

Percutaneous Sectioning of the Coracohumeral Ligament for Adhesive Capsulitis

Preliminary Data from a Randomized Controlled Trial

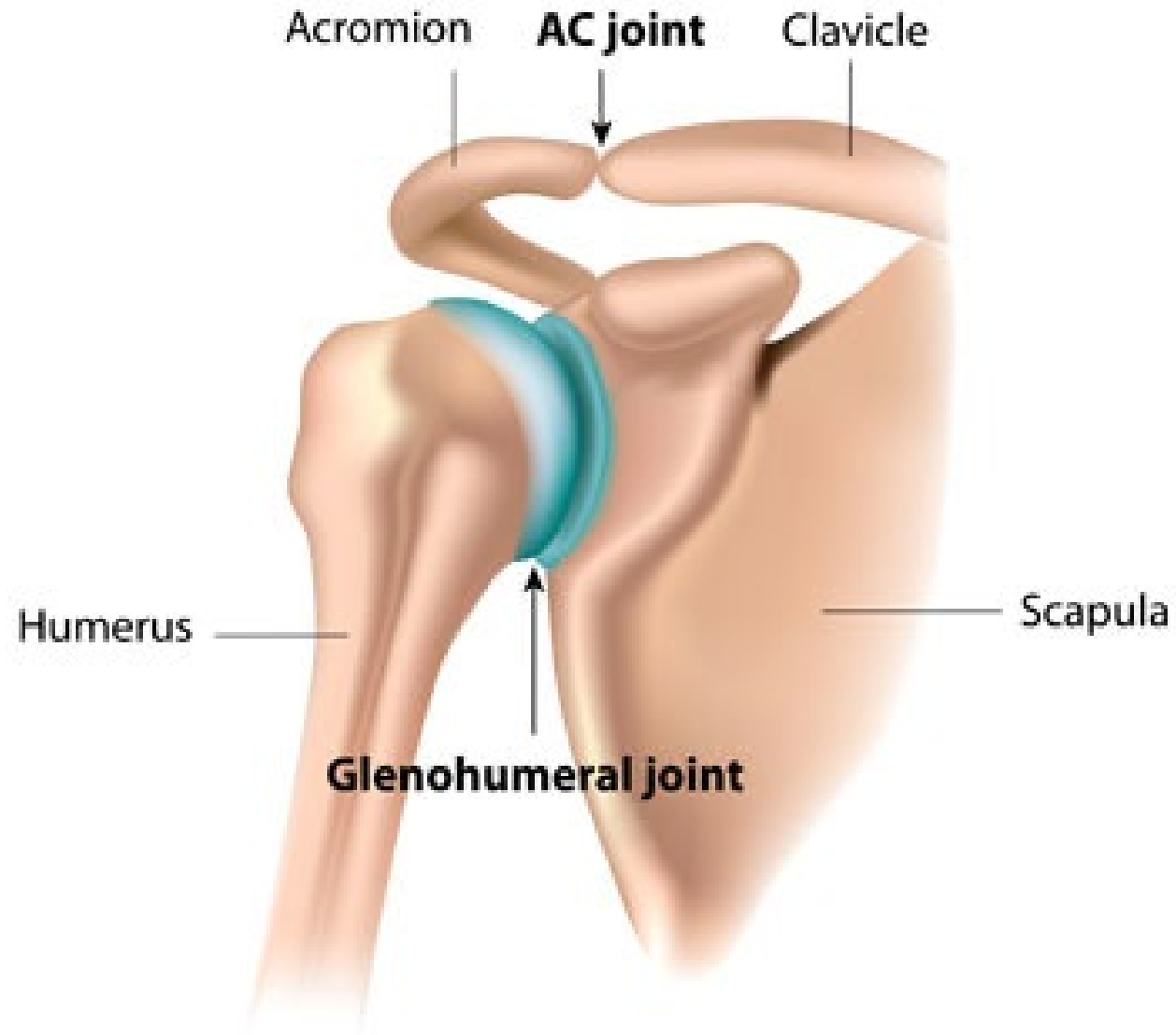
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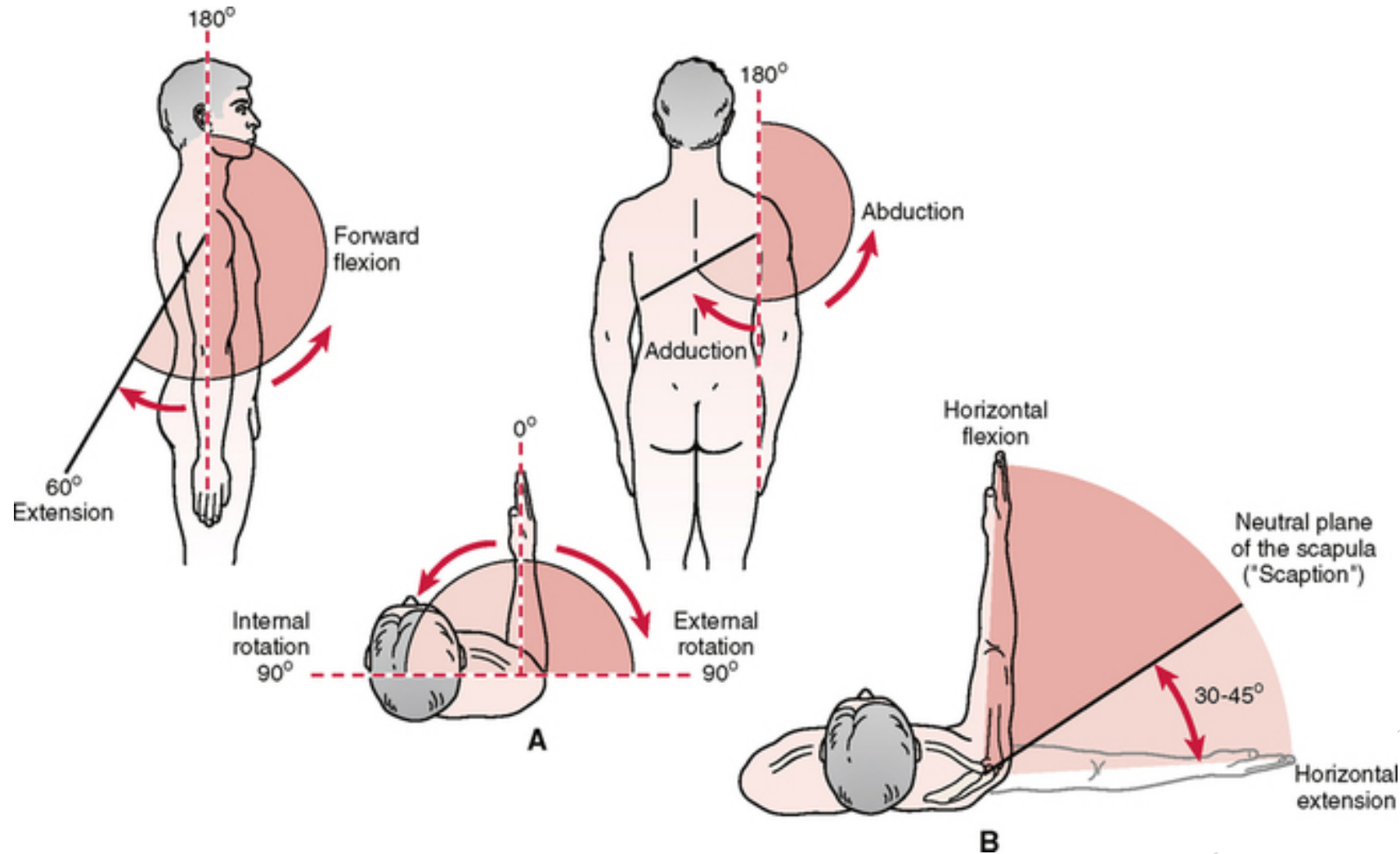
None of the researchers in this study have any financial relationships to disclose.



