Testicular degeneration and atrophy in a white-tailed deer (*Odocoileus virginianus*)

Dr. Kevin Niedringhaus
Dr. Heather Fenton
Mr. Shane Hesting

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History

• **Case number:** W15-166
• **Signalment:** Male, 6.5+ year old, white-tailed deer
• **History:**
  • Harvested in Jackson County, KS
  • Observed to have an abnormal antler conformation
  • Testes small
• **Organs submitted:** Liver, spleen, and both testicles
• **Gross Findings:**
  • Both testicles were diffusely shrunken and firm.
  • No gross abnormalities in liver and spleen

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No spermatogenesis, narrowed lumen
Masson’s trichrome
Masson’s trichrome

Sertoli cell vacuolation
Von Kossa

Mineralization
## Ancillaries

### Heavy metals (Liver)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results in parts per million (PPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Not detected</td>
</tr>
<tr>
<td>Manganese</td>
<td>2.3</td>
</tr>
<tr>
<td>Iron</td>
<td>45</td>
</tr>
<tr>
<td>Mercury</td>
<td>Not detected</td>
</tr>
<tr>
<td>Arsenic</td>
<td>Not detected</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>0.60</td>
</tr>
<tr>
<td>Zinc</td>
<td>41</td>
</tr>
<tr>
<td>Copper</td>
<td>27</td>
</tr>
<tr>
<td>Cadmium</td>
<td>Not detected</td>
</tr>
</tbody>
</table>
Testicular degeneration etiology
Proposed causes

- **Hormonal**
  - Dexamethasone
  - Estrogen
  - Testosterone
  - Zeranolone

- **Metabolic**

- **Pathogens**
  - EHDV/BTV
  - Brucellosis
  - CDV
  - PRRS

- **Nutritional**
  - Phytoestrogens: *Astragalus spp.*, *Melilotus spp.*
  - Lysine seeds
  - Mycotoxins
  - Vitamin (A*, B, E, C) and mineral deficiencies

- **Environmental**
  - Heat stress
  - Organochlorine contamination
  - Radiation

- **Genetic**

- **Age**

- **Chlorinated naphthalenes**

- **Epididymitis**

- **Chemicals**
  - Chemotherapy
  - Halogenated compounds
  - Nitrogen-containing compounds

- **Neoplasia**
  - Pituitary tumors
  - Sertoli cell tumors

- **Scrotal disease**

- **Trauma**

- **Ultrasound**
Antler Cycle

http://www.wildlifeonline.me.uk/questions_answers_deer.html

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Cactus bucks

- Reports in
  - Mule deer (Murphey and Clugston 1971; Fox et al. 2015),
  - Black-tailed deer (Demartini and Connolly 1975)
  - White-tailed deer (Taylor et al. 1964)

- Three main groups:
  - Chronic vascular lesions
  - Atrophy and hypoplasia
  - Inflammation and necrosis
Additional information

- Only in older bucks
- Progressive changes (Tiller et al. 1997)
- Management selection
- HD relationship still unclear
References


Questions?