

Horsing around

BERNIE VAATSTRA

Clinical history

An adult pony mare developed chronic progressive weight loss over the course of 9 months. Clinical examination revealed increased respiratory effort and a draining lesion of the right mandible with bony proliferation. Ultrasound examination and radiography of the lungs revealed multinodular soft tissue opacities throughout the lung fields. Biochemistry and haematology were unremarkable aside from elevated fibrinogen (11 g/L), consistent with inflammation.

The pony was euthanised and post-mortem examination was conducted.

Post-mortem results

The lungs contained numerous nodular fibrous lesions throughout all fields, correlating with the imaging findings. Apart from the mandible lesion noted on clinical

exam, there were no other significant gross findings.

Samples of multiple organs were collected into 10% formalin for histopathological examination.

Histopathology

The lung was disrupted by multinodular coalescing areas of fibrosis and consolidation. Airways in affected areas contained aggregates of neutrophils and foamy macrophages. The interstitium was expanded by extensive fibrosis and infiltrated by moderate numbers of neutrophils, macrophages, plasma cells and a few eosinophils, lymphocytes and Mott cells (Figure 1). Alveoli were frequently lined by plump cuboidal cells with hyperchromatic nuclei (type II pneumocyte hyperplasia). Rare macrophages contained deeply eosinophilic intranuclear inclusions that margined the chromatin (Figure 2). Special stains for bacteria, mycobacteria, and fungal

organisms were negative.

The mandible lesion consisted of a focus of bony lysis, fibrosis, and remodelling suggesting a reparative response to an old injury or infection. This was likely not related to the lung lesions.

A sample of tracheal wash fluid collected prior to euthanasia was positive for Equine herpesvirus-5 using real-time PCR.

Incorporating the gross, histological and molecular findings, the final diagnosis was confirmed as equine multinodular pulmonary fibrosis due to EHV-5 infection.

Discussion

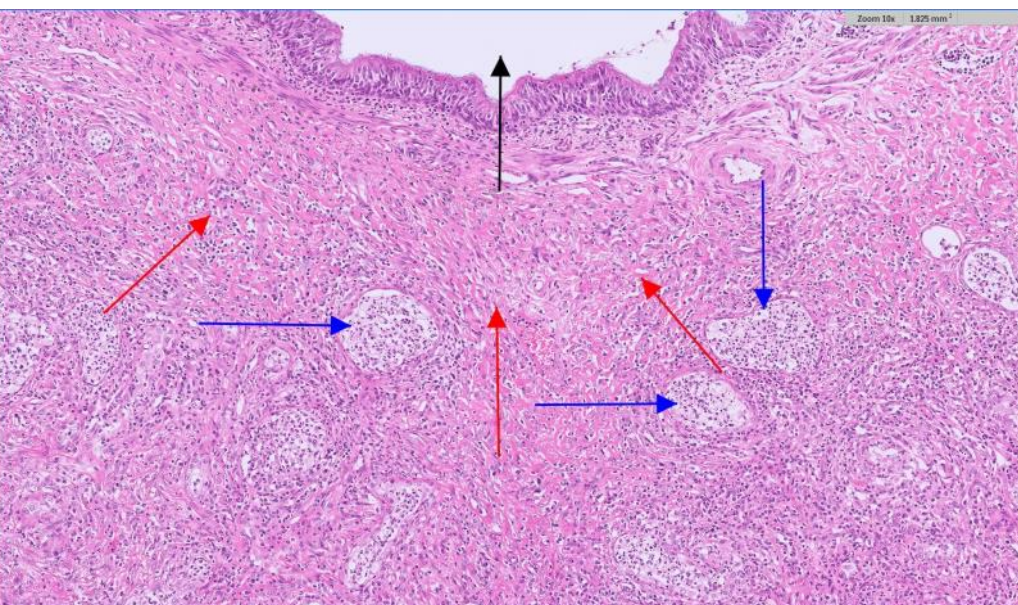
Equine multinodular pulmonary fibrosis is a progressive lung disease of horses strongly associated with the presence of EHV-5, a gamma-herpesvirus. Affected horses tend to be middle-aged and older and clinical findings include chronic weight loss, fever, tachypnoea, wheezes and crackles on auscultation. Clinical pathology findings are non-specific but may include increased fibrinogen, leukocytosis and anaemia (Wilkins 2013).

