

Case Report:

Physiotherapy management incorporating direct acupuncture needling into a large intrasubstance supraspinatus tear

Leigh McCutcheon
B. App. Sc. (Physio)
Grad. Cert. (Orth. Manip. Ther.)
Post. Grad. Dip. (Acupuncture)
Master Musculoskeletal (Hons.)

Presentation:



Intrasubstance tear of the anterior and mid-fibres of the supraspinatus measuring 1.8cm x 1.2cm (9/52 post-injury)

- 64 yr female
- Injury 2 months prior; acutely painful for 2 weeks, ISQ for last 4 weeks
- Fl = 120° Abd = 90°
- Supraspinatus :
 - Empty can = 4-/5
 - 30° Abd = 4-/5
- Hawkins & Kennedy test = pos ++
- Neer test = pos ++ at 70° fl
- Apprehension & Relocation test : 120° pos +
- Diagnosis:
 - Supraspinatus rotator cuff tear
 - Anterior instability with evident Hill-Sach's lesion

Acupuncture and Dry Needling:



Acupuncture needles inserted in supraspinatus (LI 15 40mm, LI 16 50mm and SI 12) and infraspinatus (SI 11 & SI 10)

- DASH = 71.7% (12/52)
- Acupuncture mechanisms: local and segmentally mediated effects via the suprascapular nerve (C4-6)
- 8 Rx's over 3/12
- Fl = 180° Abd = 165°
- Supraspinatus :
 - Empty can = 4+/5
 - 30° Abd = 4+/5
- Resumed Golf
- DASH = 27.5% (24/52)

Final Presentation:



Heterogeneity of the supraspinatus tendon representing a small 3mm tear (35/52 post-injury)

- Acupuncture mechanisms: local and segmentally mediated effects via the suprascapular nerve (C4-6)
- 3 Rx's over 2/12 including dry needling of infraspinatus
- Fl = 180° Abd = 180°
- Supraspinatus :
 - Empty can = 5/5
 - 30° Abd = 5/5
- Pain free
- DASH = 5% (32/53) (mild apprehension at 120°)

Acupuncture: Implications for supraspinatus tendinopathy &/or tears

- Pathology of torn rotator cuff tendons depicts differences in cellular and vascular changes for small (< 1cm) vs. large (> 1cm) tears (Matthews, et al., 2006)
- Local effects of acupuncture needling have been shown to be mediated by stimulation of Aδ (superficial) & C (deep) afferent fibres resulting in activation of mast cells and release of histamine, bradykinin, serotonin, adrenocorticotrophic hormone (ACTH) and proteolytic enzymes (Karavis, 1997)
- C afferent in skeletal muscle → CGRP → local skeletal muscle blood flow vasodilation and neural vasa nervorum vasodilation & modulation of local immune responses (Bradman, 2003; Sato, Uchida, Shimura & Sato, 2002)
- CGRP is pro-inflammatory in large doses (24-36 hrs) but pro-anti-inflammatory in small doses (Brain, 1997; Businskaitė, et al., 1998; Carlsson, 2002; Gherardini, et al., 1998; Wong & Rapson, 1999)

Clinical evidence:

- Kleinhenz, et al., (1999) compared acupuncture for rotator cuff tendinopathy vs. the Streitberger placebo needle
- Results of this single case report raises the possibility of an alternative to surgery in the case of a supraspinatus tear without retraction.
- Results of this single case report supports the need for RCTs to further evaluate the effect of deep acupuncture needling on the rotator cuff