Shaker's Bad Back

BY

Patrick Hatch

Mississippi State University

College of Veterinary Medicine

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Advisor: Cathleen Mochal, DVM

Co-Advisor: Jody Wagner, DVM

Introduction

Back pain is a common cause of poor performance in the equine athlete. Dorsal spinous process impingement (DSP) or overriding dorsal spinous processes (ORDSP), otherwise known as “kissing spines” is reported to be the most common cause of back pain in horses. Recent studies have shown that 46% of horses with radiologic evidence of DSP pathology had clinical signs of back pain.[7] Clinical signs of DSP impingement are vague but can include reluctance to move in a certain direction, altered head and neck carriage, unwillingness to bend or collect, and pain associated with palpation along the spinal column. Other horses may exhibit pain when being saddled or mounted by the rider. [4] Diagnosis of DSP is performed via a thorough history, physical examination, lameness evaluation, and diagnostic modalities such as radiographs and ultrasound. Treatment options vary based on the severity of disease and the individual horse’s level of performance issues. Medical management and surgical intervention are used to best treat each case.

Signalment, History, and Presentation

An approximately 10-year-old quarter horse gelding, presented to Coosa Valley Equine Center on 8/4/21 for completion of an interspinous ligament desmotomy. A performance horse, mainly competing in barrel racing, was diagnosed on 9/8/20 with multiple sites of dorsal spinous process impingement in his thoracic spine. On presentation the gelding was bright and alert, general physical examination was within normal limits, with an adequate body condition (5/9). The original presenting complaint, approximately one year prior, included stiffness when turning to the right and turning the first barrel.

Pathophysiology

The exact cause of DSP impingement in horses is poorly understood. It has been hypothesized that the mid thoracic lumbar spine has relatively poor mechanical support.[2] Repeat loading and unloading of the spine via gravitational forces and the rider's weight facilitates lordosis of the thoracolumbar spine and approximation of the DSP.[2] Historically, poor conformation, poor saddle fit, and poor conditioning have all been attributed to the formation of DSP impingement.[4] The most common sites of DSP lesions are between T10-T18, however lesions are also described at the level of L1-L6.[3]

Diagnostic Approach

Diagnosis of back pain in the horse requires a thorough history, physical examination, and lameness evaluation. taking care to appreciate any muscle atrophy along the spine and associated epaxial musculature. Epaxial muscle atrophy in a horse with suspected back pain is related to reduced movement in the painful areas.[3] Care should be taken to not over interpret generalized epaxial muscle atrophy, as horses that are in poor condition may have underdeveloped epaxial musculature unrelated to back pain. Evaluation for hair loss along the seat is suggestive of a poor or asymmetrically fitting saddle, which is also described as a cause of back pain. [3]

Further examination should include palpation of the thoracolumbar region, including the superficial structures and epaxial muscles. Lateral, ventral, and dorso-flexion of the thoraco-lumbar spine should also be performed. Horses with clinically significant DSP lesions typically have areas of localized muscle tension and react to pressure applied to the area. Care

should be taken to desensitize the horse to the presence of the clinician so that the true reaction to pain can be interpreted.[4] A very thorough general lameness examination should also be performed to rule out any forelimb or hindlimb lameness. This can contribute to perceived back pain as the horse begins to protect itself. [7]

Diagnostic modalities such as radiographs, ultrasound, and nuclear scintigraphy can be utilized to further localize the area of interest in the thoracolumbar spine. Radiographic findings of DSP impingement include: narrowing of the interspinous space, bony remodeling or sclerosis at the margins of the DSP, and physical impingement or overriding of adjacent DSP.[7] Ultrasonographic findings can range from visualization of bony lysis at the effected site, to a secondary supraspinous ligament desmitis.[7]

The initial lameness evaluation did not reveal any obvious signs of lameness. No effusion or pain was appreciated on palpation of the fore and hind limbs. No apparent lameness was appreciated at a trot in either direction. Fore- and hindlimb flexions were also negative for lameness. When the gelding was then tacked up, and observed at a trot, under saddle. No obvious lameness was apparent under saddle, but he did tense up when asked to turn to the right. These findings raised suspicion that the issues were arising from the axial skeleton. Therefore, further diagnostics were indicated. Cervical and thoracic spinal radiographs were taken. Cervical radiographs were within normal limits. Radiographic findings of the thoracic vertebrae included narrowing of the spaces between T 10-11, T11-12, T12-13, T13-14, and T14-15, with concurrent increase opacity at the margins of the DSP. The most severely affected space was T13-14. The radiographic changes, when associated with clinical signs were diagnostic for impinging dorsal spinous processes.