Shoulder (Glenohumeral) Joint

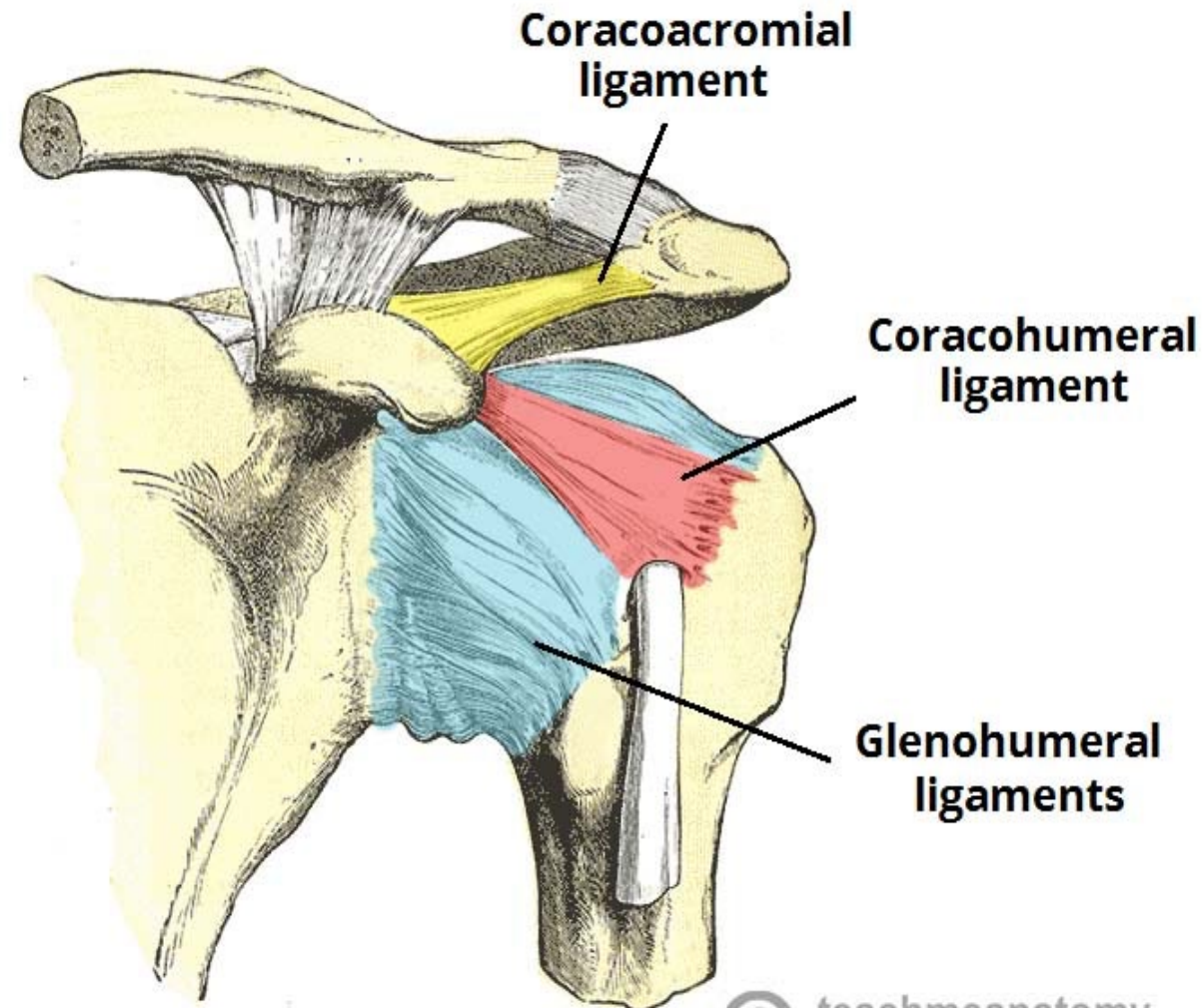


Shoulder Range of Motion





Ligamentous Support





Adhesive Capsulitis

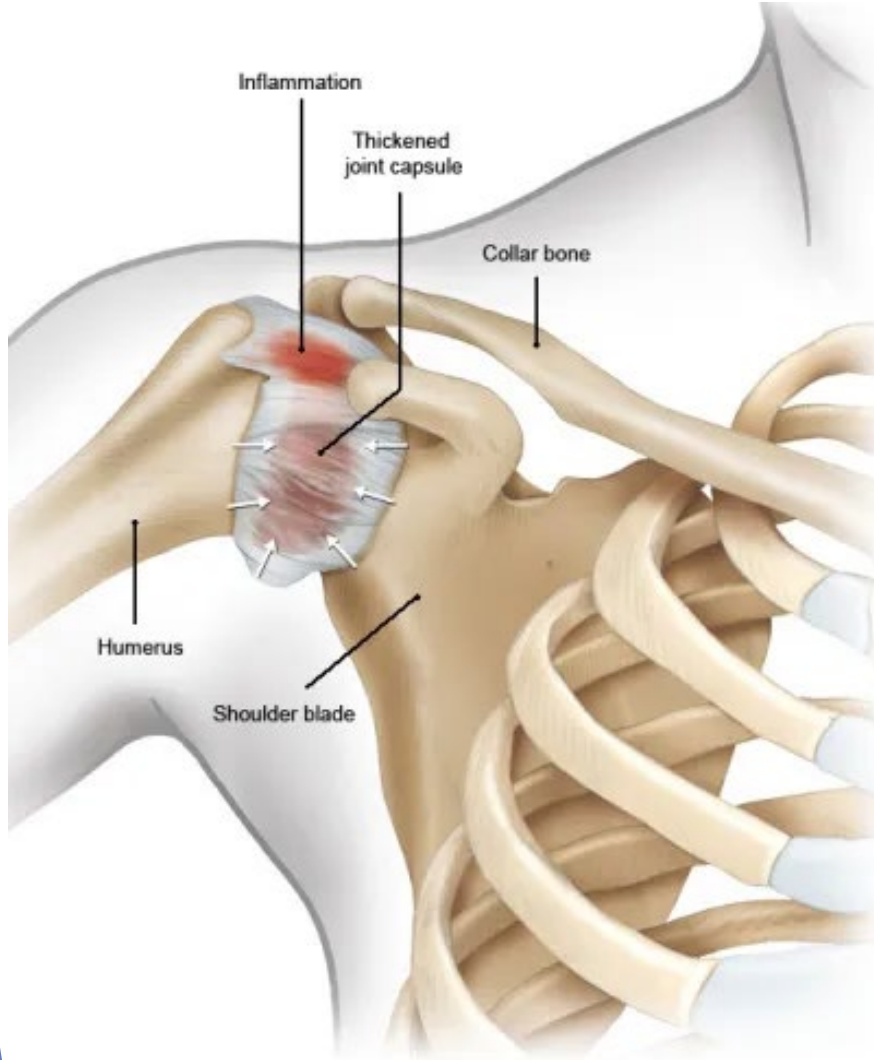
- ▶ Also known as “frozen shoulder”
- ▶ Defined as excessive scar tissue or adhesions across the glenohumeral joint, leading to stiffness, pain and dysfunction
- ▶ Primary
 - ▶ Idiopathic and can occur in the absence of trauma or inciting event
- ▶ Secondary
 - ▶ Chronic illness, articular trauma such as dislocations or surgery, and immobilization



Adhesive Capsulitis

- ▶ Affects 2-3% of the population but incidence can be as high as 20% in patients with diabetes
- ▶ Occurs in three stages
 - ▶ Painful
 - ▶ Adhesive stage
 - ▶ Recovery stage

Pathophysiology



- ▶ Underlying mechanism is not well defined
 - ▶ Capsular fibrosis and inflammation within the synovium
 - ▶ Fibroblast proliferation and thickening of the coracohumeral ligament (CHL)
 - ▶ MRI and ultrasonographic studies have consistently shown thickening of the CHL



