RADIOGRAPHIC DIAGNOSIS: THORACIC SPINAL FRACTURE RESULTING IN KYPHOSIS IN A HORSE

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Veterinary Radiology & Ultrasound, 41:44–45, 2000

Signalment

A 20-month-old Tennessee Walking Horse mare, unbroken and housed in pasture.

History

The mare was admitted to Mississippi State University, College of Veterinary Medicine for evaluation of a back injury of 19 months duration. The owner reported that she was traumatized while out on pasture at one month of age. Bruising and multiple abrasions were observed on her back at the time of the trauma. A firm swelling developed on her back two to three weeks later.

Physical Examination

There was dorsal deviation of the thoracolumbar spine approximately 30 centimeters above its normal position (Fig. 1). The mare stood with the hind limbs shifted slightly forward, exhibited mild hind limb ataxia, and was thin. She was tachypneic with pronounced lung sounds.

Radiographic Findings

Survey radiographs of the thoracic and lumbar spine were obtained (Fig. 2). Compression fractures of vertebral bodies T14 through T18 were present resulting in severe kyphosis of the caudal thoracic and lumbar regions of the spine.

Outcome

The mare was euthanized due to the severity of the lesions and poor prognosis for becoming a sound riding or breeding animal. Necropsy results and post-mortem radiographs (Fig. 3) supported the diagnosis of severe kyphosis secondary to vertebral fractures. The dorsal diaphragmatic portions of the lung were fibrotic and dorsally displaced.

FIG. 1. Photograph of a 20-month-old Tennessee Walking Horse mare that suffered trauma as a one-month old filly.

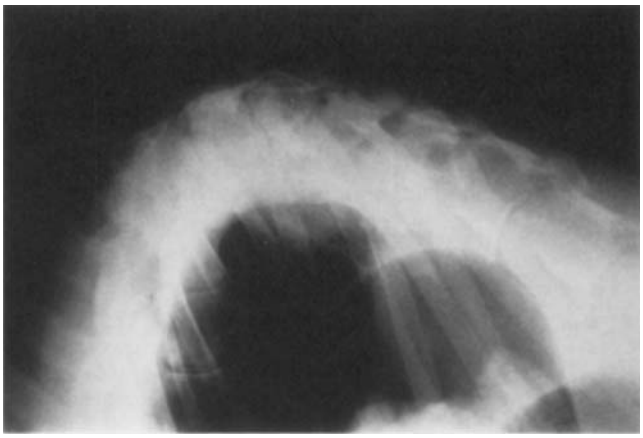

FIG. 2. Lateral radiographic view of the thoracolumbar spine of a 20-month-old Tennessee Walking Horse. There is a marked abnormal angulation and spacing of vertebral bodies.

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Received October 6, 1998; accepted for publication April 13, 1999.

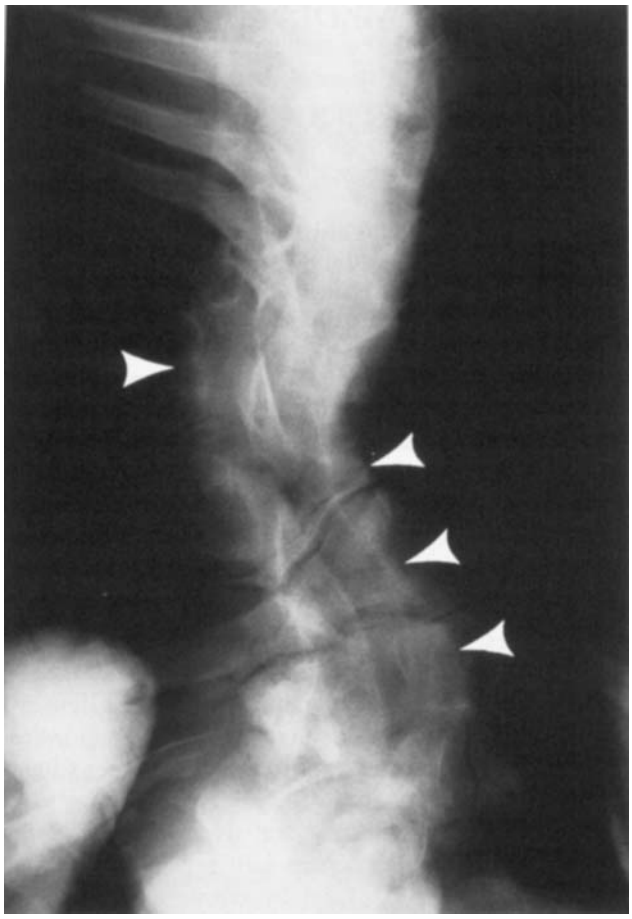

FIG. 3. VD view of the thoracolumbar spine after necropsy (some ribs have been removed). Arrows point to malformed vertebrae.

Discussion

Differential diagnoses for spinal deformities include congenital and acquired vertebral malformations. Congenital scoliosis and lordosis are rare in foals and are usually seen with other in-utero postural deformities. Congenital kyphosis has only been documented in conjunction with scoliosis.[1]

Acquired kyphosis may be the result of traumatic injury or, rarely, the result of chronic hind limb pain. Fractures of the body of the thoracic and lumbar vertebrae in horses most often occur at T1–T3, T11–T13, and L1–L3 and are usually due to a somersaulting type accident.[2] Compression fractures with ventral wedging of the vertebral body and fracture luxations are relatively common in the foal.[3]

Fracture location and configuration are related to the characteristics of load to which the spine has been subjected. Compression fractures are the result of force applied along the axis of the spine while the spine is in flexion. If rotational forces are also present a fracture-luxation will occur.[4]

Displaced fractures may sever the spinal cord and cause severe hemorrhage, resulting in rapid paraplegia of the hind legs. Fracture displacement may occur at the time of injury or after the horse lies down. Depending on the location of the lesion, anal tone and rear limb withdrawal reflexes may be preserved. Ataxia and other neurological deficits also occur with non-displaced fractures as a result of compression of the spinal cord. The mare in this case demonstrated minimal neurological deficits indicating the minor nature of the spinal cord injury.

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