MYOFASCIITIS IN THE DOMESTIC FERRET, AN EMERGING FATAL DISEASE

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SYNONYMS
• POLYMYOSITIS
• SUPPURATIVE MYOSITIS
• DISSEMINATED IDIOPATHIC MYOSITIS (DIM)
• MYOFASCIITIS
  – Veterinary Pathology, 2006 (in press)

Prevalence
• >2000 ferret submissions at NZP
• MF not recognized prior to 2003
• 13 cases between 2003-2005 (2%)
  – 18 more 3/15-12/1/05 (10%)
• Criteria: inflammation in esophagus, heart and at least one other skeletal muscle

Signalment
• Cosmopolitan, different breeders
• 5 – 24 mo
• Average age 10 mo
• No sex predilection
  – 10.8.0

Clinical Signs
• High fever
• Recumbent, ataxic, weak, pain, posterior paresis, bite
• Inappetance or anorexia
• Abnormal stools.

Laboratory Values
• Marked leukocytosis, mature neutrophilia
• Nonregenerative anemia
• Elevated ALT
• Hyperglycemia
• hypoalbuminemia
• AST and renal usually OK
  – not necrotizing
No Effective Treatment?
- antibiotics
- antiinflammatories
- glucocorticoids
- antipyretics
- pain killers
- interferon
- cyclophosphamide
- All dead

Gross Pathology
- Red and white mottling of esophagus
- White streaks in diaphragm, lumbar and leg muscles
- Marked atrophy of diaphragm and skeletal muscle in advanced cases
- Lymphadenomegaly, Splenomegaly
- Reddened friable adipose tissue in the subcutis and mediastinum

Histopathology
- Suppurative to pyogranulomatous inflammation.
- Multifocal, muscle, fascia and surrounding adipose.
- Esophagus, heart, legs and lumbar muscles.
- Atrophy, fibrosis in advanced cases.

Electron Microscopy
- Mitochondrial swelling
- Edema between myofibrils
- Myofibril and Z band disruption
- No infectious agents

No Pathogens Cultured
- Aerobic, anerobic bacterial cultures
  - Lung, liver, muscle
- Viral cultures
  - Lung, liver, muscle

Immunohistochemistry
(all negative)
- FIP
- ECE
- Toxoplasma
- Sarcocystis
- Neospora

PCR
- From paraffin tissues
- Three ferrets positive for Toxoplasma
• Lesions not typical
• Subclinical?
• False positive?

Myofasciitis in Conclusion
• Idiopathic inflammatory disease of young adult ferrets
• Histopathologic diagnosis
• Laboratory values, clinical signs, lack of response to treatment are strongly suggestive of the disease
• No treatment, fatal.

Addendum
• Myofasciitis reproduced in entire group of ferrets during experimental trial using a castration vaccine.
• One vaccine from one manufacturer is only known commonality, no longer available
• Future cases?
• What tissues go in the bottle?
  • Esophagus
  • Skeletal muscle
  • Heart
  • Other viscera