

Effectiveness of Acetic Acid Iontophoresis and Ultrasound on Calcifying Tendonitis of the Shoulder

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Case Report

Calcifying tendonitis (CT) is a common cause of shoulder pain and labour inability. The origin is the deposit of calcium phosphate/carbonate over a previously healthy tendon. The pathogenesis is unknown. CT is common in middle-aged working-women. It affects supraspinatus tendon. It is associated with smoking. Occupational risk factors are awkward positions and lifting weights [1].

Three stages with clinical/histological/radiological correlation are described, and sometimes overlap:

- 1) Pre-calcification
- 2) Calcification: a) Formative b) Resorptive
- 3) Post-calcification

The diagnosis is clinical and radiological [1].

CT treatment is initially conservative. Different electrotherapy techniques are useful reducing pain but not the calcification [1].

Iontophoresis is a non-invasive technique that increases the penetration of transdermal substances through the skin layers with the help of electric current, based on physical-chemical principles of attraction and repulsion of charges [2]. In 1955 Psaki and Carrol introduced acetic-acid Iontophoresis as an effective treatment in shoulder CT [2]. However, there are few and controversial studies to support its use. Low-frequency-Ultrasound works synergistically with Iontophoresis; it could help disintegrate and reabsorb calcification due to their mechanical and thermal effects [3].

We present the case of a 44-years-old woman, who reported a two-month history of shoulder pain which increased with movements. The pain worsened at night. The patient was right handed, not smoker, and she worked as a teacher. Anti-inflammatory drugs had no alleviation of symptoms. Radiography showed a resorptive calcification of the right supraspinatus tendon. After 10 sessions of 5% acetic-acid Iontophoresis (4.7 mA×10 minutes) and Continuous Ultrasound (1 W/cm²/1 MHz×5 minutes) over calcification, pain decreased from 10/10 to 5/10 on the Visual Analogical Scale (VAS), and calcification decreased from 24 mm to 3 mm, evaluated by 100%-size, posterior anterior radiographies of the right shoulder (Figure 1).

VAS 10/10, Calcification 24 mm



VAS 5/10, Calcification 3 mm



Figure 1: Calcifying tendonitis of the shoulder 10 sessions of AA Iontophoresis+US

We confirmed that the combination of 5% acetic-acid Iontophoresis and continuous Ultrasound is a safe and simple technique, capable to reduce pain and calcification.

References

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