An Approach to the Sport Horse with Potential Thoracolumbar, Lumbosacral or Sacroiliac Joint Region Pain

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A horse which is presented for investigation of a rider’s complaint of one or more of the following: cold-back behaviour; difficulty in performing lateral movements; unwillingness to perform flying changes; stiffness; naughtiness; reluctance to work on the bit; lack of hindlimb impulsion or loss of action; uncharacteristic refusing; stopping or resisting; head tossing, or leaning on the rider’s hand; bolting, bucking or rearing should be suspected of having back-related pain either alone or in conjunction with other problems.

A comprehensive clinical examination of the entire horse should be performed, with particular reference to the head, neck, back and pelvic regions, conformation, fitting of the tack and ability of the rider. At rest the thoracolumbar and pelvic regions should be assessed carefully, firstly to determine if the dorsal spinous processes are in normal alignment and if the tubera sacrale are level. The presence of unilateral or bilateral muscle atrophy in the thoracolumbar or pelvic regions should be assessed. In many horses with chronic back pain there is disuse atrophy of the epaxial muscles leading to abnormal prominence of the summits of the lumbar dorsal spinous processes (Fig. 1). The epaxial muscles should be firmly stroked to determine if there is either focal pain or muscle spasm. Firm pressure should be applied over the tubera sacrale. Repeatable exaggerated sinking on the hindlimbs and induction of spasm in the epaxial muscles of the lumbar region may reflect sacroiliac region pain or lumbosacral pain. The horse should be stimulated to flex and extend the thoracolumbar spine in the sagittal plane and to the left and the right. The response must be assessed in light of the horse’s temperament and type. A normal horse should show a good range of motion and repeated flexion and extension should not be resented or induce muscle spasm. Limited flexion, muscle tension, kicking out, laying the ears back, baring of the teeth or tooth grinding are potential signs of pain.

Primary back pain may cause restricted hindlimb impulsion, but is usually not associated with unilateral forelimb or hindlimb lameness unless there is a concurrent primary cause of lameness. Forelimb or hindlimb flexion tests do not usually induce or exacerbate lameness unless there is primary forelimb or hindlimb lameness, although a horses with sacroiliac region pain may be reluctant to stand on one hindlimb with the other hindlimb picked up for prolonged periods. When examined moving in hand a horse with primary back pain may have a restricted stride length. Careful observation of the horse on the lunge may reveal lack of flexibility of the thoracolumbar region, with exaggerated contractions of the epaxial muscles. The horse may show poor ability to bend around the circle and restricted hindlimb impulsion and engagement. It is crucial to see the horse
ridden to appreciate all the clinical manifestations of the problem, preferably by the normal rider. Tack, rider or training related problems must be eliminated. Saddle fit is crucial; a poorly fitted saddle can produce marked abnormalities of gait. Ridden exercise should include all the movements of which the horse is capable and if the horse is a jumper ideally it should be seen jumping. Particular attention should be paid to the flexibility of the thoracolumbar region, hindlimb impulsion and the way in which the horse copes with being ridden in small circles and figures of eight, and with downwards transitions from canter to trot & trot to walk. A horse with primary thoracolumbar pain may feel very jarry and give the rider back discomfort; the rider may be pushed upwards out of the saddle in trot. In contrast a horse with sacroiliac or lumbosacral region pain may throw the rider forwards. Horses with sacroiliac region pain often find canter more difficult than trot and find lateral movements particularly difficult. Some horses with sacroiliac region pain will repeatedly perform small bucks and kick out with one or both hindlimbs.

Fig. 1. A 7-year-old Thoroughbred cross Warmblood horse with very poor development of the epaxial muscles resulting in prominence of the tubera sacrale and the summits of the lumbar dorsal spinous processes. Note the rather flat pattern of the dorsal musculature from the withers caudally. The horse had progressively declined in performance over the last 4 months. The pattern of muscle atrophy is not specific for the type or location of injury. This horse had chronic sacroiliac region pain.

The investigation will usually focus on the possibility of thoracolumbar, lumbosacral or sacroiliac region pain and/or bilateral hindlimb and/or forelimb lameness or a combination of one or more of these. I recommend targeted scintigraphic examination based on the results of the initial clinical appraisal e.g., thoracolumbar & pelvic regions.
and hindlimbs. Scintigraphy, although useful (Figs. 2 and 3), can have false negative results so this must be combined with radiography and both transcutaneous ultrasonography and ultrasonography per rectum and local analgesic techniques. Radiography should include not only the thoracolumbar dorsal spinous processes, but also the facet joints and vertebral bodies.