Management of Adhesive Capsulitis

NSAIDs & PT

CSI

Hydrodilatation

Manipulation
Under
Anesthesia

Shoulder
Arthroscopy



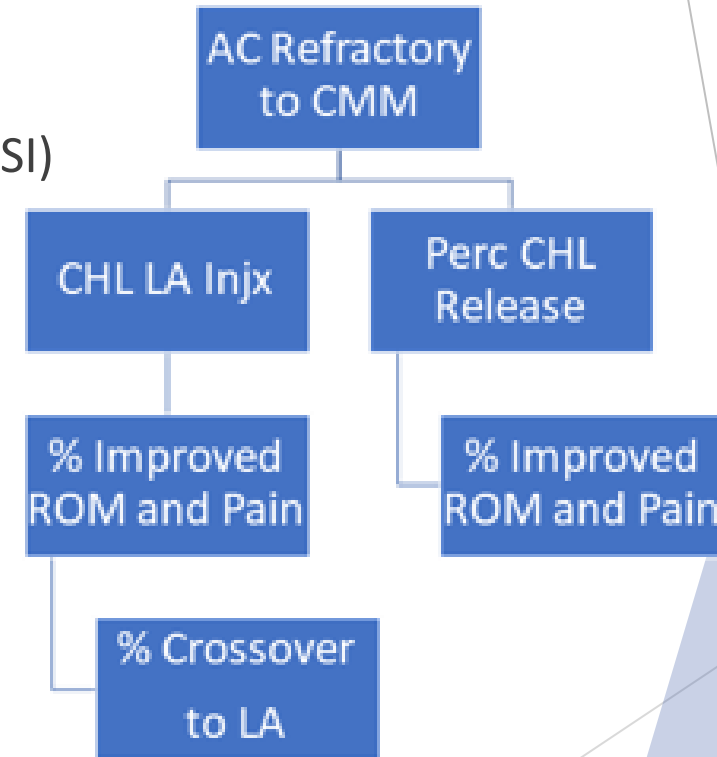
Percutaneous Sectioning of CHL

- ▶ Examines coracohumeral ligament as the target of treatment given current understanding of pathophysiology
- ▶ Offers non-invasive management of refractory or severe adhesive capsulitis
- ▶ Technique that has been useful for other conditions causing inflammatory changes and thickening of connective tissues
 - ▶ Achilles tendinopathy
 - ▶ Lateral epicondylitis
 - ▶ Greater Trochanteric Pain Syndrome
- ▶ Proof of concept achieved in cadaveric study



Study Design

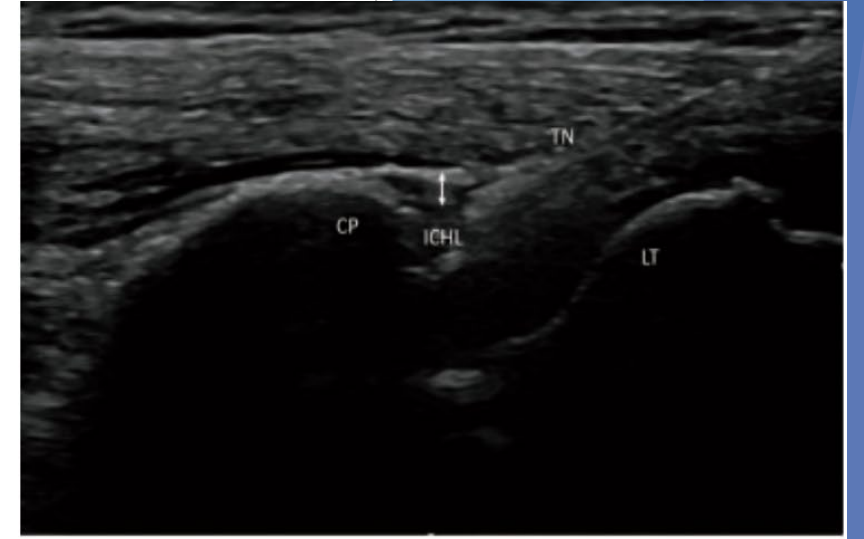
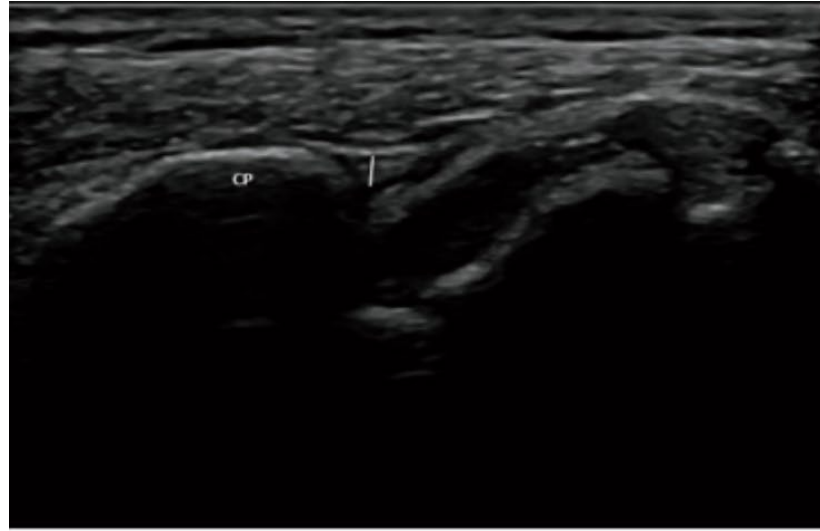
- ▶ Patient selection
 - ▶ Adults aged 18-89 years with diagnosis of adhesive capsulitis, identified by an orthopedic surgeon (non-surgical candidates)
- ▶ Inclusion Criteria
 - ▶ Failed conservative management (PT, NSAIDs, and CSI)
 - ▶ CHL thickness greater than 3mm on ultrasound
- ▶ Exclusion Criteria
 - ▶ Improved shoulder ROM with conservative mgmt
 - ▶ Current pregnancy
- ▶ Outcome Measures
 - ▶ Primary
 - ▶ ROM (external rotation and abduction) and NRS
 - ▶ Secondary
 - ▶ OSS to determine pain and functional outcomes





Intervention

- ▶ Complete sectioning achieved in 7 minutes with approximately 250 passes of the device
- ▶ Saline solution then used for irrigation and debridement





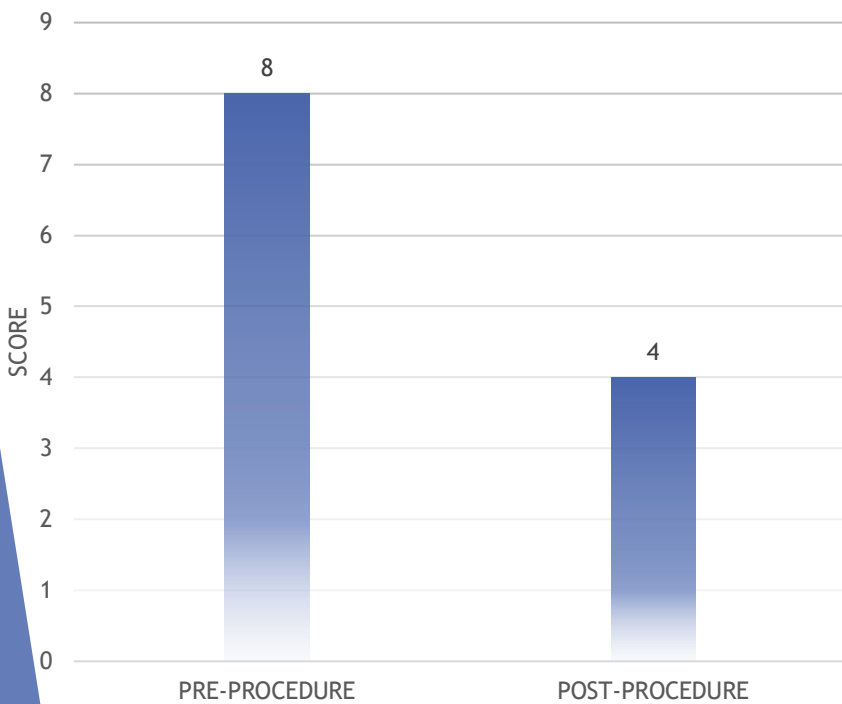
Results

- ▶ Total of 47 patients recruited (39 females and 9 males) with mean age of 62.8 years and BMI of 32.57
 - ▶ No significant demographic difference between groups
- ▶ 30 patients randomized to percutaneous sectioning and 17 to local anesthetic (13 crossed over to active group at 1 month)
- ▶ Patients in both groups had significant improvements in NRS, external rotation, and abduction post-procedure
- ▶ Tolerated well with no complications

