Clinical and Serologic Features of Besnoitiosis in Donkeys in the Northeastern United States and Attempted Treatment of Two Cases

Sally L. Ness, DVM*; Jeanine Peters-Kennedy, DVM, Diplomate ACVP, ACVD; Gereon Schaeres, DVM, PhD; Jitender P. Dubey, MVSc, PhD; Linda D. Mittel, MSPH, DVM; Hussni O. Mohammed, BVSc, MVSc, DPVM, MPVM, PhD; Dwight D. Bowman, MS, PhD; M. Julia B. Felippe, DVM, MS, PhD, Diplomate ACVIM; Susan E. Wade, BA, MA, PhD; Nicole Shultz, VMD; Thomas J. Divers, DVM, Diplomate ACVIM, ACVECC

Donkeys affected by besnoitiosis have characteristic clinical lesions and high antibody titers to Besnoitia bennetti. Knowledge of these features may assist clinicians in the identification and diagnosis of besnoitiosis in donkeys. Ponazuril® does not appear to be an effective treatment. Authors' addresses: Department of Clinical Sciences (Ness, Divers), Department of Biomedical Sciences (Peters-Kennedy), Department of Population Medicine and Diagnostic Sciences (Mittel, Mohammed), and the Department of Microbiology and Immunology (Bowman, Felippe, Wade), College of Veterinary Medicine, Cornell University, Ithaca, NY 14853; Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Institute of Epidemiology, Seestrasse 55, D-16868 Wusterhausen, Germany (Schaeres); United States Department of Agriculture, Agricultural Research Service, Animal Parasitic Diseases Laboratory, Animal and Natural Resources Institute, Beltsville, MD 20705 (Dubey); Benton, PA 17814 (Shultz); e-mail: san56@cornell.edu. *Corresponding author. © 2011 AAEP.

1. Introduction

Besnoitia species are coccidian parasites that infect multiple host species worldwide.1,2 Besnoitiosis has recently been diagnosed in numerous donkeys from several states on samples sent to Cornell University. We describe the clinical and serologic features of besnoitiosis in donkeys and investigate the utility of serology as a diagnostic screening test. The outcome of a treatment trial with ponazuril® in 2 naturally infected donkeys is reported.

2. Materials and Methods

Field Investigation

Donkeys from 3 northeastern herds were examined for external and nasopharyngeal endoscopic lesions...
consistent with besnoitiosis. IFAT and immuno-
blot for serum antibodies to *B. bennetti* were per-
formed on all individuals. Histopathology was
used to confirm infection.

**Clinical Treatment Trial**
Two naturally infected donkeys received a 37-day
course of therapy with ponazuril. Response to
treatment was assessed with weekly biopsies.

3. **Results**

**Field Investigation**
Besnoitiosis was confirmed in several donkeys.
External and endoscopic lesions were numerous in
infected individuals. Infected individuals had
significantly higher antibody titers to *B. bennetti*
than did noninfected individuals.

**Clinical Treatment Trial**
No clinical or histological response to treatment was
noted.

4. **Discussion**
Donkeys affected by besnoitiosis develop parasitic
cysts in the skin, mucous membranes, sclera, and
nasopharynx. Serology may be useful for identifying
infected individuals. Ponazuril does not appear
to be an effective treatment.

The authors thank Bayer Animal Health for pro-
viding Marquis® for the treatment trial.

**References and Footnote**
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“Marquis®, Bayer Animal Health, Shawnee Mission, KS
66201.”