



# Conservative Treatment of Scapulothoracic Crepitus due to Elastofibroma Dorsi: A Case Report

Jessica Tse, M.D.<sup>1</sup>, Connor Martin, M.D.<sup>1</sup>, Brian Chau, M.D.<sup>2</sup>, Sarah Humbert, M.D.<sup>2</sup>

<sup>1</sup>Department of Physical Medicine and Rehabilitation, Loma Linda University Health, Loma Linda, CA, United States

<sup>2</sup>Department of Physical Medicine and Rehabilitation, Department of Veterans Affairs, Loma Linda, CA, United States

LOMA LINDA  
UNIVERSITY  
HEALTH

## Introduction

- Scapulothoracic crepitus, aka snapping scapula syndrome, is an uncommon condition caused by disruption of the scapulothoracic gliding articulation.
- Common etiology categories include bursitis and muscle abnormality from repetitive use.
- Uncommon etiologies include bony pathology and soft tissue mass.
  - Elastofibroma dorsi is a rare benign soft tissue tumor distinctively located at the inferior angle of the scapula.

## History

An 87-year-old male veteran with history of hydrogen bomb radiation exposure presented with:

- Chronic painless crepitus of his right scapula
- Limited shoulder range of motion (ROM)
- Winging of the right scapula
- Associated slowly-enlarging growth over 7 years

## Exam

- Non-tender, soft, mobile mass palpated at the inferomedial scapular border
- Scapular winging could not be reduced on exam and became more prominent with arms pressed against the wall and with external rotation
- Shoulder flexion and abduction full ROM limited by 20° due to a catching sensation at the scapula

## Imaging

**Ultrasound:** Hypo/hyperechoic region that is partial encapsulated

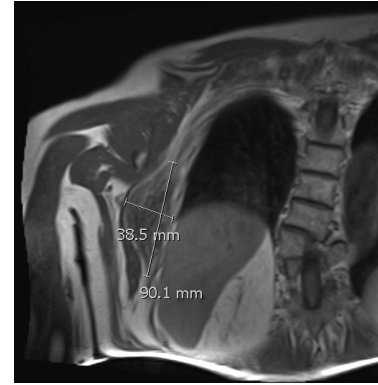
**XR R Shoulder Int/Ext:** Mild glenohumeral joint space narrowing, mild degenerative changes of the AC joint, no fractures.

**CT Chest w wo contrast:** Right sided elastofibroma dorsi. Measures 7.5 x 2.3cm however not fully visualized

**MRI R Shoulder w wo contrast:** Right posterior chest wall fusiform shaped mass located at the **level of the inferior scapula and below, located deep to the subscapularis and serratus anterior muscle, but superficial to the rib cage.** This lesion shows a heterogenous and striated appearance with solid components similar in signal intensity to muscle.

There is mild diffuse enhancement. This mass measures up to 6.6 x 2.4 cm in maximum transverse dimension, and up to 8.6 cm in craniocaudal dimension. No signal change is visible in adjacent ribs. No extension to the intercostal space or subpleural space. No regional lymphadenopathy identified.

Overall similar appearance of right posterior chest wall mass which is most compatible with an **elastofibroma**.



## Management / Outcome

**Summary:** Due to minimal functional impairment and the benign nature of the tumor, he opted for a course of **physical therapy** rather than surgical management with **significant improvement of crepitus and ROM deficit**.

### Details:

**Initial workup:** PT, advanced imaging, surgical referral

### Physical therapy:

- Completed ~4 months course prior to surgical consults
- Outcome: ROM restriction resolved. Function improved.

### Orthopedic Surgery:

- Surgery only indicated for symptomatic patients
- High prevalence of postoperative complications e.g. hematoma, seroma
- Patient preferred not to have surgery

### Orthopedic Oncology:

- Monitor tumor growth over time
- Repeat MRI in 6 months. If no change in size then repeat in 9-12 months.

### Follow-up (~1 year 9 month):

- Sustained symptom improvement
- No further subjective or objective mass enlargement

## Conclusion

- Conservative treatment with physical therapy can significantly improve function for patients with scapulothoracic crepitus due to elastofibroma dorsi.
- Clinicians must remain vigilant to identify masses as the cause of impaired scapular motion and pursue advanced imaging.

## Discussion

- Although conservative treatment consisting of pain control and physical therapy focused on restoring scapular coordination is common, the existing literature **does not report** these patient outcomes.
- Surgery is indicated only when significant functional impairment is present. A **high rate of postoperative complications** has been reported.

## References

Kuhne M, Boniquit N, Ghodadra N, Romeo AA, Provencher MT. The Snapping Scapula: Diagnosis and Treatment. *Arthroscopy: The Journal of Arthroscopic & Related Surgery*. 2009;25(11):1298-311.

Oliva MS, Smimmo A, Vitiello R, Meschini C, Muratori F, Maccauro G, Ziranu A. Elastofibroma dorsi: What's new? *Orthop Rev (Pavia)*. 2020 Jul 1;12(Suppl 1):8708. doi: 10.4081/or.2020.8708. PMID: 32913617; PMCID: PMC7459389.

Scamporrino A, Ruggiero C, Aramini B, Morandi U, Stefani A. Surgery for elastofibroma dorsi: optimizing the management of a benign tumor-an analysis of 70 cases. *J Thorac Dis*. 2020 May;12(5):1884-1894. doi: 10.21037/jtd-20-649. PMID: 32642092; PMCID: PMC7330361.