SEVPAC 2012
CASE 10
(11-715)

RACHEL DUTKOSKY
UTCVM Class of 2014
Signalment

• 12-year-old Quarter Horse gelding
  – Abnormal behavior, lethargy
  – Pasture mate – dead on arrival
  – Presented to emergency service in July
Clinical Signs

- HEMOGLOBINURIA
- OXIDATIVE DAMAGE
- SEVERE HEMOLYTIC ANEMIA
- HEINZ BODIES
- IV HEMOLYSYS ghost cells (red arrow)
- PYREXIA
- TACHYCARDIA
- BILIRUBINEMIA
- METHEMOGLOBINEMIA

http://cal.vet.upenn.edu/projects/poison/lesions/palredma.htm
http://ahdc.vet.cornell.edu/clinpath/modules/chem/intravasc%20hem.html
Acute Hemolytic Anemia
Common Etiologies - Equine

- Immune Mediated: IMHA, phenothiazine
- Infectious: Equine Infectious Anemia, Piroplasmosis
- Toxic: RED MAPLE LEAVES, Snake Venom, Onion

PASTURE MATE
RED MAPLE LEAF Ingestion

- Mortality Rates ~ 60-65%

- Gallic Acid + Unknown Agent $\rightarrow$ Methemoglobin
  - Implicated

- Common Findings:
  - Anemia
  - Heinz Bodies
  - Tachycardia
  - Laminitis
  - Methemoglobinemia
  - Pyrexia
  - Colic
Clinical Conclusion

- Abdominal Ultrasound
  - wedge shaped areas of hyperechogenicity

- Treatment:
  - trimethoprim sulfa 800mg
  - furosemide
  - ascorbic acid IV
  - plasmalyte
Renal Cortices - wedge-shaped tan foci
wedge-shaped region of cortex
- loss of proximal tubules
- interstitial edema
Damaged Tubules
Regeneration on Intact Basement Membrane
- low cuboidal epithelium
Interstitial Edema
Hemoglobin in tubular lumens
- red granular material

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Regeneration on Intact Basement Membrane
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Interstitial Edema
Renal Medulla - multifocal linear streaks of black pigment (1mm wide)
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Medullary Tubules
Neutrophils, Lymphocytes, Plasma Cells
Morphologic Diagnosis

- Marked Multifocal to Coalescing Subacute

HEMOGLOBINURIC NEPHROSIS

+ Tubular Degeneration and Hemoglobin Casts

Regeneration

Interstitial Edema
Pathogenesis

Hypoxia

Oxidative Damage

Tubular Necrosis

Hemolytic Anemia

Hemoglobin Cast Damage

Acute Renal Failure

HEMOGLOBINURIC NEPHROSIS

Tubular Regeneration

http://www.doctorramey.com/skinny-horses/attachment/horse-mouth-260x300/
Pathogenesis

Consequences of Renal Damage

1) Decreased Ultrafiltration
2) Intra-tubular Obstruction
3) Fluid Back Leakage
4) Intra-Renal Vasoconstriction

→ Additional Hypoxic Injury
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QUESTIONS

References:


