# STAGED HEALING OF WRIST TENDONITIS FOLLOWING CMECD® TREATMENT

#### Introduction:

CMECD<sup>®</sup> denervation treatment, previously described, also see CMECD.info, of chronic muscle spasm of forearm muscles with associated wrist tendonitis follows a different pattern of recovery from most other muscles in chronic spasm. The associated muscle spasm and wrist pain is generally considered referred pain or isolated tendonitis.

#### Objective:

Objective was to identify underlying pathophysiology.

#### Methods:

Initial response to treatment and self-reporting of pain relief in the week following treatment was compared to patients without associated wrist tendonitis.

## **Results:**

Patients with forearm pain secondary to chronic muscle spasm without tendonitis reported initial relief of pretreatment pain and 2-5 days of local mild injection site discomfort without recurrence of the presenting pain. Patients with chronic muscle spasm and associated wrist tendonitis reported predominant relief of pretreatment wrist pain associated with motion or stress but typically required 3 days before the wrist motion associated pain fully resolved. Injection site discomfort for 3-5 days was also noted.

### Summary/Conclusion:

Complete relief of wrist tendonitis associated with forearm chronic muscle spasm appears to be time dependent. It is postulated that the tendonitis was the result of the chronic muscle spasm pull on the tendon and that resolution of the chronic muscle spasm pull allowed the tendon to recover. It was notable that one patient had undergone steroid injections of the wrist tendon with only temporary relief but attained long standing relief after the associated chronic muscle spasm was resolved following CMECD<sup>®</sup> treatment. In contrast to the concept of referred pain, this appears to represent tendinopathy secondary to chronic muscle spasm.

# STAGED HEALING OF WRIST TENDONITIS FOLLOWING CMECD® TREATMENT

Roger H. Coletti, MD, FACC, FASNC, FSCAI InterventionalHealth.com

The etiology of tendonitis remains obscure. No clear inflammation has been identified in biopsied tendons that demonstrated clinical tendonitis. The concept being presented is a tendinopathy secondary to chronic muscle spasm. Individuals treated with apparent tendonitis as the wrist, elbow or other sites had exhibited evidence of chronic muscle spasm of the muscle to which the tendon was attached. The CMECD<sup>®</sup> treatment quickly resolved the chronic muscle spasm but the tendon pain required several days to resolve.

The proposed etiology of this finding is based upon the postulation that the chronic spasm of the muscle, exerting chronic pull on the tendon is responsible for the resultant tendonitis. However, further postulation as to how this chronic tension on the tendon caused a tendinopathy is needed. There is evidence that muscles in chronic spasm limit their own blood supply with resulting ischemia. In chronic muscle spasm it has been shown that there is a decreased population of mitochondria and thus less potential energy production. Energy is needed to relax the muscle and the absence of adequate energy production is the likely cause for the muscle to remain in chronic spasm. Classically, the muscle in chronic spasm is tender to compression, which is not surprising as it is in an ischemic state.

However, the etiology of the symptom of the tendinopathy still needs to be explained. The microcirculation of tendons is well appreciated in the attached images of Achilles tendon blood supply. It is known that at high tension, the blood supply to a tendon is limited. The external blood supply of the tendon is not likely significantly impaired with tension. However, capillary channels would seem to be at significant jeopardy when the tendon is under tension. Most tendons should be without stress during sleep and should be able to recover from high activity use even if it temporarily impaired their blood supply. However, muscles in chronic spasm would not have given the tendon a chance to resolve its ischemic burden even with sleep. It seems likely that the effects of moderate prolonged tension are to create chronic ischemia in the tendon. The time frame of recover of a tendon following CMECD<sup>®</sup> treatment of the muscle falls in line with this proposition.

As noted, no true evidence of inflammation has been found in tendons demonstrating clinical evidence of tendonitis. Numerous chemical changes have been identified but no clear pathological diagnosis has been identified. What is here proposed is that with chronic muscle spasm, both the muscle and the tendon are in a state of ischemia with the resultant symptoms.

.ateral

# **BLOOD SUPPLY OF THE ACHILLES TENDON** Gastrocnemius Medial Medial Posterior Tibia Artery Peroneal Arter Peroneal Arter Supplied by Posterior Tibial Artery Supplied by Peroneal Artery Lateral epicondyle Wrist extensors Wrist flexors Medial epicondyle