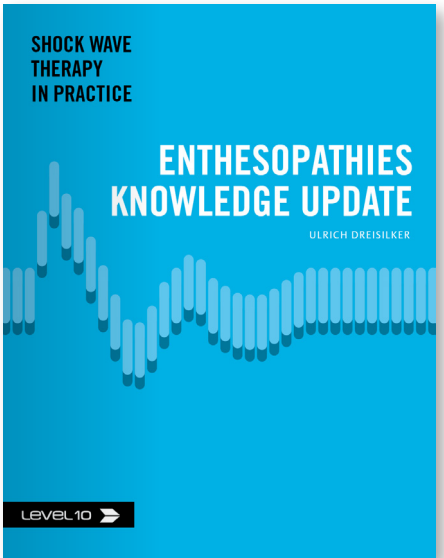
SHOCK WAVE
THERAPY
IN PRACTICE
ENTHESOPATHIES
KNOWLEDGE UPDATE
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LEVEL10

1st edition November 2020
Print run: 500

Lavaho Buchverlag, Daniela Barmberg
Lise-Meitner-Str. 6, 74074 Heilbronn, www.level-books.de

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English Translation from German: Henriette Bäcker

Design: BAMBERG kommunikation GmbH
Printing and binding: Schweikert Druck, Jürgen Schweikert e.K
Wieslensdorfer Straße 36, 74182 Obersulm-Eschenau
Printed in Germany

ISBN 978-3-945106-2-9

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GENERAL TREATMENT INFORMATION AND TREATMENT FUNDAMENTALS

PATIENT POSITIONING

Getting patients into a stable and relaxed position facilitates localization of painful tendinopathies or myofascial trigger points (MTrPs) and their treatment with extracorporeal shock waves (ESWs).

Treatment of the shoulder girdle is generally performed with the patient in side-lying position. Trigger points and insertional tendinopathies can be rapidly scanned both ventrally and dorsally.

Figure 10:
Stable side-lying position

The supine position is ideal for enthesopathies and myofascial trigger points in the upper arm or forearm. Treatment of lateral epicondylitis is performed with the elbow lying flat on the patient table and flexed to about 100°.

Figure 11 (left):
Supine position

Figure 12 (right):
Forearm position with the patient supine (medial epicondylitis)

DIAGNOSTIC IMAGING

- X-ray, including scapular Y-view, osseous pathologies
- Sonography, functional examination, plus PDI (if required)
- MRI of pathological morphologies

EXCLUSION CRITERIA

- Functional or secondary impingement
- Vertebrogenic, vascular or neurovascular causes
- Entrapment neuropathy of the spinal accessory nerve at the point where it emerges dorsally from the sternocleidomastoid (SCM) muscle or where it enters the trapezius muscle; adhesions after ENT surgery (e.g. neck dissection)
- Traction/compression of the suprascapular nerve in the suprascapular notch, especially after RC rupture caused by medial displacement of muscles[120, 121]
- Compression of the axillary nerve between the head of triceps and teres major muscles in the lateral axillary foramen (overhead work)[120]
- Neuralgic shoulder amyotrophy
- Complete rotator cuff rupture
- Acute subacromial bursitis with reactive effusion in the synovial sheath of the long biceps tendon

TREATMENT

Suggestion: Regimen A, Regimen B for PW therapy (see chapter "Combination of shock wave and pressure wave technology")

Patient positioning: stable side-lying position

Figure 28:
Blue marker: supraspinatus tendon attachment to the greater tuberosity of the humerus. Other attachment trigger points (not shown), e.g. at the rhomboid muscles, levator scapulae muscle or latissimus dorsi muscle, can be localized / Red markers: myofascial trigger points in the supraspinatus and infraspinatus muscles located below the trapezius muscle layer

Figure 29:
ESWT of the supraspinatus insertion site and long biceps tendon after eliciting local patient-recognized pain or referred pain (not constant)

Figure 30:
PW treatment of myofascial trigger points in the supraspinatus tendon (example)

Patient positioning: prone position (see p. 52)

Figure 43:
Foot joints extend beyond the end of the patient table; therapist immobilizes the patient's foot with his/her knee/ Blue marker: identifies attachment trigger point in the medioplantar region of the heel / Red marker: example of trigger point in the medial gastrocnemius region; potential trigger points in triceps surae muscles not shown

Figure 44:
FW treatment of calf muscles/ Red marker: example of additional trigger points (not shown)/FW treatment of sole-side quadratus plantae muscle (not shown)

Figure 45:
SW treatment of the medioplantar region of the heel with strongest local pain (pain recognition)

JUMPER'S OR RUNNER'S KNEE, PATELLAR INSERTIONAL TENDINOPATHY

AETIOPATHOGENESIS

The lever arm effect of the thigh and lower leg causes tensile stress in the knee extensor mechanism, which may be exacerbated by jumping sports and stop-and-go movements. This can lead to the development of insertional tendinopathy. Not only athletes are at risk, but also non-athletes, older or overweight people demonstrating diminished muscle extensibility. Quadriceps atrophy and weakness of the contractile elements (sarcomeres) reduce the kinetic energy in the tendons, causing them to become rapidly overexerted. As a consequence, patellar tendinopathy – similarly to achillodynia – manifests with micro-tears, irregular capillaries and nociceptive fibres.

Besides impaired extensibility of the quadriceps or innate ligament weakness, patella alta is another common risk factor for developing insertional tendinopathy.

Patellar enthesopathy occurs at the following sites: at the apex of the patella (79%), at the base of the patella (16%) and at site where the patellar ligament attaches to the tibial plateau (3%). Pathological changes of the ligament in its entirety account for only 2% of all cases of patellar tendinopathy.[51-52]

DIAGNOSIS

Typical symptoms are reddening, swelling and tenderness at the apex and base of the patella or at its tibial attachment. Shortening of the tendons of the knee extensor mechanism manifests during the prone quadriceps flexibility test (measuring the distance from heel to buttock). By extending the extensor mechanism, a pulling pain is induced at the affected tendon attachment sites. The same pain is induced when the patient descends into a squat position. Reliable and precise localization of an attachment trigger point is achieved by means of shock wave navigation and the patient's feedback.