Back Problems in Horses (21-Nov-2003)

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Abstract
Equine back problems are not common. However, they do present the clinician with challenges in the diagnosis. Careful examination is always a necessity. Thermography is an invaluable tool for lesion localization in these cases. Radiography and ultrasonography are the best methods for characterization of the injury.

1. Introduction
The equine back is said to include the axial skeleton from the withers to the sacroiliac joint. Equine back problems are considered a major cause of alterations of gait and performance. Unfortunately, the characterization, localization, and identification of the painful area can be problematic. The incidence of back problems in general practice has been reported as 0.9% [1]. The clinical signs are said to be highly variable. The purposes of this study were to characterize the occurrence of lameness in a practice, to characterize clinical signs, to describe treatments, and to describe outcomes of the cases.

2. Materials and Methods
Medical records from January 1, 1997 to December 31, 2002 were reviewed. Those horses that were presented to the University of Minnesota Veterinary Teaching Hospital for back problems were identified. In addition, we examined the records of horses that were presented for other problems but diagnosed with a primary back problem. Specifically, we identified the age, breed, presenting complaint, way in which the diagnosis was made, final diagnosis, and treatment. Final resolution of the case was determined whenever possible.

To obtain ultrasonographic images of the sacroiliac region, the skin overlying the tuber sacrale was soaked with isopropyl alcohol, and the area was coated with acoustic gel to minimize air between the transducer and the skin. Ultrasonography was performed under sedation cutaneously and rectally. Longitudinal and cross sectional planes were employed. Linear array transducers (7.5 - 10 MHz) were used to obtain the best image for each area. The sacroiliac area was first viewed percutaneously in transverse section using a 7.5-MHz linear array transducer. The transducer was placed on the midline at the level of the tuber sacrale. The tuber sacrale is seen as a hyperechoic convex line on either side of the midline. To see the short and long dorsal sacroiliac ligaments, the transducer is centered over each tuber sacrale. The short dorsal sacroiliac ligament is seen as a crescent shaped echogenic structure overlying the tuber sacrale. The long dorsal ligament runs just medial and distal to the short dorsal ligament. The sacroiliac joint was viewed per rectum using a 10-MHz linear array transducer. The transducer was placed on the midline at the level of the tuber sacrale. The tuber sacrale is seen as a hyperechoic convex line on either side of the midline. To see the short and long dorsal sacroiliac ligaments, the transducer is centered over each tuber sacrale. The short dorsal sacroiliac ligament is seen as a crescent shaped echogenic structure overlying the tuber sacrale. The long dorsal ligament runs just medial and distal to the short dorsal ligament. The sacroiliac joint was viewed per rectum using a 10-MHz linear array transducer. The transducer was placed on the midline over the ventral aspect of the sacrum to obtain a longitudinal view; then, the width of the joint can be measured from the transverse view.

3. Results
Evaluation of the records revealed 5,352 horses presented for lameness problems between January 1, 1997 and December 31, 2002. One hundred and twenty-four horses were presented to the University of Minnesota-Veterinary Teaching Hospital (UMN VTH) with the complaint of back pain. An additional 16 horses during the same period were presented for other problems but diagnosed with a back problem. The 140 horses included 71 Thoroughbreds, 22 Quarter Horses, 17 Warmbloods, 12 Arabs, 4 Morgans, 4 Paints, 4 Appaloosas, 4 Paso Finos, and 2 Saddlebreds. Eighty-five of the horses were geldings, 14 were stallions, and 41 were mares or fillies.

Of the 124 horses presented for back problems, 102 (82%) were diagnosed as having back problems. The types of back problems were highly variable. Ten horses had kissing spinous processes, 10 horses had dorsal spinous ligament injuries, 8
horses had muscle pain, 6 had withers injuries, 66 had a sacroiliac problem, 1 had polysaccharide storage myopathy, and 1 had saddle fit problems. The other 22 horses were presented because the owner perceived back pain as characterized by a marked response to palpation or marked stiffness. These horses were diagnosed with lower hind limb lameness (8), hock lameness (7), stifle lameness (6), and coxofemoral problem (1).

Of the 16 horses presented for various problems, 7 had right hind lameness, 4 had right fore lameness, 3 had left hind lameness, 1 had hock problems, and 1 had stifle problems. Each of these horses was diagnosed with back pathology six with muscle strains of the back, five with sacroiliac problems, three with kissing spinous processes, and two with ligamentous injuries of the dorsal spinous ligament. The occurrence of true back problems in our lameness caseload is 2.2% (118 of 5,352 cases), whereas the occurrence of back pain as the presenting complaint is 2.3%.

The diagnosis of back problems was made after a routine lameness examination, palpation, and manipulation. Thermography was used to evaluate the horses in 135 of 140 cases. Thermography indicated the region of the problem in 133 of 135 cases (98.5%). The diagnosis in each case was confirmed using other imaging modalities including radiography, ultrasonography, and scintigraphy. Radiography was used in 46 cases; radiography was most useful in identifying overriding dorsal vertebral spinous processes (13 horses) and fractures of the withers (6 horses). Ultrasonography was most useful in identifying sacroiliac injuries (71 horses), dorsal spinous ligament injuries (12 horses), and muscle injuries (14 horses). Scintigraphy helped confirm one sacroiliac problem and one lumbar spinous process injury.

A variety of treatments were recommended and used in these horses. The treatments included systemic anti-inflammatories, local anti-inflammatory injection, acupuncture, chiropractic techniques, massage therapy, electro-stimulation, magnetic therapy, therapeutic ultrasound, extracorporeal shockwave, and training (exercise) management. The only consistent therapies were systemic anti-inflammatories and exercise management.

