Diagnostic, Pathological, and Radiographic Findings in Equine Bone Fragility Syndrome

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Horses affected with bone fragility syndrome (BFS) have a chronic, non-localizable lameness and progressive skeletal stiffness associated with systemic osteoporosis, scapular deformities, vertebral arthroses and synostoses, and pathologic fractures. Affected horses may have pulmonary silicosis. Scintigraphic visualization of multiple “hot-spots” in multiple bones is diagnostic. Authors’ addresses: J.D. Wheat Veterinary Orthopedic Research Laboratory (Murray, Stover) and the Veterinary Medical Teaching Hospital (Anderson), School of Veterinary Medicine, University of California, Davis, CA 95616; e-mail: almurray@ucdavis.edu. © 2008 AAEP.

1. Introduction
An equine systemic bone disorder has recently been described.1 Severely affected horses develop bowed scapulae, lordosis, and decreased cervical range of motion. The disease is progressive and results in pathologic fractures often necessitating euthanasia. Many affected horses are from areas endemic to pulmonary silicosis.

2. Materials and Methods
Medical records from 16 horses with scintigraphic evidence of multiple areas of increased radiopharmaceutical uptake (IRU) affecting axial and appendicular skeletal areas were reviewed for signalment, history, clinical, clinicopathologic, and diagnostic imaging findings. Nine horses with multiple IRUs were necropsied.

3. Results
Horses of varied age, breed, and sex from multiple regions of California had history of acute or chronic lameness in one or more limbs. Lameness was not localizable with regional blocks. Scintigraphy and radiographs showed multiple “hot-spots” or osteolytic lesions primarily in bones of the axial and proximal part of the appendicular skeleton. Affected bones were osteoporotic. Eight of the nine necropsied horses had concurrent pulmonary silicosis; nine had pulmonary fibrosis. Scintigraphy, but not clinicopathologic findings, was diagnostic.

4. Discussion
Affected horses lived in silicosis endemic and non-endemic regions. Scintigraphy is the most definitive diagnostic method. Other diagnostic tests are under study. An association between bone fragility syndrome (BFS) and pulmonary silicosis is still unknown.

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Reference

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