

## Keele Critically Appraised Topic (CAT Form)



### Clinical Question

In patients with calcific tendinitis of the shoulder, is the addition of barbotage to a corticosteroid injection (CSI) as effective in terms of pain and function compared to CSI alone?

### Clinical bottom line

There is evidence to suggest that corticosteroid injection in combination with barbotage is effective in the treatment of calcific tendinopathy. This is based on one small Randomised Controlled Trial.

### Why is this important?

Calcific tendinitis can be a very painful condition. We are interested to explore which is the best method of treatment. Physiotherapy and injections plus or minus barbotage are treatment modalities employed in our service. Further information on the efficacy of injection compared to injection and barbotage will be helpful in supporting patients in decision making.

### Search timeframe 2013-2023

May 2023

## Search criteria

<b>Population Intervention Comparison Outcomes (PICO) themes</b>	<b>Description</b>	<b>Search terms</b>
Population and Setting	Adults	Shoulder, rotator cuff, glenohumeral. Tendinopathy, Calcium hydroxyapatite disease, tendinosis calcarea, calcific periarthritis, calcium deposit, calcific periarthritis, CPPD
Intervention or Exposure	Addition of barbotage	Dry needling, barbotage, lavage
Comparison, if any	Corticosteroid injection (CSI)	Steroids, steroid injection, corticosteroid, CSI
Outcomes of interest	Pain, function, range of movement	
Types of studies	Systematic review/meta analysis/RCT's	

## Databases searched

Medline, CINAHL, Pubmed, EMBASE, AMED, TRIP, ClinicalKey, OrthoSearch, PEDro, Google scholar, Rehabilitation and Sports Medicine Source, Cochrane

## Date of search

2003-2013

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Results of the search: include the number in each box

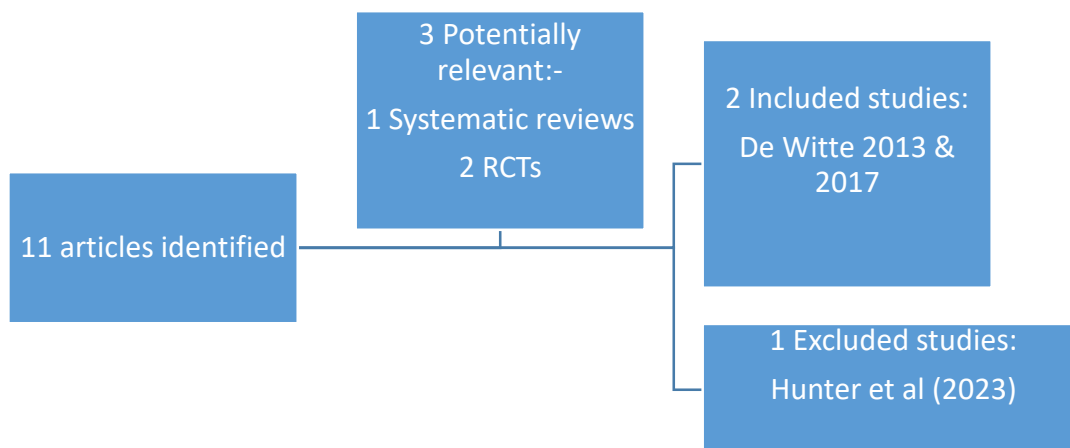


Table 1- Detail of included studies

<b>First author, year and type of study</b>	<b>Population and setting</b>	<b>Intervention or exposure tested</b>	<b>Study results</b>	<b>Assessment of quality and comments</b>
De Witte 2013 Double blind RCT (randomized control trial) with parallel groups	48 patients Adults with calcific tendinitis of rotator cuff > 3mm calcification. No improvement after 3months non-operative treatment.	Group 1; 23 patients Ultrasound (US) guided barbotage with Subacromial bursa injection (SAI) or Group 2;	Constant Morley score (CS), DASH and WORC outcomes used (see Appendix). Gartner classification used to evaluate deposits.  Both groups improved based on all 3 outcomes	Randomized by computer programme.  Followed up at 6w, 3m, 6m, 12m.  Radiographs taken before

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	<p>Patients referred to Orthopaedic hospital, Netherlands.</p> <p>Followed up after 5 years post procedure.</p>	<p>25 patients in group 2</p> <p>US guided SAI.</p> <p>Performed by musculoskeletal radiologists.</p>	<p>(CS, DASH &amp; WORC), however barbotage was more effective than SAI alone using CS score at 12months, in particular for those with type 3 Gartner calcifications (see appendix)</p> <p>No more significant differences were found between groups after 5 years.</p>	<p>treatment and at 1 year.</p> <p>Small sample size</p> <p>Good follow-up period.</p> <p>Intention to treat analysis. None lost to follow-up. Some patients in non-barbotage group went on to have further treatments but this was accounted for in the analysis.</p> <p>Both techniques were US guided</p> <p>No adverse events or complications</p> <p>Small sample size</p>
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## Summary

Evidence indicates that patients with calcific tendinitis of the shoulder benefit more in terms of pain and function from having ultrasound guided barbotage and a CSI. However, there was no difference in groups at 5-year follow-up, both groups sustain benefit equally. In primary care and interface services barbotage is not as widely available as it is administered by a smaller cohort of practitioners and requires more clinical time to undertake, which may influence decision making. Our findings are based on a small RCT, therefore larger RCT's are indicated.

## Implications for practice

Given the evidence there will be no significant change in clinical practice due to availability of the different procedures. Clinicians who deliver this technique will be aware of the categorization of calcification which will inform the shared decision-making process.

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## What would you post on X (previously Twitter)?

Steroid injection plus or minus barbotage have both been found to be effective in the treatment of calcific tendinitis.

## References

De Witte P, Selten J, Navas A, Nagels J, Visser C, Nelissen R and Reijnen M (2013) Calcific tendinitis of the rotator cuff. A randomized controlled trial of ultrasound-guided needling and lavage versus subacromial corticosteroids. American Journal of Sports Medicine Vol 41, No 7 (1665-1673).

De Witte P, Kolk A, Overes F, Nelissen R and Reijnen M (2017) Rotator cuff calcific tendinitis; Ultrasound-guided needling and lavage versus subacromial corticosteroids. American Journal of Sports Medicine Vol 45, No 14 (3305-3314).

Hunter A, Gohal C, Comeau-Gauthier M, Owen M, Shanmugaraj A, Terry M, Tjong V and Khan M (2023) Chronic calcific tendonitis of the rotator cuff: A systematic review and meta-analysis of RCT comparing operative and non-operative interventions.



Gartner classification Radiological classification of calcifying tendinitis (Gartner & Heyer):

- Type 1: clearly circumscribed and dense, formative.
- Type 2: clearly circumscribed, translucent, cloudy and dense.
- Type 3: cloudy and translucent, resorptive.

WORC Western Ontario Rotator Cuff Index

DASH Disabilities of the arm, shoulder and hand score

Please tick the box that best reflects your clinical bottom line and include the picture on page 1


CAT image	Evidence quality	Checkbox
	Good quality evidence to support use....	<input checked="" type="checkbox"/>
	Insufficient or poor quality evidence OR substantial harms suggest intervention used with caution after discussion with patient...	<input type="checkbox"/>

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CAT image	Evidence quality	Checkbox
	No good quality evidence, do not use until further research is conducted OR Good quality evidence to indicate that harms outweigh the benefits....	<input type="checkbox"/>

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