

Ultrastructural and immunocytochemical evaluation of the effects of extracorporeal shock wave treatment in the hind limbs of horses with experimentally induced suspensory ligament desmitis

Elisa H. Caminoto, DVM, MS; Ana Liz G. Alves, DVM, PhD; Renée L. Amorim, DVM, PhD; Armen Thomassian, DVM, PhD; Carlos A. Hussni, DVM, PhD; José Luis M. Nicoletti, DVM, PhD [*](#)

Abstract

Objective—To evaluate the effects of extracorporeal shock wave therapy (ESWT) on affected ligaments in the hind limbs of horses with experimentally induced suspensory ligament desmitis by use of ultrasonographic, ultrastructural, and immunocytochemical techniques.

Animals—10 horses.

Procedure—Suspensory ligament desmitis was induced in both hind limbs of each horse by use of 2 collagenase injections (administered 2 weeks apart) in each suspensory ligament. Two weeks after the second injection, the right hind limb of each horse was treated with ESWT (3 treatments at 3-week intervals); the left hind limb was not treated (control limb). Periodically during the study, the healing process was monitored ultrasonographically and the proportions of ligaments affected with lesions were assessed. Four weeks after the last ESWT treatment, biopsy specimens were collected from all ligaments for ultrastructural evaluation and immunocytochemical analysis of transforming growth factor β -1.

Results—The difference in the proportion of the lesion-affected ligament between ESWT-treated and control limbs was significant ($P < 0.05$) from 3 weeks after the second ESWT treatment to the end of the study. Compared with control ligaments, ESWT-treated ligaments had more small, newly formed collagen fibrils and greater expression of transforming growth factor β -1 4 weeks after the last ESWT treatment was administered.

Conclusions and Clinical Relevance—Results have indicated that ESWT appears to facilitate the healing process in horses with experimentally induced hind limb suspensory ligament desmitis. (*Am J Vet Res* 2005;66:892–896)