Signalment & History

- Two-year-old female intact lowland paca
- Sudden death
Lowland paca (*Cuniculus paca*)

- Large rodent
- Subtropical America forests
- Nocturnal, solitary herbivore
- Hunted for meat
Gross findings

- Intestines & liver
  - Transmural nodules
- Large intestines
  - Thickened mucosa
Gross findings

- Intestines & liver
  - Transmural nodules
- Large intestines
  - Thickened mucosa
Morphologic Diagnoses

- Colon: Colitis, necrotizing & hemorrhagic, transmural, acute, locally extensive, severe, with myriad intralesional gram-negative coccobacilli

- Liver: Hepatitis, necrotizing, acute, multifocal, moderate, with intralesional gram-negative coccobacilli
Ancillary testing

- Aerobic culture of fresh liver
  - Heavy growth of *Yersinia pseudotuberculosis*
Yersinia pseudotuberculosis

- Zoonotic!
  - Consumption of contaminated meat
    - gastroenteritis, lymphadenitis, septicemia
- Rodents, wild birds, & pigs as reservoirs
- No literature on infections specific to pacas
Pathogenesis

- Virulence plasmid
  - Type III Protein Secretion System
    - Injects effector proteins into host cells
  - Yop effector proteins
    - Interfere with phagocytosis, apoptosis, & cytoskeleton regulation
- Translocator proteins
  - Form pores on host cell membranes
Pathogenesis

- Fecal-oral
- Invasin ↔ M cell β1 integrin
  - Entry into Peyer’s patches
- Infected monocytes↑IL-1β, caspase-1
  - ▲Inflammasome, pyroptosis

- Yop immunosuppressive
  - YopK▼MAPK/NFκB
    ▼TNFα▲Apoptosis

Pathogenesis

- Myosin light chain kinase activation
  - Tight junction opening → disrupts intestinal barrier
- Vascular invasion → acute septicemia, DIC

Thank you

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