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MEDICINE

Relative Efficacy of Three Nonsurgical Treatments for Calcific Tendinitis: Physical Therapy vs Steroid Injection vs Ultrasound- Guided Aspiration

Robin Dunn, MD; Richard Chao, BS; Derrick Barnagian, BS; Albert Lin, MD
Department of Orthopaedic Surgery, University of Pittsburgh, Pittsburgh, PA

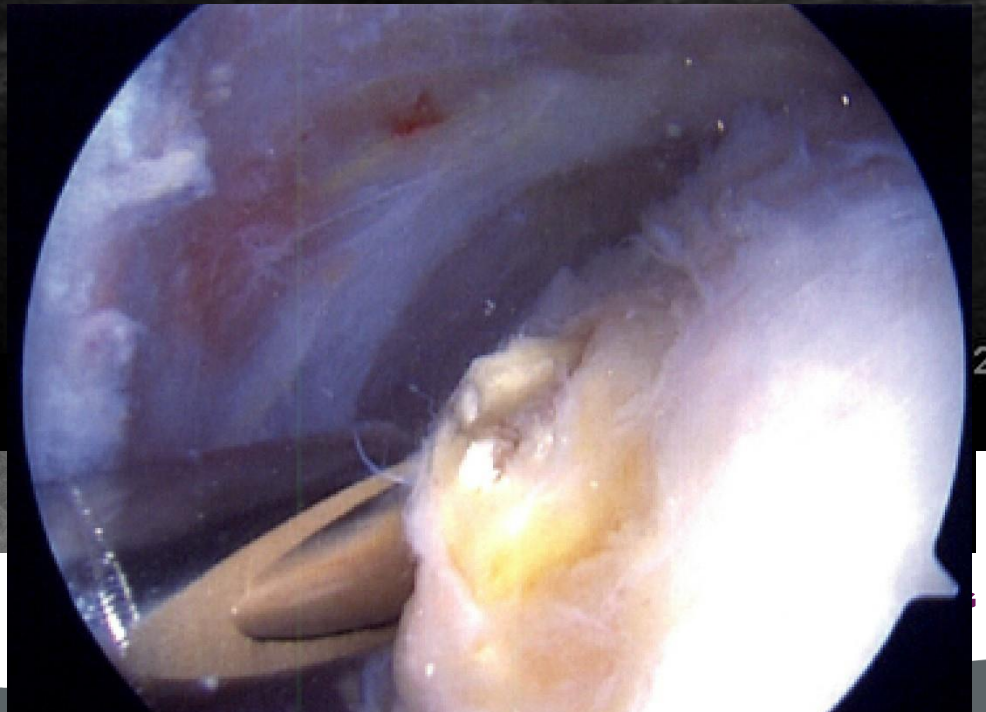
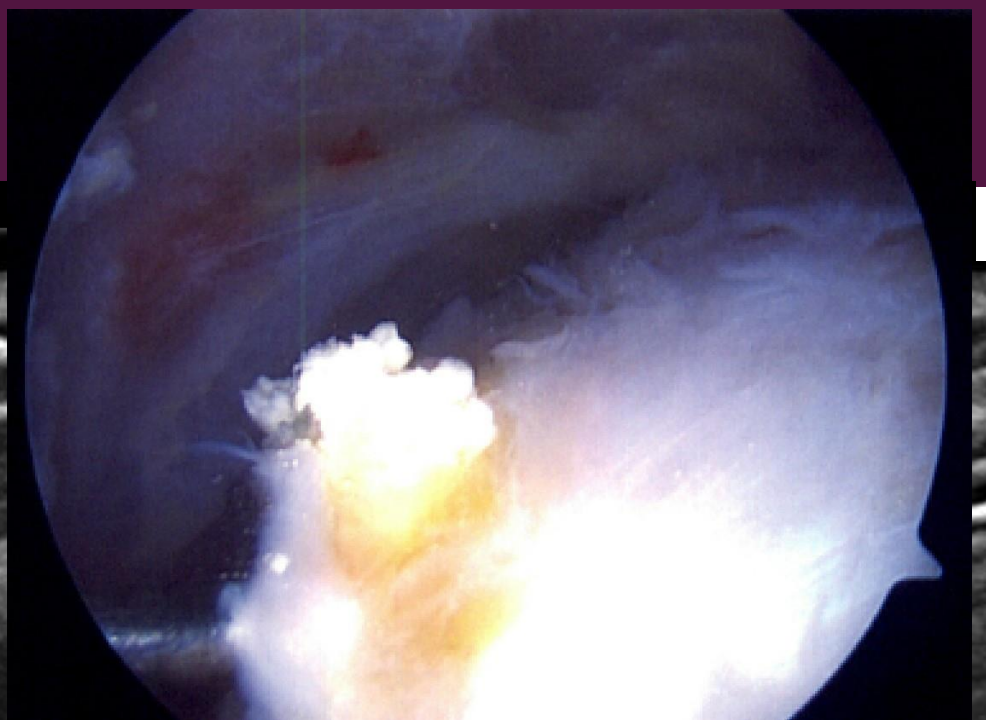
Calcific Tendinitis of the Shoulder

- Calcium hydroxyapatite
- Rotator cuff tendons
- 7.5-20% of adult population
- Pathophysiology?
- Risk factors:
 - Diabetes
 - Hypothyroid
- Natural history



Treatment Options

- Nonoperative:
 - Rest, observation
 - Physical therapy (PT)
 - Corticosteroid injections (CSI)
 - Ultrasound-guided aspiration (USA)
 - Extracorporeal shockwave therapy (ESWT)
- Surgical:
 - Arthroscopic decompression
 - +/- Rotator cuff repair



Purpose

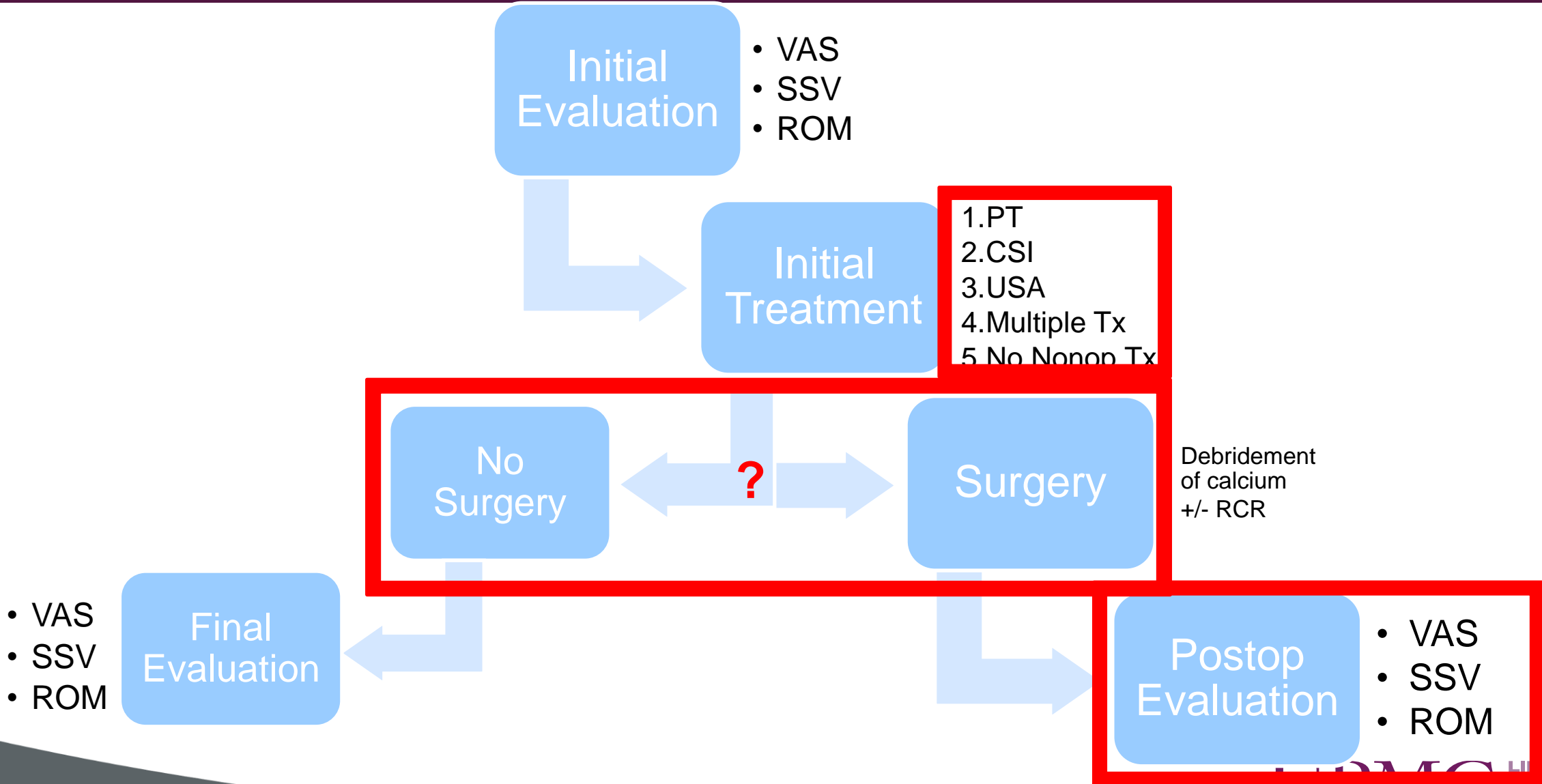
- Questions:
 - Which works best in avoiding surgery?
 - Physical therapy (PT)
 - Corticosteroid injection (CSI)
 - Ultrasound-guided aspiration (USA)
 - If → surgery, does the pre-surgery tx modality impact postop outcomes?
- Hypotheses:
 - Similar success rates in avoiding surgery
 - No differences in outcomes after surgery



Methods

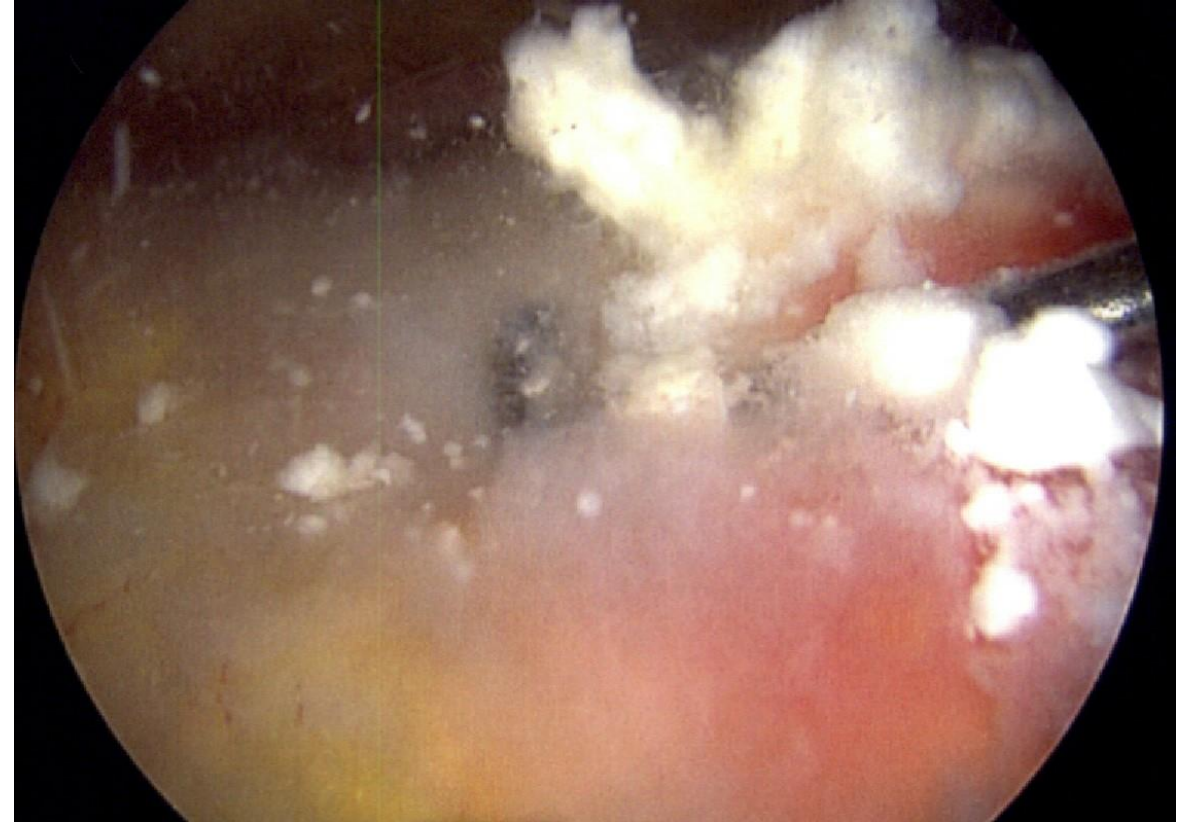
- Retrospective cohort study
- All patients w/Dx of calcific tendinitis 2009-2019
- Groups:
 - No nonoperative tx
 - PT
 - CSI
 - USA
 - Multiple modalities
- Outcomes:
 - 1^o: Success = avoiding surgery
 - 2^o:
 - VAS pain
 - Subjective Shoulder Value (SSV)
 - Range of motion (FF, ER, IR)

