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Desmitis of the wide portion of the sacroiliac ligament in horses: Case report

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Abstract. Two adult horses, a male (6 years old, castrated) half-blooded Quarter Horse and a Mangalarga mare (7 years old) each showed decreased step amplitude and lameness of one of their hind limbs (right and left respectively) after working in handling cattle (both with Grade I, scale from 0 to 5). In addition, the male presented slight atrophy in the musculature of the right superficial gluteus. After clinical examination and screening with thermography (done before the animal worked, at the pen and not exposed to any heat source or solar irradiation or any product on the skin surface) no "hot spot" was found in in the right or left limb of either horse, thus raising suspicion of a "high" lesion, without neurological origin, opting for transrectal pelvic evaluation by ultrasound (6.5 MHz linear rectal transducer) in those animals. Differences were found between the left and right sides in the ligaments, in the images produced by the examination of the wide portions of the sacroiliac ligament, associated with pain on the side corresponding to the change in the image obtained. We can thus conclude, after thermography and clinical and neurological examination which excluded any injuries to the hind limbs, that the cause of lameness in these clinical cases is unilateral desmitis of the wide portions of the sacroiliac ligament, showing the importance of transrectal ultrasound evaluation in cases of pain in the limbs or even high claudication.

Keys words: Equine, desmitis, sacroiliac ligament, ultrasound evaluation

Desmite da porção larga do ligamento sacroilíaco em cavalos: Relato de caso

Resumo. Dois cavalos adultos, um cavalo meio-sangue (seis anos, castrado) Quarto de Milha e uma égua Mangalarga (sete anos) apresentaram diminuição da amplitude do passo e claudicação de um dos membros posteriores (direito e esquerdo, respectivamente), após trabalho de manejo do gado (ambos com Grau I, escala de 0 a 5). Além disso, o macho apresentava leve atrofia na musculatura do glúteo superficial direito; após exame clínico e triagem com termografia (realizada antes do animal trabalhar, curral e não exposto a qualquer fonte de calor ou irradiação solar ou qualquer produto na superfície da pele) nenhum "ponto quente" foi encontrado no membro direito ou esquerdo em ambos os cavalos, suspeitando portanto de lesão "alta", sem origem neurológica, optando pela avaliação pélvica transretal por ultrassonografia (transdutor retal linear de 6,5 MHz) nesses animais. Foram encontradas diferenças entre os lados esquerdo e direito dos ligamentos, nas imagens produzidas pelo exame das porções largas do ligamento sacroilíaco, associadas à dor no lado correspondente à alteração da imagem obtida. Podemos então concluir, após termografia, exame clínico e neurológico, que excluíram quaisquer lesões nos membros posteriores e que a causa da claudicação e o diagnóstico destes casos clínicos são desmitis unilaterais das porções largas do ligamento sacroilíaco, mostrando a importância do tratamento transretal. avaliação ultrassonográfica em casos de dores nos membros ou mesmo claudicação alta.

Palavras-chave: Equino, desmite, ligamento sacroilíaco, avaliação ultrassonográfica

Introduction

One of the likely causes of hindlimb in horses would be disease and/or pain in the sacroiliac region, which would manifest itself in the form of regional pain, which could be diagnosed through pain by palpation or pressure, during examination, lameness, muscular atrophy, which may or may not be easily noticeable and another possibility would be low performance ([Alsaad & Abdul-Hameed, 2012](#); [Baxter et al., 2011](#); [Jeefcott et al., 2008](#); [Wilson & Weller, 2011](#)). The biggest problem in diagnosing the sacroiliac region ends up being the little information about the biomechanics of this joint, as it is not very accessible because it is surrounded by large muscle groups and the clinical signs are non-specific. One of the ways to assess regionally would be through thermography, a simple, quick examination, without harm to the animal or the examiner and would help in locating the painful region (“hot spot”), as long as there was a change in the regional temperature of that area region during the exam ([Schweinitz, 1999](#); [Vasconcellos, 2022](#)). Another type of examination would be scintigraphy, which could provide information about bone remodeling and inflammation in the region. From a practical point of view, ultrasound evaluation of the sacroiliac region (ventral and dorsal aspects), because we can evaluate the joints, bone holes where the nerves pass, the bone surfaces and the wide portion of the sacroiliac ligament ([Engeli et al., 2006](#); [Hausssler, 2020](#)).

