriptive, as this epithelium can have quite a variable appearance in health (i.e. transitional). However, there is some debate among pathologists about the structure of this epithelium, which is beyond the scope of this newsletter. Another pro in the “transitional epithelium” column is that this term has been in common use for many decades, and it is probably the term most veterinarians use.

Which term is superior may be up for debate, but you can expect that “urothelium” will become even more prevalent in the literature and in your reports (unless we decide later that we need a new term for it!).

Regardless of what you decide to call the epithelium, carcinomas arising from the transitional epithelium or urothelium can be challenging to diagnose by non- or minimally invasively means in some cases.

Confounding secondary inflammation, lack of sufficient criteria of malignancy, and cellular degradation in urine sediment or traumatic catheterisation samples are all possible

barriers to a confident cytologic diagnosis.

The case that follows is an excellent example of a diagnostic transitional cell/urothelial cell carcinoma (TCC / UCC) cytology with a somewhat unusual presentation on physical exam.

An adult female large breed dog presented for bleeding from the vulva, and nodular lesions were identified on vaginal exam and swabbed for cytology.

Images from the excellent, highly cellular sample are shown. Cohesive clusters of highly atypical epithelium were identified. The features of the epithelium were not particularly distinctive with the exception of rare large magenta cytoplasmic vacuoles, also known as Melamed-Wolinska bodies. While eosinophilic inclusions can be found in the cytoplasm of other types of neoplastic epithelial cells, the appearance of this particular vacuole can aid in confirmation of urothelial cell origin in some cases. Based on this feature and the degree of atypia in the epithelium, urothelial carcinoma was the presumptive diagnosis.

Further investigation revealed a urethral mass, and TCC/UCC was confirmed with histology. The nodular vaginal lesions were determined to be metastases.

These images contain cells with frequent criteria of malignancy. How many can you identify? (Note that there is some variation in the literature regarding what constitutes criteria of malignancy.)

Atypical features in the urothelial carcinoma cytology:

- > Marked variation in nuclear sized (anisokaryosis)
- > Coarse or open chromatin pattern
- > Variable nuclear to cytoplasmic ratio
- > Bi- or multi-nucleation (a large cell near the bottom left of Figure. 4 contains four nuclei)
- > Nuclear moulding / crowding
- > Multiple nucleoli (may be difficult to see in small images)
- > Only one mitotic figure is shown in these images (Figure. 4). Mitotic figures alone don't necessarily indicate malignancy, but increased numbers or morphologically abnormal mitotic figures are suggestive.

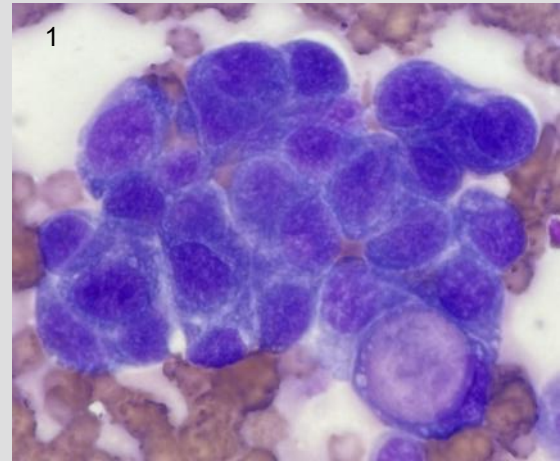


Figure 1. There is a cell with a large round eosinophilic vacuole (Melamed-Wolinska body) displacing the nucleus at the bottom right of the dense cluster of epithelial cells.

