

Shock Waves After Severe Hand Traumas: Description of a “Trophic Effect” on Bone and Soft Tissue

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Bone healing disorders can be a serious problem after severe traumas of the hand, as bone fractures are often associated with wide soft tissue injuries. The authors will report their experience using Extracorporeal Shock Waves (ESW) in “hand surgery” and discuss the principles of their application in this field, also suggesting a new effect in severe soft tissue atrophy.

From April 2002 to date, 40 patients suffering from a bone healing disorder of the hand were subjected to high-energy ESW (1 - 2 cycles of 3 treatments, 0.25 - 0.40 mJ/mm²), under local anaesthesia.

The highest success rate (> 90%) was recorded for phalanxes and metacarpals, while the lowest was reported for scaphoids (50 - 60%). As a collateral (but non-negligible) observation, all patients who had severe sequences from soft tissue loss, objectively showed a recovery of soft tissue atrophy. Subjectively, they described their fingers as, “softer, more sensitive, less painful”.

From the critical analysis of their clinical experience, the Authors will discuss some conclusions: 1) ESW are a valid tool for bone healing disorders, not only of scaphoid but also of the whole skeleton of the hand, but only in presence of mechanical stability (phalanxes need to be surgically stabilized before treatment); 2) Even if not justified to treat acute traumas, early ESW (when supported by biological and clinical suspicion of delay) can change the manner of healing; 3) ESW seem to have an important “trophic effect” also on soft tissue, even with skin integrity, thus confirming a strong angiogenetic action.