The sacroiliac ligament has a caudomedial funicular portion, which extends from the sacral tuberosities to the apex of the sacral spinous processes ([Jeefcott et al., 2008](#)) and a membranous portion that projects from the caudal portions of the sacral tuberosities, passing caudomedially to the wings of the ileum and inserting itself in the sacrotuberous ligament. There is also the interosseous ligament, which is externally robust and consists of a series of vertical fibers that connect the ventral part of the wing of the ileum with the dorsal wing of the sacrum ([Budras et al., 2003](#)). Therefore, the diagnosis is made by excluding other causes of low performance, muscular atrophy, non-specific lameness of the hind limbs, where ultrasound has been an important means of diagnosis and evaluation of the pelvic structures, specifically the sacroiliac region ([Engeli et al., 2006](#)).

Material and methods

Two adult horses, a 6-year-old Quarter Horse castrated male and a 7-year-old Mangalarga mare, both showed non-specific lameness of the hind limbs (right and left respectively), only after physical activity, with only the male showing mild atrophy in muscular dorsal region of the croup (direct superficial gluteus). A thermographic examination was carried out, carried out as screening, as described by [Schweinitz \(1999\)](#), and nothing was detected either in the affected limb or in the rump region, in both horses. Both horses presented Grade I lameness (0-5 scale) only after physical activity in which they were used (beef cattle management) and because they showed signs of non-specific lameness, mild focal muscular atrophy (male, [Figure 2](#)), and when at rest, both animals kept the affected limb at rest ([Figure 1](#)).

In order to rule out any problem of neurological origin, tests were carried out on the aforementioned horses with the purpose of highlighting whether or not a probable nervous etiology where no indication of disease was verified, using for this the Vasconcellos' protocol ([Vasconcellos 1995](#)), as all the limbs of the animals examined presented the same muscular strength, skin sensitivity, as well as symmetry in both limbs, anterior and posterior, of the two horses, except for the slight muscular atrophy in the muscles of the right superficial gluteus, in the male ([Figure 2](#)). Based on the clinical and thermographic findings, we opted for a transrectal ultrasound evaluation, since no indication of injury was found in the dorsal pelvic region. The transrectal ultrasound examination was performed with an INFINIT IV brand device and a linear rectal transducer multifrequency (5 to 7.5 MHz), adapting to the frequency that proved most viable for image quality (6.5 MHz). In both examinations, the animals were not sedated, kept in a containment trunk without any other form of mechanical restraint (pipe or pito and without any type of tie with ropes). After removing the fecal content, lubricating the examiner's glove with water-based gel, the examination began where the floor of the sacral region, lateral (right and left) of the pelvic cavity as well as the ligament between the lateral wing of the sacral bone and the medial edge of the wing of the ileum were examined, bilaterally, always comparing one side with the other, producing images of both sides, in the case of bilateral structures. It was found in the right lateral portion of the sacroiliac ligament (wide or larger portion) in the male and the same change but on the left side in the female, signs of fiber rupture, anechoic areas and periosteal reaction at the insertion of the ligament to

the bony part in the ischium, in the two animals, right and left respectively, associated with pain during the examination according to [figure 3](#) (male) and [figure 4](#) (female).



Figure 1. Note the resting position adopted by the male, placing the right affected limb in the resting position.

