

Neurogenic Inflammation, or Why a Tennis Elbow Did Not Respond

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Epicondylopathies (tennis elbow, golfer's elbow) usually fall into the realm of "tendinosis," which is a chronic pain syndrome with minimal to no inflammation. Why then do some cases persist with chronic pain and not respond to soft-tissue methods? Techniques such as friction massage, Active Release®, Graston Technique® and other methods often prove to be effective; then there are cases that do not respond and may necessitate surgery. There are a variety of possibilities, two of which may be just excessive tendinosis degeneration or neurogenic inflammation. This article will discuss the latter.

We usually think of the primary afferent sensory fibers as only supplying the spinal cord with nociceptive stimuli, but these same fibers, when irritated, have efferent effects causing vasodilation, plasma extravasation, edema, hyperaemia and erythema. These nerves create this by releasing proinflammatory neuropeptides. Significant neuropeptides such as substance P (SP) and calcitonin gene-related peptide (CGRP) lead to what is known as neurogenic inflammation.^{1,2} Due to the fact that nearly all tissues in mammals, including humans, are innervated by afferent sensory neurons, this neurogenic inflammation can occur ubiquitously throughout the body.³

Ljung, Alfredson and Forsgren⁴ evaluated both the medial and lateral epicondyles and found out that the mechanical stress on the tendons attaching to the condyles stimulated a release of SP and CGRP, indicating a neurogenic inflammatory origin. Since inflammatory cells have not been utilized in histopathological studies of tendon insertions in epicondylopathies, it has been hard to explain why steroids at times reduce the pain. Because sensory nerve cells have glucocorticoid receptors, and steroids influence the effects and the levels of SP and CGRP, they are able to reduce neurogenic edema. The effect of soft-tissue methods on neurogenic involvement hopefully will be determined in the future.

It has also been found that lumbosacral ligamentous structures have primary afferent fiber innervation and secrete proinflammatory neuropeptides from their distal processes. This creates the neurogenic inflammatory processes⁵ that may explain chronic back pain.⁶

References

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On a side note, in May, Dr. Tom Hyde and I attended the European Chiropractors' Union meeting in Cyprus. The program of the meeting dealt with chiropractic techniques; Dr. Hyde and I represented Graston Technique. Representing Active Release was Dr. Michael Leahy. The three of us and our wives did some sightseeing, and in the course of events, my medial meniscus became involved. Dr. Hyde took this photo of Dr. Leahy treating my meniscus problem. I was greatly relieved and was able to continue our tour, thanks to Doc Leahy. The meniscus adjustment will appear in the 3rd edition of my text, to be published at the end of the year. The photo was shot at an over-2000-year-old Greek amphitheater on Cyprus.

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