Differential diagnoses include recurrent airway obstruction, infectious pneumonia (fungal, bacterial), foreign body aspiration, and pulmonary neoplasia.

Antemortem diagnostic aids include transtracheal wash cytology to assess for inflammation and look for rare macrophages with intranuclear inclusions, imaging studies to demonstrate the characteristic nodular interstitial pattern, and airway fluid culture and PCR for EHV-5.

It is noteworthy that EHV-5 is highly prevalent in horses and most infections are

Figure 1. Lung from an adult polo pony mare showing abundant interstitial fibrosis (red arrows), mixed inflammation in airways (blue arrows) and a patent bronchus for reference (black arrow). H&E 100x.



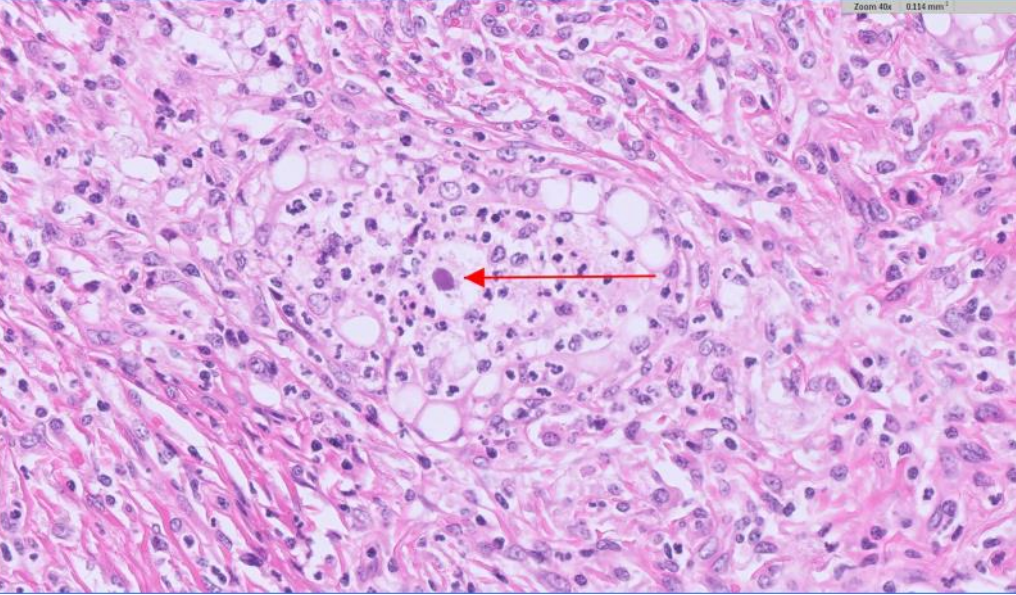


Figure 2. Lung from a polo pony mare showing neutrophils and macrophages within an alveolus. One macrophage contains a deeply eosinophilic intranuclear inclusion body (red arrow). H&E 400x.

asymptomatic. In a small percentage of horses, appropriate host factors such as age and immunological response could favour activation of virus within T and B lymphocytes, leading to clinical disease. EVH-5 has also been associated with lymphoproliferative disease, with rare reports of horses developing EPMF and

lymphoma concurrently (Bawa et al, 2014).

The prognosis for equine multinodular pulmonary fibrosis is unfortunately poor in most cases, with one study reporting 14% survival beyond 6 months after diagnosis (Easton-Jones, et al 2019). Treatment with antivirals plus or minus glucocorticoids has

been reported to be effective in a small number of cases.

Acknowledgements to Rachael Smith from the Rangiora Vet Centre for submitting this interesting case.

References

Bawa B, Vander Werf K, Beard L, Davis E, Andrews G, and Almes K. Equine Multinodular Pulmonary Fibrosis and Lymphoma in a Horse Associated with Equine Herpesvirus-5. *Journal of Equine Veterinary Science*, 34:694-700, 2014.