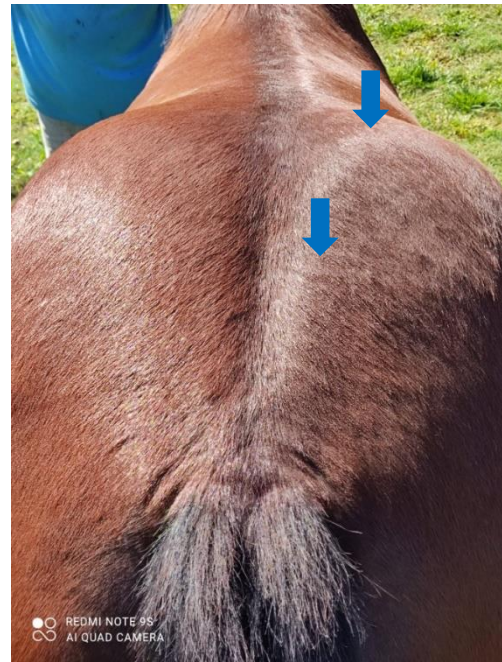


Figure 2. Note the slight muscular atrophy of the right croup compared to the left indicated by the blue arrows.

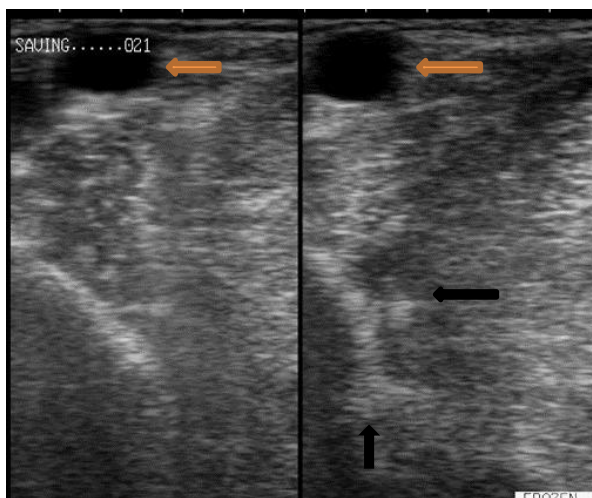


Figure 3. Ultrasound image of the male horse, of the wide portion of the sacroiliac ligament (lateral of the pelvis/wide portion), left and right, the **orange arrows** indicate the left and right iliac vein (respectively), the **black arrows** indicate the periosteal reaction at the insertion of the ligament in the right indicate the rupture points ischium bone and the rupture of that ligament, generating pain during the transrectal ultrasound examination

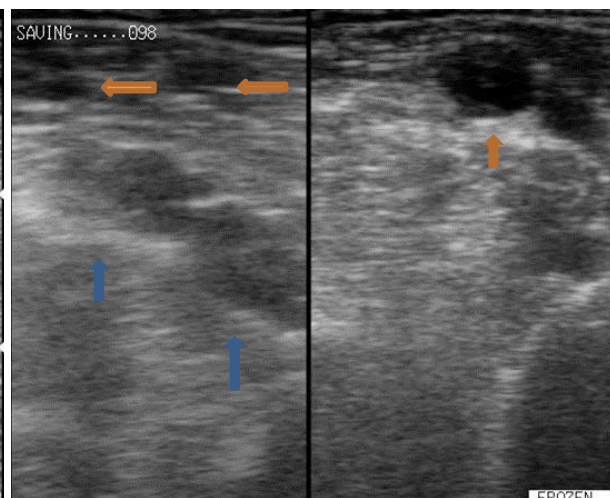


Figure 4. Transrectal ultrasound image of the lateral portion (wide portion) obtained from the female, from the lateral part of the pelvis, left and right respectively, where the **orange arrows** represent the iliac vein, the **blue arrows** represent rupture points of the wide portion of the sacroiliac ligament left and the periosteal reaction of the insertion of said ligament into the ischium bone. Note also the lower quality of the image on the left side due to severe pain during the examination on the left side.

