Latin Comparative Pathology Group
The Latin Subdivision of the CL Davis Foundation
Diagnostic Exercise

Case #: 37 Month: October Year: 2013

Answer Sheet

Diagnosis:

Microscopic Description: In the renal medulla are multiple random foci of mixed, mononuclear and to a lesser degree heterophilic/eosinophilic, inflammatory infiltrates. Inflammatory cells surround and infiltrate necrotic tubules that have attenuated or sloughed epithelium, the cytoplasm of which sometimes contains numerous ~2 micrometer basophilic, anisotropic, oval, intracytoplasmic spores consistent with microsporidia. Tubules devoid of inflammation also frequently have abundant intraepithelial intracytoplasmic spores.

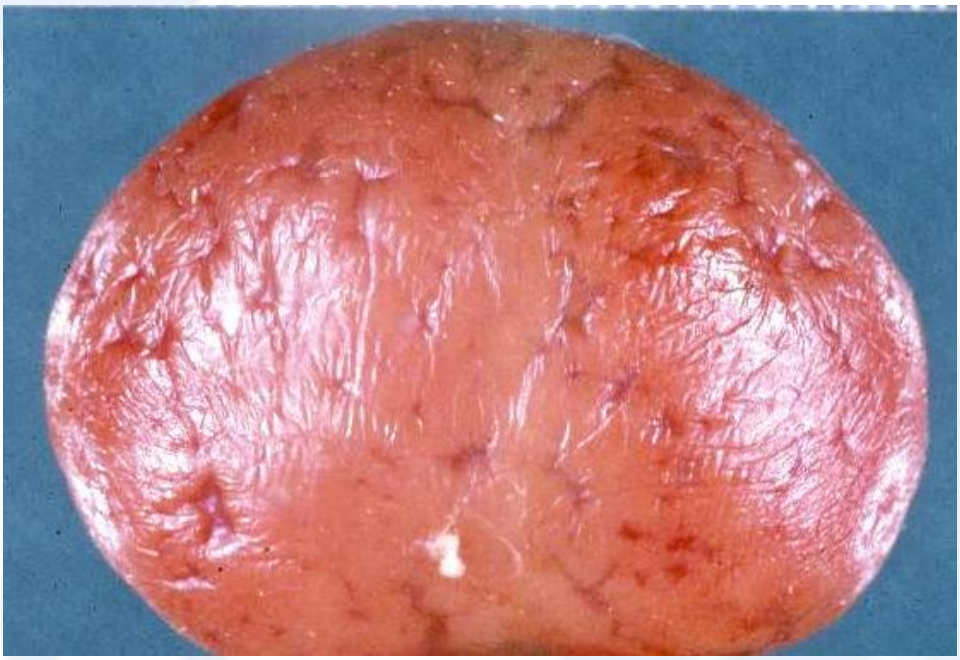
Morphologic Diagnosis: necrotizing, granulomatous tubulointerstitial nephritis with intralesional (intraepithelial) microsporidia

Etiology: Encephalitozoon cuniculi

Lesions in other organs: granulomas in CNS, liver (this case); any organ possible.

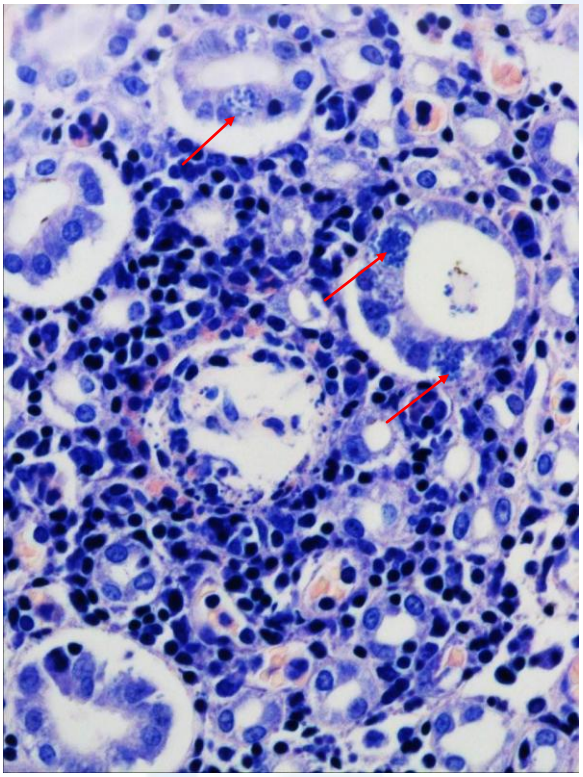
Typical Gross findings:

- Pitted renal cortices (Note: The representative image below is of a rabbit kidney with *E. cuniculi* infection taken from the teaching files at MSU DCPAH and is not an image of the kidney from the case presented in this exercise.)

