Caudal Lumbar Vertebral Fractures in California Quarter Horse and Thoroughbred Racehorses

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Lumbar vertebral fractures occur in horses with pre-existing pathology at the 5th and 6th lumbar vertebral junction (L5–L6) that likely predisposes horses to catastrophic fracture. Authors' addresses: J.D. Wheat Veterinary Orthopedic Research Laboratory (Collar, Zavodovskaya, Hitchens, Wisner, Stover); and Surgical and Radiological Sciences (Spriet), University of California, School of Veterinary Medicine, Davis, CA 95616; and Pathology, California Animal Health and Food Safety Laboratory, University of California Davis, School of Veterinary Medicine, San Bernardino, CA, 92408 (Uzal); e-mail: emcollar@ucdavis.edu. *Corresponding and presenting author. © 2014 AAEP.

1. Introduction
Repetitive overuse injuries often predispose to catastrophic injuries in racehorses. Lumbar vertebral fractures are not typically related to external trauma and may occur secondary to pre-existing abnormalities.

2. Materials and Methods
California racehorse postmortem reports and associated jockey injury reports were retrospectively reviewed. Vertebral specimens from 6 racehorses with lumbar vertebral fractures and 4 control racehorses euthanized for non-spinal fracture were assessed using visual, radiographic, computed tomography, and histologic examinations.

3. Results
Lumbar vertebral fractures occurred in 38 Quarter Horse (QH) and 29 Thoroughbred racehorses over a 22-year period, primarily involving L5 and/or L6 (87% of QHs, 48% of Thoroughbreds). Lumbar vertebral fractures were the third most common musculoskeletal cause of death in QHs and commonly involved a jockey injury. Quarter Horse specimens contained anatomic variations in the number of vertebrae, dorsal spinous processes, and transverse articulations. The examined lumbar vertebral fractures (5 QHs, 1 Thoroughbred) coursed obliquely (cranioventral to caudodorsal) across the adjacent L5-L6 vertebral endplates and intervertebral disk, although one case involved only one endplate. All cases had evidence of ventral vertebral body abnormalities consistent with pre-existing maladaptive pathology.

4. Discussion
Lumbar vertebral fractures had a common configuration and evidence of anomalous bone modeling.
and remodeling at the site of fracture. Pathology of the caudal lumbar vertebral region appears to precede catastrophic lumbar fracture and may be more common than recognized.

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