Treatment and management

DSP in horses can be either medically managed, or surgically corrected. Medical management typically involves a combination of systemic and local anti-inflammatory agents as well as a rehabilitation program. [4] It is important to relay to the owner that the need for repeat treatments every 6-12 months is highly likely. Approximately 89% of horses medically managed with local injections will have short term improvement to back pain. 56% of these horses will have return of back pain within 75 days. [1] If horses fail to respond to medical management, surgical therapy should be considered. There are two main surgical options for horses with ORDSP. The first option involves performing an ostectomy of the affected DSP. Total and sub-total DSP resections have been described in the literature. Of the two, a sub-total cranial wedge ostectomy has become more the more preferred technique, with 78% of horses having resolution of clinical signs and return to work.[5] Complications associated with DSP wedge ostectomy include the creation of defects along the DSP, and incisional dehiscence. A second surgical technique, described by Coomer and colleagues, is the interspinous ligament desmotomy (ISLD). This procedure involves transection of the interspinous ligament and associated nociceptors between each impinging DSP. It is typically performed standing, under heavy sedation, and with supplies readily available to the veterinarian. ISLD has been reported to resolve clinical signs in 95% of horses with kissing spine.[1] Complications associated with the ISLD are less than with the previously described wedge ostectomy.

Initial therapy included 2 weeks of stall rest. He was prescribed prednisolone and methocarbamol to aid in inflammation reduction and muscle relaxation. The gelding returned on 9/22/20 for local infiltration around the affected DSPs. He was sedated with 4mg of

Detomidine and 4 mg of butorphanol intravenously. The area from the withers to the lumbar region was aseptically prepped. 8 1.5 inch 20G needles were preplaced approximately 1 inch abaxial to midline into the adjacent epaxial muscles surrounding the affected spinous processes. The areas were infiltrated with a combination of sarraceniacea, carbocaine, depo-medrol, and betamethasone.

The patient managed with periodic back injections every 3-6months for the next year. He remained comfortable under saddle and performed well. Following the first year of therapy, he began to have repeat issues as previously described. The decision was made to pursue surgical therapy due to inadequate response to the current medical management. The procedure was performed standing, under heavy sedation as described by Coomer et. al.. Pre-operative radiographs were taken of the thoracic spine to determine the current extent of pathology present at each interspinous space. Skin staples were placed at the level of each interspinous space to be transected, and additional films were taken to confirm the correct surgical location. Spinal needles were then placed into each interspinous space, and a final radiograph was taken to confirm placement. A 1cm skin incision was made approximately 3cm to the left of midline at each site. Mayo scissors were used to bluntly penetrate the epaxial facia. The mayo scissors were then directed axially to make contact with the preplaced spinal needle. The spinal needle was then removed, and the inter-spinous ligament was bluntly transected, until a clean widow between adjacent DSPs was formed. Skin closure was routine at each site. Following the procedure, the gelding was given a dose of flunixin meglumine (Banamine), a dose of ceftiofur crystalline free acid (Excede), and a tetanus toxoid booster. He was hospitalized overnight and discharged the following day.

Case Outcome

Once discharged, a rehabilitation program was started. He was placed on strict stall rest for the first 10 days post-op. Following the 10-day recovery period, stall rest was continued, with 5-10 minutes of hand walking daily. He was also placed on fibrinocoxib (Equioxx) for this 30-day time frame to aid in the reduction of inflammation. After the first 30 days, turned out in a small paddock for 2-3 hours daily. He was also lunged at the trot in a collection system to facilitate spinal dorso-flexion. The length of time spent lunging was increased by 5-minute increments weekly, until day 60. Normal turnout, and started back to work under saddle primarily at the trot, in a collected frame at 60 days. Return to normal exercise levels without restriction occurred at 90 days. The owner reported via phone call on 11/16/21, 100 days post op, that he was doing great without any issues.

Resources

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