

How to Perform a Successful Sacroiliac Joint Region Injection

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1. Introduction

The sacroiliac joint is often cited as the source of lower back discomfort in performance horses. The rider or trainer may perceive that a horse has lower back pain from a number of clinical signs. These may include sensitivity to grooming, resistance to rider weight, stiffness in work, pain on manual palpation of the back, and poor performance. Many of these symptoms may arise as issues secondary to other lameness problems, particularly of the hind limb, and frequently the difficulty is determining the origin of the problem. A thorough physical examination, coupled with a complete therapeutic approach, can most frequently relieve symptoms of lumbosacral and sacroiliac pain.

Lumbosacral and sacroiliac strain is common in jumping, dressage, and Western performance horses. There is far more motion in the lumbosacral joint than in the sacroiliac, and the pain may be coming from this joint instead of the sacroiliac. The sacroiliac joint, however, has multiple ligamentous attachments to the axial skeleton that may be subject to trauma. Many horses are mildly affected on a chronic basis and continue to perform, although soreness in the region is evident on palpation. In more severe cases, performance is usually significantly compromised and the horse is distinctly lame,

usually more obviously on one leg. Horses that were good performers suddenly don't want to jump; dressage horses often refuse to "sit" and collect. The horse often stands with a stretched out posture and may rest one hind limb. Palpation over the lumbosacral area produces a painful response. Pain may be perceived by exerting more pressure on one sacral tuberosity. There may be considerable resistance on the part of the horse to have one of the hind legs picked up.¹ Rocking the pelvis may cause the horse to grunt. In cases of sacroiliac pain, lameness may be apparent in the opposite hind limb after an upper limb flexion test. The horse may be observed to have one more prominent tuber sacrale when viewed from behind, but this is not a certain indicator of recent injury. The appearance of a "jumper's bump" has been associated with sacroiliac strain; however, this may be more of a conformational matter than a sign of pathology. Some veterinarians report being able to reduce lameness or temporarily alter the horse's way of going with local anesthetic infiltrated deeply over the sacroiliac joint region, but this can be tricky, with a misplaced injection causing difficulty for the horse to stand. Nuclear scintigraphy can be useful in assessing if significant inflammation is present in the area. Ultrasound can be used to visualize lesions of

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the lower lumbar ligamentous structures, dorsal articular facets, and more superficial sacroiliac ligaments. Using rectal ultrasound, the ventral aspect of the sacroiliac and lumbosacral joints may be visualized as well as the foramina for the last lumbar and sacral nerve roots. Local pathology may be identified.²

Rest and time are the two most significant factors in treating serious injuries of the sacroiliac joint region. In the case of severe strain, which is likely to be accompanied by sudden-onset lameness, healing of the injured tissue probably will require 6 months or longer. The horse should be stall-rested for 30 days, followed by 2 to 3 months of controlled paddock rest (tranquilized at first, if necessary). After this, light exercise on flat surfaces with a gradual increase in the amount of work over the next 3 months will allow time for healing and regaining strength in the affected area. Deep injection of the sacroiliac joint region may be of additional benefit and will be described herein.

2. Materials and Methods

Preparation of Sacroiliac Injection

Horses with less severe injuries of the lumbosacral and sacroiliac joints may continue in work and receive local therapy for soreness. Peri-articular injection of corticosteroids over the sacroiliac region may significantly reduce pain and allow for continued work. Various injection techniques have been described utilizing blind and ultrasound-guided methods.³⁻⁵ There are two more commonly used techniques for injection of the lumbosacral and sacroiliac joints that will be outlined in this article. The first technique will describe a blind injection technique and the second will outline the steps for an ultrasound-guided technique.

Proper site preparation is essential for success in any deep injection of the sacroiliac region. Clipping of the injection site(s) may provide for a more complete aseptic prep and allow for better ultrasound visualization, but this may not be acceptable for some performance horses. Horses with a fine coat can be adequately cleansed for injection, and ultrasound images will be adequate. Heavy hair coats should be clipped for both blind and ultrasound-guided techniques. For ultrasound-guided procedures, the ultrasound probe should be covered with a sterile probe cover or surgical glove to minimize potential contamination and unnecessary damage to the probe surface. Sterile lubricant can be used within the cover for ultrasound coupling, and alcohol will suffice for cleaning the skin surface.

Restraint

Appropriate sedation and restraint is indicated for a safe sacroiliac injection procedure. The author prefers a combination of detomidine hydrochloride (0.01 mg/kg IV)^a and butorphanol (0.01 mg/kg IV)^b and restraint in stocks if available. Otherwise, a



Fig. 1. Dorsomedial approach to the sacroiliac joint.

nose twitch and a nonslip surface should be used in addition to adequate sedation. The author typically administers gentamicin (6 mg/kg IV)^c and flunixin meglumine (1 mg/kg IV)^d as premedications as well.