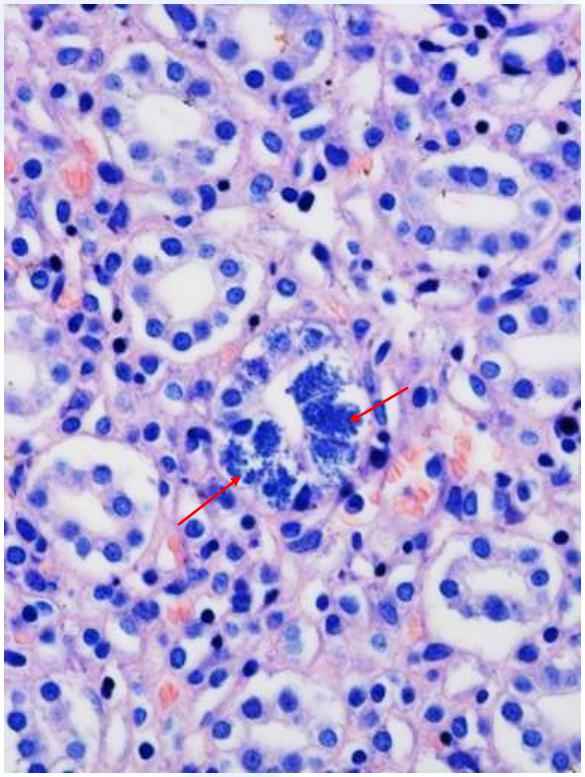


Typical microscopic findings:

- Necrotizing/granulomatous (tubulo-)interstitial nephritis; 2 micrometer pale anisotropic spores in cytoplasm of renal tubular epithelium
- Granulomas with or without organisms may be found in any organ - kidney, lung, liver, brain are most common
- Vasculitis with intra-endothelial spores sometimes seen



Giemsa, 40X



Giemsa, 40X

Discussion:

Encephalitozoon cuniculi is a microsporidian organism that can infect many mammal species and is most clinically relevant as an opportunistic infection in immunocompromised animals. Three strains have been identified: strain 1 found in rabbits, strain 2 found in rodents and blue foxes, and strain 3 found in dogs and humans. In rabbits, the

organism colonizes the renal tubular epithelium and is shed in urine. Infection is often an incidental finding limited to kidneys; however, nephritis and disseminated disease can result when a high burden of organisms is present. Dwarf rabbit breeds are particularly susceptible.

References and Recommended literature:

- Percy DH and Barthold SW: Encephalitozoon Infection. In: Pathology of Laboratory Rodents and Rabbits, 3rd ed. pp. 290-294. Blackwell, Ames, Iowa. 2007
- AFIP Department of Veterinary Pathology Wednesday Slide Conference 7, Case 4; 2007-2008
- Didier PJ, et al: Microsporidiosis. In: Infectious Diseases of the Dog and Cat, ed. Green CE, 3rd ed., p 711-716. Saunders, St. Louis, MO, 2006
- Szabo JR, Shadduck JA: Experimental encephalitozoonosis in neonatal dogs. Vet Pathol 24:99-108, 1987
- Maxie MG, Youssef S: Nervous system. In: Jubb, Kennedy, and Palmer's Pathology of Domestic Animals, ed. Maxie MG, 5th ed., vol. 1, pp. 433-435. Elsevier Limited, St. Louis, MO, 2007

Please send your comments/questions to the whole LCPG list by hitting "reply to all".

A final document containing this material with answers and a brief discussion will be posted on the C. L. Davis website by the end of the current month (http://www.cldavis.org/lcpg_english.html).