Methods



Results

- 120 patients
 - Avg age: 54.7 years
- Groups:
 - No nonop tx: 27
 - PT: 25
 - CSI: 24
 - USA: 30
 - Multiple: 14
- Follow up:
 - Nonop: 190.0 +/- 348.6 days
 - Surgical: 151.9 +/- 122 days from surgery



Results – Avoiding Surgery

Initial Treatment	Total	Success Rate	Failure Rate	p-values	
None	27	0%	100%	0.45	< 0.0001
PT	25	<u>60.0%</u>	40.0%		
CSI	24	<u>54.2%</u>	45.8%		
USA	30	<u>43.3%</u>	56.7%		
Multiple	14	0%	<u>100%</u>		
Total	120	<u>44.1%</u>	55.9%		

Results – Surgical Patients

Nonsurgical Patients

- Worst Pain (VAS): avg improvement of 4 points
 - No difference among PT, CSI and USA cohorts ($p = 0.91$)
- Forward Flexion: no differences among groups ($p = 0.76$)
 - Improvement: PT 30°, CSI 51°, USA 41°
- External Rotation: no differences ($p = 0.74$)
 - Improvement: PT 13°, CSI 8°, USA 16°
- Internal Rotation: no differences ($p = 0.94$)
 - Improvement: PT 3 vertebral levels, CSI 3, USA 2

Surgical Patients

- No nonoperative treatment
- PT
- CSI
- USA
- Multiple modalities
- No differences in:
 - Worst Pain (VAS, $p = 0.23$)
 - Forward Flexion ($p = 0.71$)
 - External Rotation ($p = 0.40$)
 - Internal Rotation ($p = 0.47$)

Discussion

- Avoiding surgery:
 - Overall success rate: 44%
 - No diff among groups (PT, CSI, USA)
- Symptoms:
 - All groups improved (VAS, SSV, ROM)
 - No diff among groups
- Postop outcomes:
 - All improved
 - No diff among groups
- All pts w/multiple nonop modalities → surgery



Conclusions

- Physical therapy, corticosteroid injection and ultrasound-guided aspiration all viable initial treatments for calcific tendinitis
 - Similar efficacy in avoiding surgery (44%)
- Similar postoperative outcomes, regardless of initial treatment modality
- Little utility in attempting multiple modalities

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