Diffusion of Anesthetic After a Low Palmar Nerve Block on the Forelimb

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Inadvertent intrasynovial injection occurs more frequently than anticipated. Proximal diffusion of anesthetic occurs after a low palmar nerve block (LPB), but the majority remains localized to the injection site. Authors’ address: College of Veterinary Medicine and Biomedical Sciences, James L. Voss Veterinary Teaching Hospital, 500 West Drake Road, Fort Collins, Colorado 80523; e-mail: Katie.Amend@colostate.edu. © 2009 AAEP.

1. Introduction
The low palmar nerve block (LPB) or low four-point block desensitizes the medial and lateral branches of the palmar metacarpal nerves and palmar nerves. The LPB is thought to desensitize all structures distal to the splint bones, and it has been noted to improve lameness in horses with proximal suspensory desmitis. We hypothesized that diffusion of local anesthetic to the proximal suspensory region would occur after a LPB.

2. Materials and Methods
Bilateral LPBs were performed in nine adult horses using a 50:50 solution of mepivicane and iohexol. For each nerve, 2 ml of solution were used in one forelimb and 4 ml were used in the opposite forelimb. Lateral radiographs of both metacarpi were taken at 0, 5, 15, 30, 60, 90, and 120 min. Diffusion of anesthetic above and below the injection sites, intrasynovial contrast deposition, and proximal diffusion of contrast were noted.

3. Results
Evidence of the contrast agent was noted in the proximal metacarpal region in 94% (n = 17) of the limbs. Contrast was seen in the fetlock joint in 44% (n = 8) of limbs and in the digital tendon sheath in 39% (n = 7) of the limbs.

4. Discussion
Subtle proximal diffusion of anesthetic occurs after a LPB, but the majority stays localized at the site of injection. Inadvertent intrasynovial injections occurred frequently, which suggests that sterile prep of the injection sites may be warranted. It is also recommended that the palmar nerve block and palmar metacarpal nerve block be placed more proximally on the limb.