

Shock wave therapy of osteoarthritis of the first carpometacarpal joint

Uta Stiegler-Baer reports about the successful use of **shock waves in the treatment of osteoarthritis of the first carpometacarpal joint.**

Is shock wave therapy capable of providing promising results in the treatment of osteoarthritis? Extracorporeal shock wave therapy (ESWT) is a treatment modality widely used in orthopaedic applications. In medical terms, ESWT stimulates the regeneration of tissue affected by degenerative changes. It has already proved its effectiveness in the treatment of enthesopathies and perfusion disorders. Whether ESWT is also successful in the treatment of osteoarthritis can be demonstrated by applying shock waves to the easily accessible and confined region of the first carpometacarpal (CMC) joint, which today is frequently subjected to excessive stress.

The incidence of osteoarthritis of the first CMC joint, also referred to as thumb saddle joint, has increased exponentially over the last few years. This is due to the fact that the CMC joint of the thumb plays an increasingly important role in our everyday lives. The condition is primarily caused by daily excessive stress on the articular surfaces of the first carpometacarpal joint resulting from the use of keyboards, PCs, mobile phones or game consoles and, worst of all, from writing text messages and e-mails. Typical consequences are radial exostosis and



Treatment of osteoarthritis of the first CMC joint with radial shock wave therapy (R-SW) using the DUOLITH® SD1 »ultra« system with integrated ultrasound imaging

the collapse of the trapezium bone. This joint-forming bone and the first metacarpal bone lose cartilage due to the damage caused by pressure. This means that the pressure exerted on the bone increases, giving rise to a local perfusion disorder. The stress leads to the formation of a marginal bony ridge and to the development of osteochondrosis. The diagnosed osteoarthritis of the first

carpometacarpal joint is verified by ultrasound scans and X-rays. Stress-induced pain is perceived in the thumb or forearm. In many cases, mobility is restricted in abduction and flexion and thumb abduction may eventually become impossible due to the bony changes. Overextension of the metacarpophalangeal joint and flexion of the distal interphalangeal joint result in the typical Z-shaped deformity of the thumb. Functional impairment and pain-induced inactivity weaken the thumb muscles and cause severe tenderness to pressure of the thumb saddle joint. Tension, pressure and translation cause equally strong pain. Moreover, crepitus (grating or crackling sounds) can be noticed. Treatment should be instituted as soon as the first pain symptoms are perceived.

In ESWT treatment, the shock waves are applied to a confined region above the radial joint capsule, which is measured, calculated and precisely localized in an ultrasound scan before treatment is started. About 2000 shocks are applied per treatment session at a pressure of 1.8 bar and a frequency of 16 Hz. In general, three to five sessions are necessary at intervals of seven days (see ESWT treatment schedule above). The shock wave pressure felt during the procedure is uncomfortable, but not



R-SW + V-ACTOR® (+ ultrasound)

painful. The shock wave energy stimulates blood circulation in the target area, thus enhancing subchondral perfusion. Moreover, shock waves also produce an analgesic effect in the joint capsule. Initially, shock waves are applied directly to the joint region. Later on, they are directed at myofascial trigger points of the thenar and hypothenar muscles and forearm muscles. Here, shock wave treatment is used to gradually restore normal muscle function. Vibration therapy with the V-ACTOR® handpiece is an ideal complement to shock wave treatment. ■

Radial shock wave therapy (R-SW) and vibration therapy (V-ACTOR®) of osteoarthritis of the first CMC joint

Day 01: R-SW 2.0 bar, 2000 shocks, 19 Hz;
V-ACTOR 2.4 bar, 1600 pulses, 21 Hz
Day 07: R-SW 2.1 bar, 2000 shocks, 19 Hz;
V-ACTOR 2.4 bar, 1600 pulses, 21 Hz
Day 14: R-SW 2.1 bar, 2000 shocks, 19 Hz;
V-ACTOR 2.4 bar, 1600 pulses, 21 Hz
Day 21: R-SW 2.2 bar, 2000 shocks, 19 Hz;
V-ACTOR 2.4 bar, 1600 pulses, 21 Hz
Day 28: R-SW 2.2 bar, 2000 shocks, 19 Hz;
V-ACTOR 2.4 bar, 1600 pulses, 21 Hz

STORZ MEDICAL

► **Author:** Dr. Uta Stiegler-Baer, specialist in orthopaedics, trauma surgery, rheumatology, sports medicine, chirotherapy, acupuncture, naturopathy, osteology and special pain therapy Kurfürstendamm 139, 10711 Berlin, Germany
www.praxis-stiegler.de

► **Further information can be obtained from:** STORZ MEDICAL