Follow-up information was available on 112 of 124 horses. Of the 112 horses with follow-up information available, 101 returned to work (90%). However, 15 of those horses did not return to their previous level and were retired or used for other activities. Of the 86 horses that returned to their previous level of work, 52 have not needed further therapy; however, the remaining 34 horses continue to receive some therapy. The need for therapy is based on the owner's and trainer's impression of the horse's behavior.

### 4. Discussion

The occurrence of back problems in our lameness caseload is about 2.2%, which makes it an uncommon problem. The distribution of cases is interesting in that Thoroughbreds and Paso Finos are over-represented and Saddlebreds are under-represented with regards to our hospital population. The other over-representation is with stallions; 10% of the horses with back problems were stallions. Further analysis will be necessary to determine if these anomalies are conformational, occupational, or temperamental in origin.

The most common back problems we encountered were injuries of the sacroiliac joint (71 cases) [2]. The most common clinical signs associated with this problem were a shortness of gait, lack of lateral flexion at the lumbosacral junction, particularly to the affected side, and thermographic finding of a relative cold spot at the level of the tuber sacrale. The diagnosis was confirmed by ultrasonography with the most common finding of changes in one or both of the dorsal sacroiliac ligaments (Fig. 1 and Fig. 2).

![Figure 1](https://www.ivis.org)

**Figure 1.** Typical transverse section of the short dorsal. Sacroiliac ligament is seen as a crescent shaped structure overlying the tuber sacrale. The most common change seen is thinning of the ligament, and the second most common finding is focal hypoechogenic areas within the ligament. - To view this image in full size go to the IVIS website at www.ivis.org.

![Figure 2](https://www.ivis.org)

**Figure 2.** Transverse section of the short dorsal showing enlargement with focal hypoechogenicity as well as focal hypoechogenicity on the long dorsal sacroiliac ligament. - To view this image in full size go to the IVIS website at www.ivis.org.

Injury of the vertebral spinous processes and their associated ligaments was the next most common problem (25 cases) [3]. The most common problem associated with these was a change in attitude of the horse, e.g., the horse would begin to "buck" or become "girthy," or in the case of jumping horses, the horse would begin to refuse fences. Clinically these horses would usually not show lameness, but palpation of the back would reveal an area of "exquisite" pain, seen as marked ventroflexion of the back when the painful spot is encountered. The other variation is that the horse would become rigid when palpated and
if forced to dorsiflex or flex laterally, would become highly agitated. Thermography was useful in confirming the sight of inflammation. Confirmation of these conditions required radiology, ultrasonography, or frequently, a combination of both. Radiography provides excellent anatomical information with regards to proximity of the dorsal spinous processes. Ultrasonography showed damage to the ligaments, was more accurate in assessing the bony edges of the spinous processes, and allowed the operator to visualize scarring between two spinous processes.

Fourteen horses were diagnosed with muscle strains of the back [4]. Clinically, they presented much like the horses with dorsal spinous process injuries. The main difference in the exam was that thermography indicated an abnormal pattern over the muscle rather than over the midline. Ultrasonography was the most important tool for confirming these lesions. Thermography indicated the area to examine, and ultrasonography would identify changes in the muscle tissue. There were an equal number of increased echogenicity lesions and areas of fluid accumulation (multiple focal hypoechoic areas). Six of these cases could not be confirmed ultrasonographically but were presumed to be muscle pain based on the thermographic findings in conjunction with the other clinical findings.

In the remaining eight horses, six had withers injuries that ranged from fractures of the processes to local osteolysis. Radiography was the most important diagnostic tool. One other case was diagnosed as polysaccharide storage myopathy using muscle biopsy, and one horse had a very ill-fitting saddle with marked bridging.

Treatment is usually multi-factorial, and no one treatment can be expected to cure these problems. Treatment needs to be based on careful examination of intangibles including the horse's teeth, bitting, and saddle fit. Secondly, exercise therapy is a must. Exercise is designed to achieve two goals: (1) to stretch the top line and (2) to improve the strength and flexibility. Another hallmark of treatment is pain control, because the horse needs to have medication or injections to ease the discomfort. Acupuncture and chiropractic manipulations can be helpful. In addition, other therapies such as massage, therapeutic ultrasound, electrical stimulation, and magnetic therapy seem to have the best effect when used to relax the horse before exercise. We found teaching the owner to perform some of these as a routine before riding had psychological benefits along with physical ones.

The author's preferred treatment for sacroiliac injuries is two-fold. The first phase is to inject the sacroiliac joint region with 160 mg methylprednisolone acetate and 8 mg triamcinolone. The purpose of the injection is strictly for its anti-inflammatory and pain relieving effects. This treatment is followed by controlled exercise. Exercise consists of a thorough warm-up, which, depending on the owner/rider, may include physical massage of the lumbosacral area or the application of therapeutic ultrasound before riding. The exercise begins with the horse in a long and low frame at the walk. Exercise is kept at the walk, and lateral exercises for the horse to step under and cross over its hind legs are used. Walking over ground poles and cavelletts are also used for the purpose of stretching the top line and flexing the abdominal musculature. When the horse begins stepping under ("over-tracking"), the intensity of the exercise is increased. In most horses, this means trotting; however, the trot induces pain in some horses, and these riders are encouraged to exercise at the canter, then return to the trot.

We have found this combination of steroids and exercise to give us the most consistent improvement.

Spinous process injuries are treated in a similar manner. The steroid injection is made over the injured area, but the same type exercise program is used. In addition, for these cases, very careful attention to saddle fit is assessed. Also, over the past 2 yr, we have used radial extracorporeal shockwave over the injury as part of the therapeutic regimen.

References


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