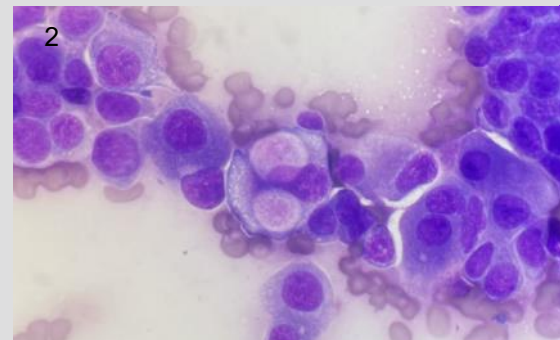
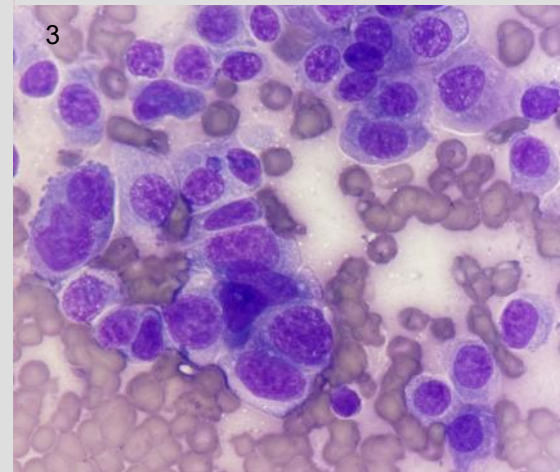
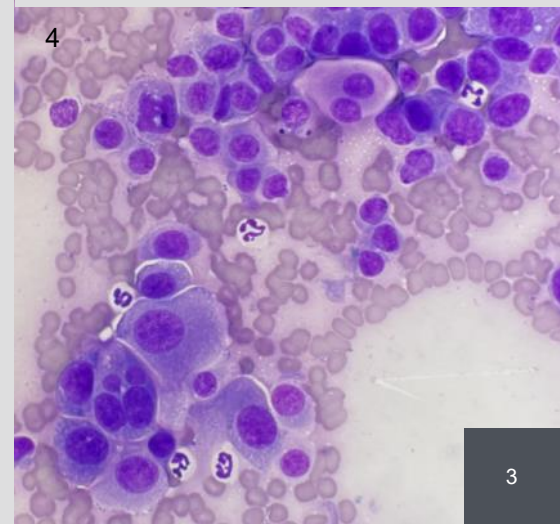


Figure 2. The large cell in the centre contains two round-to-oval eosinophilic vacuoles.



Figures 3 and 4: Representative high-power fields containing malignant epithelial cells with frequent atypical features.



Thank you to Nicola Dunlop at Helensburgh Veterinary Clinic for the interesting submission and excellent cytology smears.

Lab tip - are your sample containers clean and safe?

"Oh poo!" Yes, this is what we cry when we open up specimen bags and the sample containers/ blood tubes (and sometimes the submission form) are coated in the stuff.

In the interests of health and safety, please ensure you wipe down the outside of any grossly contaminated sample containers/ tubes **before** labelling them and sending them to the laboratory.

Samples are handled by a lot of different people and this contamination poses a risk to everyone coming into contact with them. Plus, the "cling-on's" often make it difficult for us to read the animal IDs on the containers.

So help us help you, and schmeer less of the poo! Or, be a big hit and wipe off the . . .



In brief

- > **Canterbury anniversary day** is on Friday 11 November and our Christchurch laboratory will be closed for the public holiday.
- > **Do you use a lot of immersion oil** in your clinic or group of clinics? It is now available online in a 480mL bulk bottle to help you save money.
- > **MPI Animal Health Laboratory has increased pricing** has increased as of 1 November. This affects the following serology tests: *Ehrlichia canis* IFAT, Leishmania IFAT, IBR VNT, canine distemper and heartworm VNR, EIA GDT, EVA and equine herpes VNT as well as other export tests. Please find a link to an [updated price list here](#).
- > **Our BVD Bulk milk Lab-Portal** is available for all clients to use to simplify the management of bulk milk testing for multiple clients. To find out more, [find access instructions here](#), or speak to your local Territory Manager.



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VETERINARY



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