

Focused shock wave therapy for pseudarthrosis

Out-patient, non-invasive alternative

Pseudarthrosis refers to a rare condition in which a fracture fails to heal. Some bones are affected more often than others. These include the long bones (tibia, femur, humerus and ulna, with the radius) and the scaphoid. Conventional treatment involves surgery. An alternative method that is gaining significance among orthopaedists comprises therapy with focused shock waves. It can be used to stimulate healing processes. The advantage of this therapy form is that it can be performed on an out-patient basis and non-invasively.

This also shortens the patient's rehabilitation period. During treatment, the fracture gap is identified with X-ray or ultrasound.

Then a flexible therapy head is used to focus the shock waves in the fracture gap. Several parts of the pseudarthrosis are treated with shock waves in order to ensure that the bone grows evenly. To cover the entire range of bone-healing disorders, it is important to have both a high-energy lithotripter for treating long bone fractures and a practice device such as the DUOLITH® SD1 »ultra« for treating smaller bones such as the clavicle or the metatarsal or metacarpal bones.

Below we present a case study of a patient with delayed bone healing (»delayed union«) of the left clavicle.



Fig. 1: Clavicle with a Pevot nail

Diagnosis

Delayed union of the left clavicle in the middle third of the shaft after primary intramedullary nailing (11 September 2013). Because the patient was asymptomatic, the patient did not want to undergo surgical revision. Locating the fracture gap with the DUOLITH® SD1 »ultra« ultrasound diagnostic module was quick and easy.



Fig. 2: F-SW treatment with handpiece at 30° angle, ventral view

Therapy

Device: DUOLITH® SD1 »ultra« in the focused mode
Impulses: 3000

Energy: 0.35 mJ/mm²

Position: Patient supine with flat chest. The handpiece was applied at a 30° angle.

Remarks

Treatment was performed with continuous monitoring of pulmonary function (oxygen saturation, heart rate, respiration). A pulmonary function test and auscultation were performed and the patient's blood pressure checked. Despite the proximity to the apex of the left upper lobe of the lung (contraindicated in formal terms), it was possible to apply ESWT.



Dr. Frank Bätje, author

The author has 15 years of experience with shock wave therapy and is specialized in treating bone-healing disorders. He uses various shock wave therapy devices (STORZ MEDICAL MODULITH® SLK, STORZ MEDICAL DUOLITH® SD1 »ultra« and the SIEMENS Modularis Variostar®) at three locations in private practice and clinical settings and treats patients with the entire range of orthopaedic and trauma indications. 95 per cent of his patients are referred by other specialists from practices and hospitals, employers' liability insurance associations, professional sports clubs and the German armed forces.

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