ULTRASONOGRAPHY OF SUSPENSORY LIGAMENT IN THE HORSE AFTER PERINEURAL ANESTHESIA

Simonetta Citi[1], Micaela Sgorbini[1], Rinaldo Fusar Bassini[1], Francesca Bonelli[1], Tommaso Mannucci [1] and Giorgio Ricardi[2]

[1]Department of veterinary Science, University of Pisa

[2]Private practitioner

Proximal suspensory ligament (PSL) disease frequent causes lameness. The diagnosis is made using clinical and lameness exam, diagnostic analgesia and imaging. Ultrasonographic (US) exam is particularly challenging in this region, however PSL scanning after diagnostic analgesia could potentially lead artifacts or false positive findings. Zekas and Forrest in 2003 described changes in US findings immediately and 24 hours after a subcarpal high palmar and palmar metacarpal nerve block and a low palmar and palmar metacarpal nerve block were performed. In clinical settings many veterinarians perform the block by injecting the anesthetic solution more diffusely in and around the origin of the suspensory ligament.

Aim is to describe US changes in PSL after injection of the palmar metacarpal nerves and in and around the origin of the ligament at 24 hours post-injection.

6 Standardbred mares (10 to 16 years old) and 12 forelimbs were used. The study was approved by the Institutional Animal Care and Use Committee of the presenting Institution. All horses were healthy. After sedation (detomidine, 20mcg/Kg) the palmar aspect of both metacarpal regions was clipped, washed and aseptically prepared; 6 ml of 2% mepivacaine hydrochloride were used. Limbs were divided in 3 groups, each group was composed by 4 limbs: A) medial and lateral approach to the palmar metacarpal nerves with empty needle hub; B) lateral approach only to both palmar metacarpal nerves with empty needle; C) lateral approach only to both palmar metacarpal nerves with needle filled with anesthetic. In all limbs the anesthetic solution was also injected in to the ligament and dorsal to it. US scan of the proximal third of the suspensory ligament was performed prior, immediately after and 24 hours after injection. Longitudinal and transvers scans were acquired with a 7,5 MHz linear probe (Esaote Mylab30gold). Dorsopalmar thickness of the PSL, presence of gas, changes in echogenicity, and changes in surrounding tissues were recorded. Results: there were not significant differences among groups. There were no significant differences in dorsopalmar thickness of the PSL before and after injection. Subjectively, there were no changes in echogenicity or fiber pattern in all groups. The dorsal hypoechoic space was significantly increased in size in 8/12 limbs at the first post injection scan. This was still detected at 24 hours post injection. In 5/12 limbs there was loss of definition between the dorsal margin of the PSL and the dorsal hypo echoic space, due to increased echogenicity of the latter. This persisted 24 hours post injection in 3/5 limbs. No gas was detected in any of the limbs at any time.

Due to local anesthetic infiltration, soft tissue changes may be present thus the interpretation of ultrasound examination may be confusing. In this study there were no significant differences in the PSL between baseline measurement and pattern and post-injection measurements. Nonetheless correct identification of the PSL limits was not easy due to increased echogenicity of the dorsal hypoechoic region. This suggest that diagnostic ultrasonography of the origin of the PSL should be interpreted with caution if performed within 24 hours after diagnostic analgesia.

Denoix JM et al Equine Vet Educ 2008,20(3):148-153; Zauscher JM et al Equine Vet J 2013,45:164-9; Zekas LJ, Forrest LJ Vet Radiol Ultrasound 2003,44(1):59-64.

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