Easton-Jones CA, Cissell DD, Mohr FC, Chigerw M, and Pusterla N. Prognostic indicators and long-term survival in 14 horses with equine multinodular pulmonary fibrosis. *Equine Veterinary Education*, 32:41-6, 2020.

Wilkins PA. Equine multinodular pulmonary fibrosis: Diagnosis and treatment. *Equine Veterinary Education*, 25:393-6, 2013.



Festive season opening hours

As the year comes to a close, we'd like to take a moment to express our sincere gratitude for your unwavering support. Your trust in Gribbles has been invaluable, and we are truly grateful for the positive partnership we've shared.

We also want to extend our warmest Christmas wishes to you and your team. May this festive season bring joy, peace, and a well-deserved break.

We look forward to continuing our collaboration in the coming year. Wishing you a Merry Christmas and a prosperous New Year!

Warm regards,
James Richardson, GM

Our laboratories are open throughout the holiday season, and are only closed on the public holidays.

CHRISTMAS HOURS

- Saturday 23 December - OPEN
- Christmas day - CLOSED
- Boxing day - CLOSED

We will be open normal working hours 27-30 December.

NEW YEAR HOURS

- Saturday 30 December - OPEN
- New Year's day - CLOSED
- Tuesday 2 January - CLOSED

We will be open normal working hours from Wednesday 3 January.

Please note:

- > To ensure you receive consumable orders prior to Christmas, please endeavour to have all orders to us by close of business on Wednesday 13 December. We are unable to guarantee pre-Christmas delivery of orders received after this time.
- > Delays with consumable orders may occur over the Christmas and New Year weeks

due to the restricted courier service and reduced staffing levels. Please ensure any urgent orders sent during this period are clearly marked as such.

- > Some referral laboratories will also be closed during the Christmas holiday period, which may affect testing turn-around-times. Please contact the laboratory if you have any concerns.



Herd of facial eczema?

Summer is upon us and it is never too early to ensure plans are in place to protect the herd. To be effective, preventative measures need to be in place before *Pithomyces chartarum* spores are detected.

For every clinical case of facial eczema you see, there will be at least 10 sub-clinically affected animals. Affected stock will fail to thrive, have reduced milk production, poor fertility, lose weight and possibly die.

We offer diagnostic testing to assist with monitoring facial eczema (FE) risk, to help

minimise the incidence of disease, to check your management programme is working and to assess the damage caused by sporidesmin toxin from ingested spores.

Facial eczema, the hidden danger.

It's not what you see that you should be worried about!

Testing options:

- Spore counts (pasture and faeces)
- GGT concentration on individual

serum samples

- Zinc concentration on serum, faecal or water samples.

Dairy NZ recommends testing serum zinc and GGT on 10 cattle from the herd, 3-6 weeks after the treatment starts.

Our **FE Check panel** is the perfect way to check for the unseen signs of liver damage, and to ensure zinc levels are adequate. Send us 10 red top tubes, tick the panel on the submission form or write FE CHECK on your submission form and we'll do the rest.

Monitoring local spore counts

With our [online Lab-portal](#), you can submit your local spore counts to the national database. FE data is displayed in real-time in the Lab-portal, so you will be kept up-to-date with the latest local and national trends.

All veterinary clinics are able to register for a user account and we encourage you to do so. The more data that is received in the portal, the better the indication of risk in your region. Anyone can [view results](#), and no user account or login is required.

See full details of how you can keep on top of facial eczema in the article located on our [website here](#).



Newly identified microbes

ALICE FRASER

With the advancement in technology in diagnostics, many of you may be aware that Gribbles now use Matrix-assisted laser desorption ionisation-time of flight (MALDI-TOF) equipment in microbiology.

MALDI-TOF can be used for several different applications, but in microbiology we use it as a rapid method for identification of microorganisms using their species-specific protein patterns, which are analysed by a process known as biotyping.

The expertise and skills of microbiology staff are key in the utilisation of this state-of-the-art equipment, and conventional bacteriological methods are required in the initial isolation and preparation of pure colonies for the MALDI-TOF method of identification.

