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Multicentric T-Cell Rich B-Cell Lymphoma in a Mule

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Abstract

Keywords
mule, equine surgery, third eyelid, lymphoma, neoplasm

Disciplines
Eye Diseases | Large or Food Animal and Equine Medicine | Neoplasms | Veterinary Pathology and Pathobiology

Comments
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MULTICENTRIC T-CELL RICH B-CELL LYMPHOMA IN A MULE

Jarrod Troy ISU-CVM Class of 2014
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Ames IA 50010
Mentor: Stephanie Caston, DVM, DACVS-LA
Iowa State University Equine Surgery Service

Case Previously Presented by R David Whitley, DVM, MS, DACVO
International Equine Ophthalmic Consortium
West Palm Beach, FL April 2011

BILATERAL THIRD EYELID LYMPHOMA IN A MULE
Whitley EM, Murphy M, Haynes JS, Caston S, Madron M, Waller KR,
Tofflemire K, Whitley RD
SIGNALMENT

• “Hank”
• 25 year old castrated Mule
• 495-kg (1090-lb)

• Presented at Iowa State University Equine Surgery Service for bilateral surgical removal of third eyelids
HISTORY

• 12/14/10: 6 week duration of progressive bilateral third eyelid swelling.
INITIAL CLINICAL FINDINGS

- Bilateral bulbar and palpebral conjunctival thickening
- Third eyelid protrusion
- Mild bilateral exophthalmos
- Patent nasolacrimal ducts
- Mild ocular discharge

<table>
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<tr>
<th>Parameter</th>
<th>Hank’s Value</th>
<th>Reference Interval</th>
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</thead>
<tbody>
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<td>Temperature (F⁰/C⁰)</td>
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<td>99.0-100.8/37.2-38.1</td>
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<tr>
<td>Heart Rate (beats/minute)</td>
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<td>28-40</td>
</tr>
<tr>
<td>Respiratory Rate (breaths/minute)</td>
<td>24</td>
<td>10-14</td>
</tr>
</tbody>
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DIAGNOSTIC PLAN

• Skull Radiographs
  – Dorsoventral & Lateral Oblique Views Collimated to Mid-Skull; Oblique Views Collimated to Orbits

• Findings
  – Bilateral exophthalmos
    • Heterogeneous soft tissue masses (~7cm) rostroventral to globes
  – Guttural pouches partially air filled
PROBLEM LIST

• Bilateral Bulbar and Palpebral Conjunctival Thickening
• Third Eyelid Protrusion
• Bilateral Exophthalmos
• Mild Ocular Discharge
• Guttural pouches partially air filled
• Temperature Decreased
• Tachypnea
DIFFERENTIAL DIAGNOSIS

• **Bilateral Bulbar/Palpebral Conjunctival Thickening**
  – Foreign Body
  – Neoplasia
  – Blepharitis
  – Exophthalmos

• **Third Eyelid Protrusion**
  – Trauma
  – Neoplasia
  – Blepharitis
  – Guttural Pouch Empyema

• **Bilateral Exophthalmos**
  – Neoplasia
  – Orbital Cellulitis
  – Trauma

• **Mild Ocular Discharge**
  – Neoplasia
  – Conjunctivitis
  – Exophthalmos
  – Trauma
DIFFERENTIAL DIAGNOSIS

• **Guttural pouches partially air filled**
  – Trauma
  – Neoplasia
  – Guttural Pouch Empyema

• **Slightly Decreased Temperature**
  – Cold Stress
  – Poor Perfusion
  – Trauma

• **Tachypnea**
  – Stress
  – Pain
  – Pneumonia
  – Neoplasia
DIAGNOSIS

- Presumptive Diagnosis
  - Severe, Bilateral Inflammation of Third Eyelid and Palpebral Conjunctiva
  - Possible Mass in the Guttural Pouch Area
TREATMENT PLAN

• Palliative Therapy
  – Bilateral Surgical Removal of Third Eyelids
    • Eyelids were submitted for Histopathology

• Home Treatment Instructions
  – Analgesia/ Anti-inflammatory
    • Phenylbutazone (4.4mg/kg, PO, SID for 7 days, then 1-2 gram as needed to decrease swelling or discomfort)
  – Topical antibiotic ointment
    • NEOMYCIN/POLYMYXIN B/BACITRACIN ZINC EYE OINT 3.5 (BID until tube is empty)
  – Clean discharge/blood from eyes with wet paper towel
    • Bloody discharge normal for 1-2 days post-op
OUTCOME 1

