FACT SHEET

The effect of shockwave on frozen shoulder

INTRODUCTION

Definition(1)

The condition has a typical clinical picture with a painful shoulder with restricted passive mobility (capsular pattern) due to adhesions between the capsule and the head humerus is also called "frozen shoulder", an imprecise term.

Inflammation of the entire joint capsule and synovia results in prolonged pain and significantly reduced active and passive mobility

Diagnostic criteria(1)

- The condition is characterized by a prolonged course with a creeping onset
- After some time, a capsular pattern develops with reduced passive mobility as well as painful and reduced active movement
- Most often, outward rotation is most reduced, followed by abduction, while inward rotation is least reduced

Etiology and pathogenesis(1)

- In most people, the cause is unknown, so-called idiopathic capsulitis
- Capsulitis can also occur after a trauma, e.g. a fall with a blow to the shoulder or after major surgery on the thorax or neck
- The condition can be secondary to long-term inactivity in the elderly, e.g. fracture,apoplexy,rheumatoid artrit, or other rheumatic disorders
- The condition is more common in patients with Dupuytren, diabetes or thyroid diseases

Frozen shoulder is a diagnosis that is often used in clinical practice. In the following, the correct clinic diagnosis is used as described above, and not the diagnosis that just indicates shoulder pain broadly.

METHOD

We have included this condition despite the fact that there is no meta-analysis on the subject. We include it as it is a debilitating and often long-term condition in the patient, and there is little incipient evidence that ESWT may make a difference.

Since there is no separate meta-analysis, it has been based on a meta-analysis that examines all the treatment options used for the treatment of frozen shoulder.

Zhang et al. Comparative Efficacy and Patient- M Specific Moderating Factors of Nonsurgical Treatment Strategies for Frozen Shoulder. An Updated Systematic Review and Network Meta-analysis. (2)

Zhang et al. included studies with the following definition/diagnosis: Frozen shoulder is defined by 3 key clinical characteristics: an insidious onset of severe pain, shoulder stiffness with markedly reduced external rotation, and negative radiographic findings.

RESULTS

Below is an overview of the methods and effects of the included studies.

Zhang et al.			
3 studies included	The treatment effect has been measured:	2 studies with fESWT 1 studies with rESWT	Assessment:
36	Baseline, 2 and 24 weeks		Visual Analogue Scale (VAS)
106	Baseline, 2,4,6 and 12 weeks		Shoulder Pain and Disability Index (SPADI)
40	Baseline, immediately after, 2 and 5 months	1 bar = 0.1 mJ/mm2	Disabilities of the Arm, Shoulder and Hand questionnaire (DASH)
		1MPa = 10 bar	Oxford Shoulder Score evaluation (OSS) Range of motion (ROM)

STUDY	DOSE	CONTROL GROUP	EFFECT	METHOD
Vahdatpour et al. 2014 (3) fESWT 36 included	4 treatments, 1 x per week 1200 pulses, between 0.1 and 0.3 mJ/mm2 Max intensity = patient's maximum pain tolerance Everyone also had to do swing exercises 5-10 times, stretch the back of the shoulder 2 x daily.	Sham ESWT	fESWT shows significantly better results: reduced pain, increased mobility and better general function	Sitting in a chair. The shoulder is treated anteriorly and posteriorly (not specific indication of where)
Hussein et al. (4) rESWT 106 included	4 treatments 1 week apart 2000 pulses, 3.5 bar All with home program (pendulum exercises, "climb up the wall", "string pulling" 3 x daily.	Sham rESWT	Significant and clinical improvement in the fESWT group compared to the control group at both the 2 and 24 week follow-up. The difference is further increased by the 24-week control in favour of the intervention group	1000 pulses anteriorly on the shoulder joint, the most proximal point is 1 finger's width lateral to the proc. coracoideus 1000 strokes posteriorly on the shoulder lateral to the spina scapula
Chen et al. (5)	3 treatments 14 days apart.	Oral steroid medicin (prednison)	Both groups achieved functional improvements, but the ESWT group achieved faster results.	Sitting 3 areas are addressed: 1. 1 fingers bredde lat for proc coracoideus

fESWT ? 40 included	Between 450 and 500 pulses in each area depending on the patient's pain tolerance (between 1350 and 1500 total), 12 Hz, 0.6 mJ/mm2 All with home exercises: swing exercises, shoulder lift, stretch with towel (3-4 x daily)		The steroid group achieved pain reduction early (first 4 weeks) and function improvement later (4-12 weeks) In the ESWT group, all parameters improve in the first 6 weeks, but also better after 12 weeks.	2. Above the GH joint 1 finger's width lateral to the tip of the acromion 3. Posteriorly on the shoulder next to the tip of the spina scapula.

The authors' own conclusion when comparing all the results found in the included studies:

“Capsular distension is a highly recommended choice for treatment of frozen shoulder, contributing greatly to pain relief and functional improvement; steroid injection is also a prevailing effective intervention.

Among new options, extracorporeal shockwave therapy and laser therapy show potential benefits for multiple outcomes.

Individualized optimal intervention should be considered, given that treatment effect is moderated by factors including the disease stage, time of assessment, adjunctive therapies, female sex, and diabetes.”

CONCLUSION

Initially there’s an indication that ESWT can help reduce pain and increase the level of function in the short term at least. It is therefore an option that can be tested if, for example the patient does not tolerate steroid injections, has needle phobia or other reasons for other treatment is not possible.

If pain posture and increased function can be achieved, there may be a window to speed up the possibility of other treatment, e.g. exercise therapy.

RECOMMENDATION

The patient sitting. Treatment is given in at least 2 areas, but preferably 3.
1. 1 fingers width lateral to the coracoid process
2. Above the GH joint, 1 finger's width lateral to the tip of the acromion
3. Posteriorly on the shoulder next to the tip of the spina scapula.

Can possibly be combined with relevant trigger point treatment.

Dose rESWT: 4 treatments 1 week apart, 2000 pulses, 3.5 bar

Dose fESWT: 4 treatments, 1 x per week, 1200 pulses, between 0.1 and 0.3 mJ/mm2
Max intensity = patient's maximum pain tolerance

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