As well as increased speed of identification, the use of MALDI-TOF has meant an increase in identification of more obscure microbes, often environmental/soil or commensal microbes, which can now be more readily identified to species level,

whereas previously we may have taken these to genus level only. Any unusual microbial species is checked against the microbe database held by Environmental Protection Agency (EPA). If it has not been previously recorded in this database, it must be reported to MPI, under the Biosecurity Act. MPI are then responsible for confirming the identity of the microbe at the Animal Health Laboratory, Wallaceville, often without requiring any other case details.

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Any information from the newly identified microbe is checked online (many of them, particularly if considered environmental/soil microbes, may not actually be new to New Zealand, just not previously identified until now), the EPA database is then updated and further investigation may not be required.

Some of these microbes can act as

opportunists, taking advantage of any changes in local conditions allowing increased colonisation within an animal or in cases of an animal's reduced immunity. If however there is any concern that the newly identified microbe is associated with increased livestock mortality or any potential risks to food safety or a potential zoonotic, then MPI must investigate such cases further. In these cases, the laboratory

attempts to contact the veterinarian who has submitted the case in the first instance. If there is any concern that the newly identified microbe is an 'unwanted organism' then it is dealt with by MPI, like all unwanted organisms or exotic disease, under Section 44 of the Biosecurity Act and the submitting veterinarian is contacted and informed.

Casting a new light on bacteria

ALICE FRASER

Non-*aureus* staphylococci (NAS) isolated from cultures of milk samples, are often reported as coagulase-negative staphylococci (CoNS) - this was historically based on their ability to clot rabbit plasma, a key manual identification step in conventional bacteriologic methods for staphylococci.

With the increased use of MALDI-TOF, which, as detailed previously, increases the ability to identify some bacteria to species level, you may see these coagulase-negative staphylococci sometimes identified by their species names.

Staphylococcus chromogenes, *S. hyicus*, *S. simulans* and *S. epidermidis* are the key coagulase-negative staphylococcal species,

with *S. chromogenes* being most commonly isolated CoNS from bovine mastitis cases. These CoNS bacterial species are usually lumped together as minor pathogens associated with subclinical mastitis (in comparison to *Staphylococcus aureus* and the other major pathogens of bovine mastitis). They are usually at home either in the environment or as mucosal or skin commensals. CoNS bacteria can form distinct relationships with the udder microbiome and may also have protective effects against other major mastitis pathogens. They can be associated with transient infections but can also cause more persistent low-grade infections in which they are also able to adapt to the udder environment, adhere to mammary epithelial cells and form biofilms protecting the bacteria from being flushed out during

milking.

There are still questions being researched about the role of these CoNS species and some variation in the virulence factors of some strains has been observed, including coagulase properties. Some of these non-*aureus* staphylococci have been found to be coagulase-positive; hence in recent published articles, they may be referred to as NAS rather than CoNS, to allow for this variation (De Buck J., 2021).

Reference

De Buck J, Ha V, Naushad S, Nobrega DB et al. Non-*aureus* Staphylococci and Bovine Udder Health: Current Understanding and Knowledge Gaps. *Frontiers in Veterinary Science*, 8:1-16. 2021

It's time to chill out

Just a friendly reminder to include an ice pack with your blood (and other) samples when sending them via commercial courier.

Many samples start to degrade if they remain in warm conditions for too long, and this often means they will be unsuitable for testing on receipt. This is especially important for equine ATCH testing - if we

receive them warm we can't test them.

Your ice packs will be returned to you along with your shipping containers. Alternatively, we sell [Chill Wrap sheets](#) that can be used - find them on our [website](#) here.

So please start shipping on ice on a regular basis through until next autumn at least!



FACIAL ECZEMA ALERT! We have been advised that pasture spore counts in some humid areas are already high, with stock displaying severe clinical symptoms. We recommend you commence spore counting for facial eczema now if you're not already doing it, and put preventative measures in place.

Contact us

Contacting Gribbles Veterinary couldn't be easier.

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