Fig. 2a. Lateral oblique scintigraphic image of the thoracolumbar region of a 9-year-old Warmblood showjumper with a history of loss of scope and difficulties in making distances in combination fences. Cranial is to the left. The kidney has been masked out. There is moderate increased radiopharmaceutical uptake (IRU) in the summits of the dorsal spinous processes of the twelfth to sixteenth thoracic vertebrae (T12 – 16) and focal moderate IRU in the facet joints between the seventeenth and eighteenth thoracic vertebrae (T 17 and 18). Radiographic examination confirmed the presence of impinging dorsal spinous processes from T12 – 17 and osteoarthritis of the left and right T17/18 facet joints. Infiltration of local anaesthetic solution around both the impinging dorsal spinous processes and the facet joint of T17/18 produced profound clinical improvement.

Fig. 2b. Lateral oblique scintigraphic image of the thoracic vertebrae of a 12-year-old advanced level event horse with a history of loss of performance. Cranial is to the left. The caudal aspect of the scapula and the summits of the cranial thoracic dorsal spinous processes have been masked out. There is focal moderate increased radiopharmaceutical uptake on the ventral aspect of the twelfth and thirteenth thoracic vertebrae. Radiographic examination confirmed the presence of spondylosis.

Problems to rule in or out include:

- Impinging or over-riding of the thoracolumbar dorsal spinous processes (Fig. 4)
- Osteoarthritis of the facet joints, especially in the caudal thoracic region (Fig. 5)
- Spondylosis (Fig. 6)
Fig. 3. Dorsal scintigraphic image of the pelvis of a 11-year-old Warmblood dressage horse working at Advance Medium level, with a history of difficulties performing lateral work. Cranial is to the top. There is marked asymmetry of radiopharmaceutical uptake in the region of the tubera sacrale and sacroiliac joints. The horse’s gait was markedly improved by infiltration of local anaesthetic solution around the sacroiliac joints.

- Supraspinous ligament injury
- Dorsal sacroiliac ligament injury
- Epaxial muscle strain
- Sacroiliac joint region pain
- Lumbosacral joint osteoarthritis (Fig.7)
- Recurrent exertional rhabdomyolysis
- Aortoiliacofemoral thrombosis

Fig. 4. Lateral radiographic view of the eleventh thoracic to first lumbar dorsal spinous processes of a 7-year-old show jumper which had started refusing jumps. Cranial is to the left. The dorsal spinous processes of the thirteenth to eighteenth thoracic vertebrae are very close and overriding.
Fig. 5. Lateral oblique radiographic view of the left facet joints in the caudal thoracic region of a 7-year-old Warmblood dressage horse, which was reluctant to work on the bit. Cranial is to the left. There is marked enlargement of the facet joint between the seventeenth and eighteenth thoracic vertebrae, with loss of joint space and sclerosis of the subchondral bone consistent with advanced osteoarthritis. Periarticular injection of local anaesthetic solution resulted in marked improvement in performance.

The results of diagnostic imaging must be combined with local analgesic techniques to determine the significance or otherwise of what has been found, e.g., infiltration of local anaesthetic solution around impinging dorsal spinous processes. Frequently there is more than one source of pain contributing to poor performance. Interpretation is not always straightforward, particularly in a horse with resistance behaviour, or one that bolts, bucks or rears. Safety issues must also be considered.

If the horse shows concurrent lameness, or poor hindlimb action it may not be possible to determine if there is also an underlying back problem without first investigating the hindlimbs using local analgesic techniques. A horse with bilateral hindlimb lameness due to proximal suspensory desmitis or osteoarthritis of the distal hock joints may hold its back stiffly and show poor hindlimb impulsion and engagement, mimicking a primary thoracolumbar region problem. It may also cause behavioural problems when ridden, such as bucking, rearing or bolting. Simultaneous blocking of both hindlimbs is often the most effective.

Fig. 6. Lateral radiographic view of the tenth to sixteenth thoracic vertebrae of a 10-year-old Thoroughbred advanced event horse with reduced quality of performance and uncharacteristic refusals when jumping cross country fences. There is spondylosis involving the ventral aspect of the eleventh to fourteenth thoracic vertebrae.
In a series of 154 horses with chronic primary thoracolumbar, lumbosacral or sacroiliac joint region pain examined at the Animal Health Trust between January 2001 and December 2004, 64% had a primary cause of back pain alone, whereas 36% had a primary lesion of the back with a concurrent primary cause of forelimb or hindlimb lameness. Fifty-four per cent of horses had significant impinging or over-riding of the dorsal spinous processes, 41% had sacroiliac joint region pain and 28% had osteoarthritis of the caudal thoracic facet joints i.e., a significant number of horses had more than one back problem. This highlights the need for a very comprehensive evaluation of the whole horse.

It is important to recognise that the presence of radiographic or ultrasonographic abnormalities does not necessarily imply their clinical significance. This depends in part on the athletic demands place on the horse, the pain threshold of the horse and its attitude to working despite low grade pain. In some horses it seems likely that the development of an unrelated lameness may result in the clinical manifestation of back pain due to pre-existing lesions that had previously been clinically silent.

**Further reading**