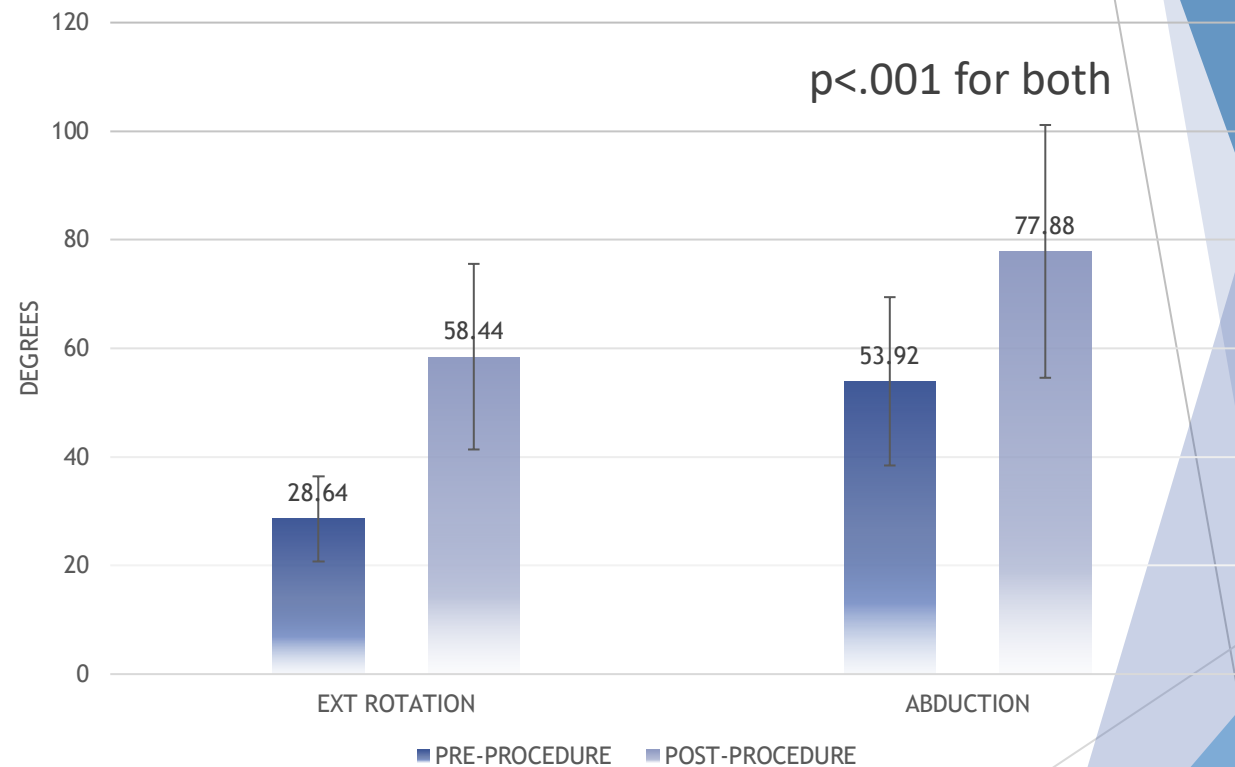


Preliminary Analysis

NRS



RANGE OF MOTION



Discussion

- ▶ Significant improvements in both shoulder external rotation and abduction noted post-procedure at one year
- ▶ Sustained relief of pain long-term
- ▶ Procedure well-tolerated

- ▶ Limitations
 - ▶ Complete long-term data to follow
 - ▶ Further studies for replication

Conclusion

- ▶ We believe that ultrasound guided CHL ligament interruption may be an effective and safe procedure for the treatment of chronic adhesive capsulitis and severe ROM deficits
- ▶ Offers minimally-invasive treatment option to refractory cases and poor surgical candidates

References

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