CASE 44 (#P14-0134)

SEVPAC 2014

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9-year-old, intact male Labrador retriever (‘Hart’)

Initial presentation – November 2013:
- Lethargy, anorexia
- Dx: pneumonia
- Tx: Clindamycin, Orbifloxacin
- Clinical signs improved with treatment
Two months later:
- Lethargy, anorexia
- Syncopal episodes (exertional)

Physical exam:
- Harsh lung sounds, increased respiratory effort
- Muffled heart sounds
- (New) systolic heart murmur (III/VI)
- Marked edema of head and ventral neck
- Non-pulsatile jugular vein distension
Radiographs

- Generalized cardiomegaly
- Alveolar/interstitial pattern (bronchopneumonia)
- Diffuse bronchial pattern (pneumonic process or chronic inflammation)
• Pericardial effusion
Echocardiogram

- Pericardial effusion
- Heart base mass
  - Aorta
  - Cranial vena cava
Post mortem – gross
Post mortem – gross
Gross diagnoses

1) Heart base mass – presumptive chemodectoma
   - 6 x 4 x 3 cm firm, white mass on the epicardial surface
   - Encompassing aorta and cranial vena cava
   - Homogenous, tan on cut section
   - ~500mL serosanguinous pericardial fluid

2) Pulmonary atelectasis and bullae
   - 2 cm bulla in the left caudal lung lobe

3) Liver – Chronic passive congestion
   - Enlarged, with rounded edges and enhanced lobular pattern

4) Subcutaneous edema
   - Head and ventral neck
Histopathology – heart base mass (H&E)
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Histopathology – heart base mass (GMS)
Histopathology – heart base mass (GMS)
Histopathology - Lung (H&E)
Histologic diagnoses

1) **Pyogranulomatous pericarditis with intralesional yeasts**
   - Extensive fibrosis
   - Multifocal neutrophilic infiltrates surrounded by epithelioid macrophages
   - Intralesional yeasts
     - *Blastomyces dermatitidis*

2) **Pulmonary edema and atelectasis**
   - Collapsed alveolar spaces
   - Foamy macrophages, multinucleate giant cells, and cholesterol clefts
   - Type II pneumocyte hyperplasia
   - Smooth muscle hypertrophy around terminal airways
Blastomyces dermatitidis

• Dimorphic fungal pathogen

• Mycelial form in environment
  • Sandy, acidic soils
  • Near fresh water (rivers, lakes)

• Conversion to yeast form in vivo
  • 10-30µm diameter
  • Thick, double-contoured walls
  • Broad-based budding


http://pathmicro.med.sc.edu/mycology/blast1.jpg
Blastomyces dermatitidis

Adapted from http://pubs.rsna.org/doi/full/10.1148/rg.273065122
Canine blastomycosis

- Relatively common
- Highest risk:
  - Young adults
  - Intact males
  - Endemic areas
  - Near fresh water
  - Sporting breeds, hounds
  - Labs, goldens, Dobermans

http://www.gundogbreeders.com/breeders-texas/tioga-retrievers.html
Canine blastomycosis

Inhaled conidia → Pulmonary infection → Dissemination → Other sites (3-6%)
- Lymph nodes (30-50%)
- Skin (30-50%)
- Eyes (20-50%)
- Bones (30%)
- Brain
- Testes
- Prostate
- Kidneys
- Joints

Images adapted from http://www.atsu.edu/faculty/chamberlain/Website/Lects/Fungi.htm
Inhaled conidia → Pulmonary infection

Hematogenous or lymphatic dissemination

Pericardial granuloma

Pericardial effusion

Occlusion of cranial vena cava

Decreased cardiac output
  • Pulmonary edema
  • Chronic passive congestion (liver)
  • Dyspnea, syncope

Impaired venous return

Cranial vena caval syndrome
  • Edema of face and neck
  • Non-pulsatile jugular distension

Images adapted from http://www.atsu.edu/faculty/chamberlain/Website/Lects/Fungi.htm
• Blastomycosis is a relatively common fungal infection in dogs.

• Pericardial involvement in *Blastomyces* infections appears to be rare.

• One case report describes cranial vena caval syndrome and chylothorax associated with blastomycosis affecting the caval wall.

• To my knowledge, the combination of pericardial effusion and cranial vena caval syndrome has not previously been reported.


Thanks!

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Questions?