

Shock Waves for Pain Relief After Carpal Tunnel Release: THE Pathophysiological Basis of a New Clinical Application in "PILLAR PAIN" Disease

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Carpal tunnel release is a safe, simple and rapid procedure in hand surgery; in spite of this, 20% of the patients can suffer for a long time from scar discomfort (redness, pain and swelling) (sometimes described as "pillar pain").

Until now, no therapy has been described in the literature to be effective in rapid pillar pain relief, especially as its aetiology is still uncertain.

Only recently, some clinical evidences, as well as some anatomical and experimental studies suggest the possibility that this condition is due to a prolonged neurogenic inflammation, sustained by neuropeptides (especially Substance P).

As it is well known that Extracorporeal Shock Wave Therapy is effective in suppression of inflammatory processes, as well as that it can modulate Substance P, we treated a series of 25 patients, suffering from "pillar pain" after carpal tunnel release (from almost two months) (3 treatments, weekly, at very low energy of 0.03 mmJ/mm², 2500 - 3000 shots/session), under "in - line" ultrasound examination (Modulith SLK - Storz Medical).

Patients were selected on the basis of some clinical data (subcutaneous painful swelling in the interthenar area, scar redness, thenar and/or hypothenar discomfort, pain) and by NMR findings (oedema in carpal tunnel granulation tissue, mild perineural oedema, rare bone marrow oedema). Pain was subjectively recorded by Visual Analogic Scale (VAS), before and after ESWT.

Only for few patients it was possible to perform NMR also after ESWT.

Clinical results were very surprising and encouraging: 50% of pain relief already after first ESWT treatment, in about half of the patients; temporary pain increased within the first week of treatment in very few cases; completely pain relief within 25 days in almost all patients; rapid scar redness resolution in almost all patients; strict correlation between pathological NMR findings and clinical data (both pre - and post - ESWT).

Absolutely not local nor general side effects were observed during and after ESWT treatment.

The authors will expose in detail the data above reported, and discuss the theoretical and pathophysiological basis of this new safe application of ESWT in hand surgery.