• “Hank” was discharged from hospital with Home Treatment Instructions

• Third Eyelids were submitted for Histopathology
HISTOPATHOLOGY RESULTS

• Both third eyelids, lacrimal gland, and adjacent conjunctiva were effaced by an infiltrative, non-encapsulated, poorly demarcated neoplasm
  – The neoplasm was composed of densely packed with a pleomorphic population of round cell sheets.
• Mitotic figures are 3-5 per 400X field.
• Moderate Anisocytosis/Anisokaryosis.
HISTOPATHOLOGY RESULTS

• Neoplastic cells do not extend into the overlying, intact conjunctival epithelium.

• Neoplastic cells extend to many tissue margins.

• **Microscopic Diagnosis**
  – Third Eyelid Conjunctival Lymphoma

• Immunohistochemical staining was requested to identify cell lineage
IMMUNOHISTOCHEMISTRY RESULTS

• Immunohistochemical Staining
  • CD79a Positive Cells → Indicate B-Lymphocyte Lineage
  • CD-3 Positive Cells → Indicate T-Lymphocyte Lineage

• Results:
  • Predominant population of cells were B-lymphocytes (CD79a-positive)
  • Small number of scattered T-lymphocytes (CD-3-positive)

• Diagnosis
  – B-cell lymphoma
OUTCOME 2

• 12/29/12: “Hank” was readmitted to ISU Equine Surgery Service
  – Decreased condition
  – Weight Loss
  – Swelling at site of third eyelid removal

• History
  – 12/14/12: Bilateral Third Eyelid Removal
  – Biopsy/Histopathology of Third Eyelids
    • Dx: B-Cell Lymphoma
CLINICAL FINDINGS

• Physical Examination
  – Bilateral lower eyelid/conjunctival swelling.
  – Bilateral ocular discharge
  – Poor dilation and inability to examine fundus of the Left Eye
  – Solid vitreous face and posterior lens luxation of Right Eye
  – Submandibular Lymph Nodes enlarged
  – Multiple movable, semi-firm masses at Thoracic Inlet/Pelvic Area - Not noted at previous exam
  – Mild inspiratory stridor at rest

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DIAGNOSTIC PLAN

• Rectal Exam  
  – No Abnormalities noted
• Abdominocentesis  
  – Slightly cloudy  
  – Protein = 2.2 g/dL
• Neurology Exam  
  – No Abnormalities noted
• CBC  
  – Slight Anisocytosis of RBC  
  – No other abnormalities noted

• Endoscopy of Upper Airway  
  – Arytenoids obscured by ventral displacement of the roof of the pharynx  
  – Purulent material found in the Left Guttural Pouch Lateral Compartment.  
  – Unable to enter Right Guttural Pouch due to Swelling/Scarring

Due to worsening of clinical signs the owner elected for humane euthanasia and necropsy
NECROPSY RESULTS-GROSS

• **Orbit Conjunctiva**
  – Bilaterally Swollen approximately 3cm x 2cm

• **Right Guttural Pouch**
  – 200-mL of thick, white/yellow exudate

• **Left Guttural Pouch**
  – Moderate amount of friable material.
  – Multiple 1-10mm nodules caudal to pouch

• **Cranial Mediastinal Lymph Node**
  – Enlarged and moderately firm. Diameter 10cm
NECROPSY RESULTS-GROSS

• Left Caudal Lung Lobe
  – White 7cm nodule
  – On cut surface, there were areas of concentric thickening around luminal structures

• Mesentery
  – Pedunculated 10-15cm diameter white/yellow mass
  – Multiple non-pedunculated, white/yellow masses were also present.

• Gross Morphological Diagnoses
  – Multifocal Lymphadenopathy
  – Guttural Pouch Empyema
NECROPSY RESULTS
HISTOPATHOLOGY

• **Pituitary Gland (Pars Distalis & Pars Intermedia)**
  – Expanded by well-demarcated, non-encapsulated infiltrative neoplastic mass of densely packed round cell sheets
  – High number of mitotic figures (28/10hpf) and abnormal nuclei & nucleoli changes

• **Lymph Node**
  – Diffusely enlarged, with increased numbers of germinal centers; large lymphocytes expanding germinal centers

• **Lung Parenchyma, Palpebral Conjunctiva, Eye, & Adipose Tissue**
  – Tissues were expanded/effaced by Neoplastic Cells similar in morphology to those described in the Pituitary Gland