Injection Technique

The first of the two more commonly used techniques was described by Engeli et al (2002).³ This involves a blind dorsomedial technique using a 6- to 10-inch (12.5 to 25 cm), 15- to 18-gauge needle that is placed along the cranial edge of one contralateral tuber sacrale and directed obliquely and slightly caudally across the midline to the medial aspect of the opposite tuber sacrale. Not directing the needle sufficiently caudally may result in hitting the spinous process of the sixth lumbar vertebra. Longer needles will obviously be required in larger horses. The needle is then directed along the medial surface of the ilium toward the sacrum as deeply as possible. Most 18-gauge needles will “follow” the medial surface of the ilium. This may require bending the needle slightly to accommodate placement for larger-gauge needles. The needle should stop firmly against bone to ensure proper placement (Fig. 1 and Fig. 2). The area is then infiltrated with 10 to 15 mL of a corticosteroid mixture. The author’s preference is isoflupredone (10 to 20 mg)^e with or without methylprednisolone acetate (100 mg)^f and diluted with physiological saline or a pain-relieving agent^g to a total volume of 30 to 35 mL. This technique may produce successful results, but the margin for error is significant due to lack of visualization. The use of the larger needle may require local anesthetic infiltration and a small stab incision to facilitate the injection. Use of a lighter-gauge needle (smaller than 18 gauge) may result in excessive bending of the needle and an inaccurately placed injection. Experience will provide the operator with more confidence in the “feel” of needle placement.

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Fig. 2. Dorsomedial approach.



Fig. 4. Lateral view of the cranial injection technique.

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Ultrasound-Guided Technique

The second and preferred technique, in the author's opinion, is to use ultrasound guidance to visualize the needle and approach the sacroiliac joint from cranial and caudal aspects similar to the technique described by Denoix.⁴ This technique requires more preparation and equipment, but it provides more complete coverage of the sacroiliac region. The cranial injection approach is located positioning a 4- to 5-MHz macro-convex ultrasound probe parallel to the spinal column approximately 5 to 7 cm off of the midline adjacent to and slightly cranial of the tuber sacrale of the ilium (Fig. 3 and Fig. 4). From this

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position, the ilium and transverse process of the fifth lumbar vertebra may be visualized (Fig. 5). The depth of the tissue overlying the ilium is measured, and an injection site is determined approximately that same distance cranial to the ultrasound probe. A 6- to 8-inch (12.5 to 20 cm), 18-gauge spinal needle is inserted and passed in the plane of the ultrasound beam deep to the wing of the ilium in a direction parallel to the spinal column and directed obliquely and ventrally to reach the cranial aspect of the sacroiliac joint region (Fig. 6). An 8-inch needle will be necessary in most large horses, but a 6-inch needle is normally sufficient for a medium pony. The needle typically ends up firmly seated on bone in the interosseous sacroiliac ligament. Ten milliliters of corticosteroid mixture is injected locally, and the needle is withdrawn. For horses that have demonstrated considerable lumbosacral pain, there may be an advantage to partially withdrawing the needle and to redirect it in the plane of the ultrasound beam

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Fig. 3. Dorsal view of the cranial injection technique (cranial is at the top).



Fig. 5. Ultrasound view for the cranial approach to sacroiliac region.

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weeks to 6 months, whereupon treatment was repeated.

4. Discussion

These techniques have proven effective in relieving pain from minor to moderate strains and chronic arthritis of the lumbosacral and sacroiliac joint region. The ultrasound-guided technique provides a more accurate means of assuring needle placement; however, the blind technique may be more appropriate in certain situations. Some horses are very difficult to examine by ultrasound in this region because of acoustic impedance, and the caudal approach is difficult to visualize even with much preparation regardless of the probe used. Because of the significant structures associated with the ventral aspect of the sacrum, an unguided injection of the caudal sacroiliac region should not be undertaken. Thus, only a cranial or dorsomedial approach should be attempted in those cases in which visualization is not clear. A successful injection technique can often provide profound relief and subsequent improvement in the performance of affected horses.

Application of a clean towel and ice pack to the injection site after completion of the procedure may minimize local postinjection hemorrhage/hematoma formation.

Response to injection followed by a return of lameness or poor performance may indicate a need for an

extended rest, significant reduction in work, or re-assessment of the horse to ensure that there is not a new injury or a different source of poor performance or lameness.

References and Footnotes

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4. Denoix JM, Jacquet S. Ultrasound-guided injections of the sacroiliac area in horses. *Equine Vet Educ* 2008;20:203-207.
5. Cousty M, Rossier Y, David F. Ultrasound-guided peri-articular injections of the sacroiliac region in horses: a cadaveric study. *Equine Vet J* 2008;40:160-166.

^aDormosedan®, Orion Corp., Espoo, Finland; Pfizer Animal Health, Exton, PA 19341.

^bTorbugesic®, Fort Dodge Animal Health, Fort Dodge, IA 50501.

^cGentaFuse, Sparhawk Laboratories, Lenexa, KS 66215; Butler Schein Animal Health, Dublin, OH 43017.

^dPrevail®, MWI, Meridian, ID 83680.

^ePredef® 2x, Pharmacia and Upjohn Company, Division of Pfizer Inc., New York, NY 10017.

^fDepo-Medrol®, Pharmacia and Upjohn Company, Division of Pfizer Inc., New York, NY 10017.

^gSarapin®, High Chemical, Levittown, PA 19056.

^hArthrex®IRAP™ II System, Arthrex Vet Systems, USA, Naples, FL 34109.

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