Pan P-J, Chou C-L et al. Extracorporeal Shock Wave Therapy [ESWT] for Chronic Calcific Tendinitis of the Shoulders: A Functional and Sonographic Study. Arch Phys Med Rehabil 2003;84:988-93.

Design: Randomized clinical trial

Population/sample size/setting:

- 60 patients (mean age=57, 21 men, 39 women) with radiographically and sonographically verified calcific tendinitis and either moderate pain (4 or more on VAS of 0-10) or 6 months of continuous pain treated in university PM&R setting in Taiwan
- Excluded if they had rheumatic or coagulation disorders, cardiac pacemaker or other implanted devices, rotator cuff tear, previous surgery for calcification, percutaneous needle aspiration or steroid injection in past 3 months

Main outcome measures:

- Randomized by draw to ESWT (n=32 patients, 33 shoulders) or TENS (n=28 patients, 30 shoulders)
- ESWT delivered with 2000 shock waves between 0.26 mJ/mm^2 and .32 mJ/mm^2 depending on patient tolerance in 2 sessions 14 days apart
- TENS applied in 3 weekly sessions of 20 minutes each for 4 weeks
- Constant-Murley test (CMS), pain VAS, and "manual muscle test" (motor strength) were used to assess shoulder function, at baseline and then 2 weeks, 4 weeks, and 12 weeks after first treatment
- Both groups improved in CMS from baseline to 12 weeks; ESWT group had greater CMS improvement (increased 28 points from baseline of 64) than TENS group (increased 12 points from baseline of 66)
- VAS decreased in both groups; ESWT decrease was greater (by 4 points from baseline of 6.5) than TENS group (by 1.7 points from baseline of 6.7)
- No significant difference observed for motor strength in either group
- Most calcifications did not disappear on repeat sonogram at 12 weeks; ESWT had greater decrease in calcification diameter than TENS

Authors' conclusions:

- ESWT more effective than TENS to achieve functional improvement and alleviate pain in calcific tendinitis of shoulder

Comments:

- Description of calcification morphology is different from that of most literature (Gartner and Simons classification); this makes it difficult to compare patient selection criteria between studies
- Sonographic assessment of calcification done blind to treatment assignment, but functional outcome assessed by treating physician apparently not blinded
- Concealment of randomization list not mentioned; may not have been done
- Some patients had a dose of 0.26 mJ/mm^2 and some had 0.26 mJ/mm^2, depending on tolerance of the patient

- Some authors (Bannuru 2014) divide ESWT into “high” and “low” dose, depending on whether it is >=0.28 mJ/mm^2 (high) or <0.28 mJ/mm^2 (low)
- Both high and low doses were applied in this patient population, but the effect of dose cannot be estimated from the data available

Assessment: Adequate for some evidence that ESWT is more effective than TENS for improving function in patients with calcific tendinitis

Reference:

Bannuru RR, Flavin NE, et al. High-Energy Extracorporeal Shock-Wave Therapy for Treating Chronic Calcific Tendinitis of the Shoulder: A Systematic Review. Ann Intern Med. 2014;160:542-549.