

# Clinical Commentary

## Discovertebral pathology in horses

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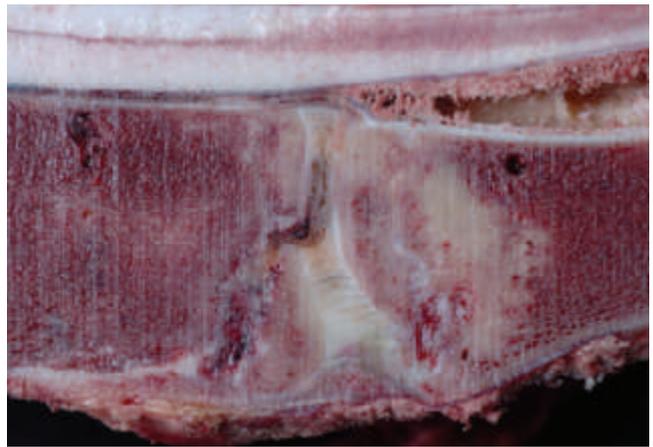
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The paper by Alward *et al.* (2007) in this issue discusses an unusual case of vertebral pathology involving the intervertebral symphysis.

Several types of joints connect adjacent vertebrae together. The spinous processes are linked with interspinous ligaments, which together form a syndesmosis. At the dorsal aspect of the vertebral canal, the space between the vertebral arches is closed by the flavum ligament. A true synovial joint, with synovial fluid and membrane as well as an articular capsule, extends between the articular processes that are covered with hyaline articular cartilage. The vertebral bodies are linked by a symphysis consisting of a fibrous intervertebral disc (IVD) with a dense peripheral part that inserts on a vertebral fossa and onto the following vertebral head. This union is reinforced by two ventral and dorsal longitudinal ligaments connecting the corresponding surfaces of the vertebral bodies.

Several pathological entities involving the spinous processes and their syndesmosis, the articular process and their synovial intervertebral joints, as well as the vertebral bodies have been described previously (Jeffcott 1980; Denoix and Dyson 2003). The case presented in this issue demonstrates a rare condition involving a thoracic intervertebral symphysis. Several conditions and aspects of the vertebral body axis in horses are discussed here.

Spondylus is an old name of Greek origin meaning



**Fig 2:** Old traumatic discospondylitis of the lumbosacral joint in a 4-year-old French trotter.

vertebra. In medical language, it is often used to describe lesions involving the vertebral body.

Discospondylitis (or spondylodiscitis) is an inflammatory condition involving the vertebral bodies adjacent to the symphysis, and including the IVD. It is often a focal disease process seen in a single intervertebral joint (**Fig 1**). The most likely cause is a septic process, although traumatic discospondylitis has been documented in clinical cases and



**Fig 1:** Extensive discospondylitis between T7 and T8 in an 8-year-old Connemara female used for 3-day eventing.



**Fig 3:** Skeleton of a 12-year-old Thoroughbred. Extensive ventrolateral spondylosis between T9 and T15.



**Fig 4:** Ventrolateral aspect of the lumbar spine. Bilateral spondylosis between L4 and L5.

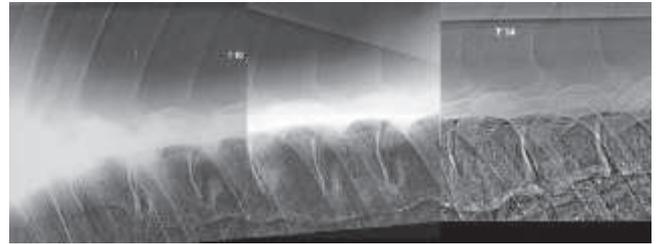
at *post mortem* examination (**Fig 2**). Spondylitis involves the vertebral body only, without lesions of the IVD.

Spondylosis (deformans) is much more common. This is a degenerative condition affecting the vertebral body axis, and usually resulting in extensive osteophytes, often seen in several adjacent vertebral bodies. The most common location is the vertebral segment between the 10th and 14th thoracic vertebrae. Probably because of regional biomechanical features, these osteophytes are located at the ventrolateral aspect of the vertebral bodies in the thoracic area (**Fig 3**); they are more commonly located laterally in the lumbar area (**Fig 4**). On radiographs there is little or no change of the IVD spaces (**Fig 5**), although there has been a lack of documented *post mortem* studies to demonstrate the absence of disc lesions. The pathogenesis of osteophyte formation involves mechanical stress at the attachment of the most peripheral fibres of the IVD and the ventral longitudinal ligament (enthesophytes). As a result of the complete or partial ankylosis of the vertebrae in the affected spinal segment, there are more biomechanical stresses on the adjacent segments which induce more active bone remodelling, as demonstrated by nuclear scintigraphy (**Fig 6**).

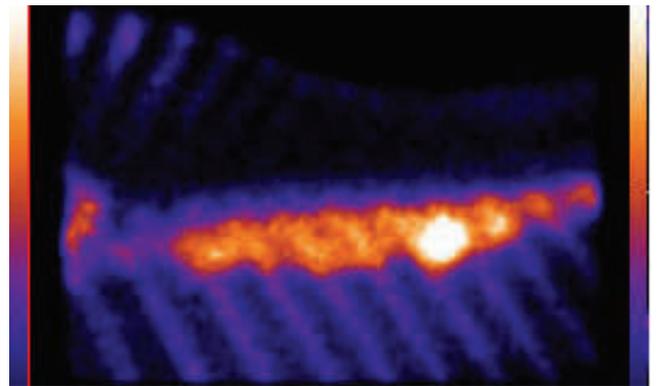
Spondylolisthesis refers to displacement of one vertebra on another (Resnik and Niwayama 1988) (listhesis means 'sliding'). Congenital subluxation has been identified with transrectal ultrasonographic examination at the lumbosacral junction in adult horses (Denoix *et al.* 2005) and in the atlantoaxial joint in foals (Witte *et al.* 2005). Traumatic subluxation is a rare condition that can be seen in the cervical spine and thoracolumbar spine. Malalignment of the vertebral bodies and other vertebral abnormalities have been considered in a previous issue (Denoix 2005).

Recently, intervertebral disc lesions including fissuration, calcification and herniation have been described ultrasonographically and at *post mortem* examination at the lumbosacral junction (Denoix *et al.* 2005). Similar lesions can be seen in the cervical spine.

Clinical manifestations vary according to the nature, location and extension of the process. The vertebral stiffness and amyotrophy (muscle atrophy) over the affected area appear to be directly correlated to the degree of pain.



**Fig 5:** Radiographic examination of the thoracic spine in a 12-year-old Grand Prix showjumper female. Extensive spondylosis between T8 and T15. The vertebrae between T9 and T14 are completely ankylosed.



**Fig 6:** Nuclear scintigraphic scan of the thoracic spine in the same patient as Figure 5. There is diffuse increased radiopharmaceutical uptake over the segment between T8 and T15 with marked focal uptake at both extremities.

## References

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