Equine multinodular pulmonary fibrosis (EMPF) in a Thoroughbred filly

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Presentation to the rDVM...

- 2 year old Thoroughbred filly
- Fever and abnormal lung sounds
- Initial diagnostics & treatment

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Initial diagnostics & treatment

• CBC & clinical chemistry abnormalities
  • Leukocytosis of 16 X 10^3/uL (5.5–11)
  • Fibrinogen of 800 mg/dL (0–400)

• Treatment – Naxcel® (7 days)
• Transtracheal wash (TTW) – No abnormalities
• Post treatment thoracic ultrasound
  • Areas of consolidation in right lung fields
At the UF Large Animal Medicine Service

• Presented: quiet, but bright and alert with tachypnea and tachycardia

• New CBC/Chem abnormalities:
  – Leukocytosis with a toxic left shift – 18 X 10³/uL (5.5–11)
  – Thrombocytosis –268 X 10³ /µL (100–250)
  – Elevated ALP – 344 U/L (54–176)

• Thoracic auscultation – crackles, most prominent within the caudoventral lungs
Diagnostic plan

- Repeat TTW
  - Culture – mixed fungal flora including *Aspergillus* sp.
  - Gram stain – no microorganisms

- Biopsy
  - Non-diagnostic
Assessment

• The additional diagnostics revealed chronic airway irritation and ruled out a bacterial pneumonia.

• Treatment plan was amended:
  • Antibiotics were discontinued
  • Filly was sent home on Banamine® and dexamethasone
Second presentation to UF 3 weeks later…

- New abnormalities:
  - Severe hypoxemia
    - PO2 of 46 mmHg (80–100)
    - Elevated lactate of 2.9 mmol/L (1–2)
  - Repeat thoracic ultrasound
    - Diffuse areas of focal consolidation with comet tails
  - Repeat thoracic radiographs
    - Diffuse nodular soft tissue opacities

- Pentoxifylline was added to regiment with no effect

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Gross findings

- Fibrous adhesion between the right costal and visceral pleura
- Tracheobronchial lymph nodes are markedly enlarged
• Pulmonary parenchyma is incompletely collapsed

• 50–70% of the parenchyma over multiple sections is infiltrated by light tan and very firm tissue

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Trichrome

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Summary

Chronic diffuse multinodular fibrosing interstitial pneumonia, severe, with intranuclear inclusions in macrophages.

Lung tissue was confirmed positive for EHV–5 via PCR at the Michigan State University DCPAH.

These findings are consistent with equine multinodular pulmonary fibrosis (EMPF).
EMPF

• 1st described in 2007 in Vet Path by Williams et al.

• All reported cases have been associated with EHV-5, although the association is controversial due to the isolation of the virus in non-affected horses.

What we know so far...

- Thoroughbreds >4 years of age are the most commonly affected, although it has been reported in many breeds of all ages.

- EHV-5 can be detected within nasal swabs, transtracheal wash, and bronchoalveolar lavage in addition to lung and other organs tissue.

- The exact pathogenic role this virus plays in EMPF is still unknown.
Thanks

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