Results and discussion

The ultrasound examination proved to be easy to perform, being an important instrument for internal evaluation of the sacroiliac region, therefore, according to [Engeli et al. \(2006\)](#). The linear rectal transducer proved to be very efficient in the examination, as it covers large areas of coverage as well as ease of handling and the frequency of 6.5 MHz, in this case it can produce images that are very

compatible with the clinic as well as pain in the region. and during the examination on the changes found, as shown in figures 3 and 4. Thermography could be used as an auxiliary method in the screening of such cases, helping to locate the “hot spots”, helping to locate and not diagnose possible pain points, given the complexity and size of the pelvis of an adult horse. The other parts of the sacroiliac region (the internal sacroiliac portion between the sacral bone and wing of the ileum and the external dorsal portion) were unchanged, given that the images obtained were paired, that is, taken bilaterally to have as comparing the dorsal portion, thermography did not indicate any change in local or regional temperature.

As for lameness, the exact explanation, we can only comment that the muscles of the caudal portion of the spine and pelvis are the biggest contributors to the stability of the sacroiliac region; Under normal conditions, the muscles in this region maintain mobility in the sacroiliac joint within its stability limit. When there are sacroiliac injuries, horses generally change their posture (in the case of the male horse) leading to progressive atrophy due to pain on one affected side and probable compensatory hypertrophy on the side not affected by such injury. But in cases of rupture of the sacral ligaments, they can cause anything from simple to severe and painful lameness in one or both hind limbs ([Engeli et al., 2006](#)).

In both the male and the female, we were unable to obtain a history that would justify such injuries found, as well as to date we have not carried out any form of treatment other than rest, as the aforementioned owners were not interested in this, since the animals were intended for handling services for bovine and non-equine athletes of interest for tests and/or competitions of the most varied forms. We can therefore conclude from these cases that the signs of sacroiliac disease are not evident, it is important to be sure that the lameness and/or muscular atrophy is not of neurological origin. In these cases, thermography also proved to be important as a way of ruling out a problem in the affected limb, using the technique appropriately and also ultrasound, as a way of internally evaluating the pelvis and ligaments transrectally, is a method important and quite enlightening, when there are no other methods such as scintigraphy, tomography or even magnetic resonance imaging ([Tomlinson et al., 2001](#)).

Bibliographic references

- Alsaad, K. M., & Abdul-Hameed, A. A. (2012). Clinical, hemato-biochemical studies of equine laminitis in horses in Mosul. *Iraqi Journal of Veterinary Sciences*, 26(Suppl. 2), 169–178.
- Baxter, G. M., Stashak, J. K., & Parks, L. (2011). Lameness in the extremities. In G. M. Baxter (Ed.), *Adam's and Stashak's Lameness in horses*. Wiley Blackwell.
- Budras, K.-D., Sack, W. O., & Rock, S. (2003). *Anatomy of the horse: an illustrated text*. Mosby.
- Engeli, E., Yeager, A. E., Erb, H. N., & Haussler, K. K. (2006). Ultrasonographic technique and normal anatomic features of sacroiliac region in horses. *Veterinary Radiology & Ultrasound*, 47(4), 2391–2403.
- Haussler, K. K. (2020). Identify and treat equine sacroiliac problems. *Practical Horseman*, 13(4), 12–18.
- Jeefcott, B. L., Goff, L., MacGowan, C. M., & Jasiewicz, J. (2008). Structural and biomechanical aspects of equine sacroiliac joint function and their relationship to clinical disease. *The Equine Veterinary Journal*, 176(3), 281–293.
- Schweinitz, D. G. (1999). Thermographic diagnostics in equine back pain. *Veterinary Clinics of North America: Equine Practice*, 15(1), 161–177.
- Tomlinson, J. E., Sage, A. M., Turner, T. A., & Feeney, D. A. (2001). Detailed ultrasonographic mapping of the pelvis in clinically normal horses and ponies. *American Journal of the Veterinary Research*, 62, 1768–1775.
- Vasconcellos, L. A. S. (1995). *Problemas neurológicos na clínica equina*. Editora Varela. São Paulo. 112 p.
- Vasconcellos, L. A. S. (2022). *Neurologia e neurocirurgia equina: Princípios gerais*. Editora Lusófona. Lisboa, Portugal. 216 p.
- Wilson, A., & Weller, R. (2011). The biomechanics of the equine limb and its effect on lameness. In *Diagnosis and Management of Lameness in the Horse* (pp. 270–281). Elsevier.

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