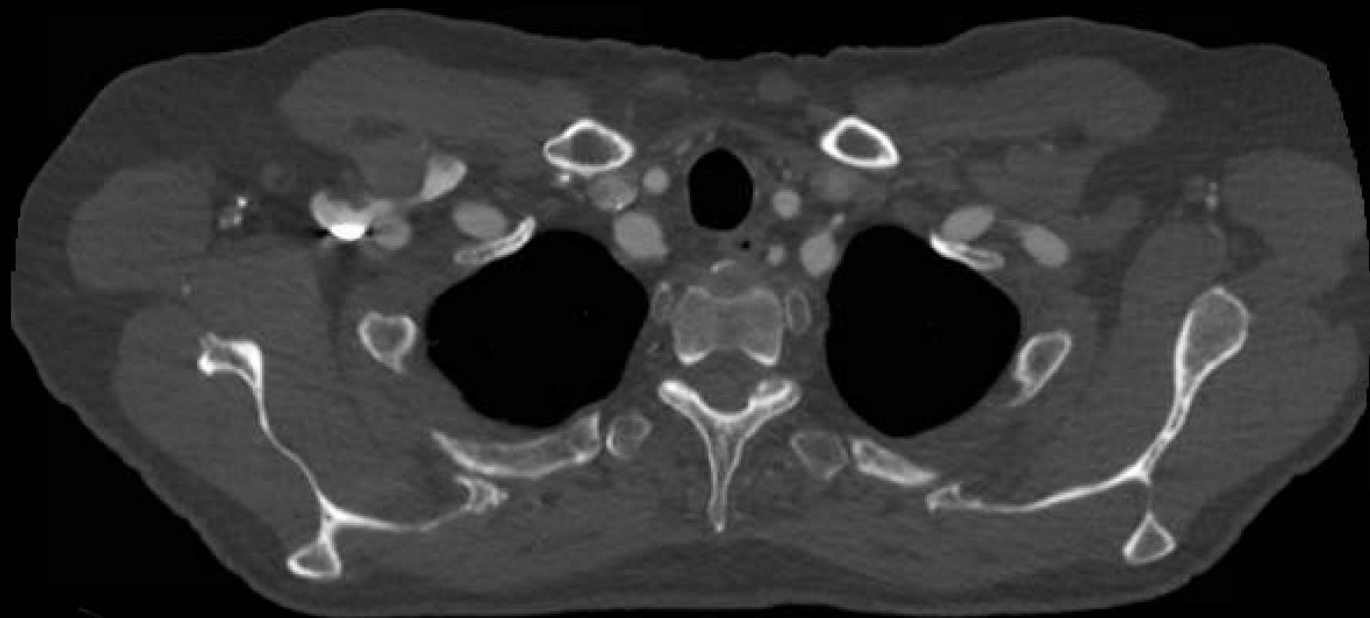
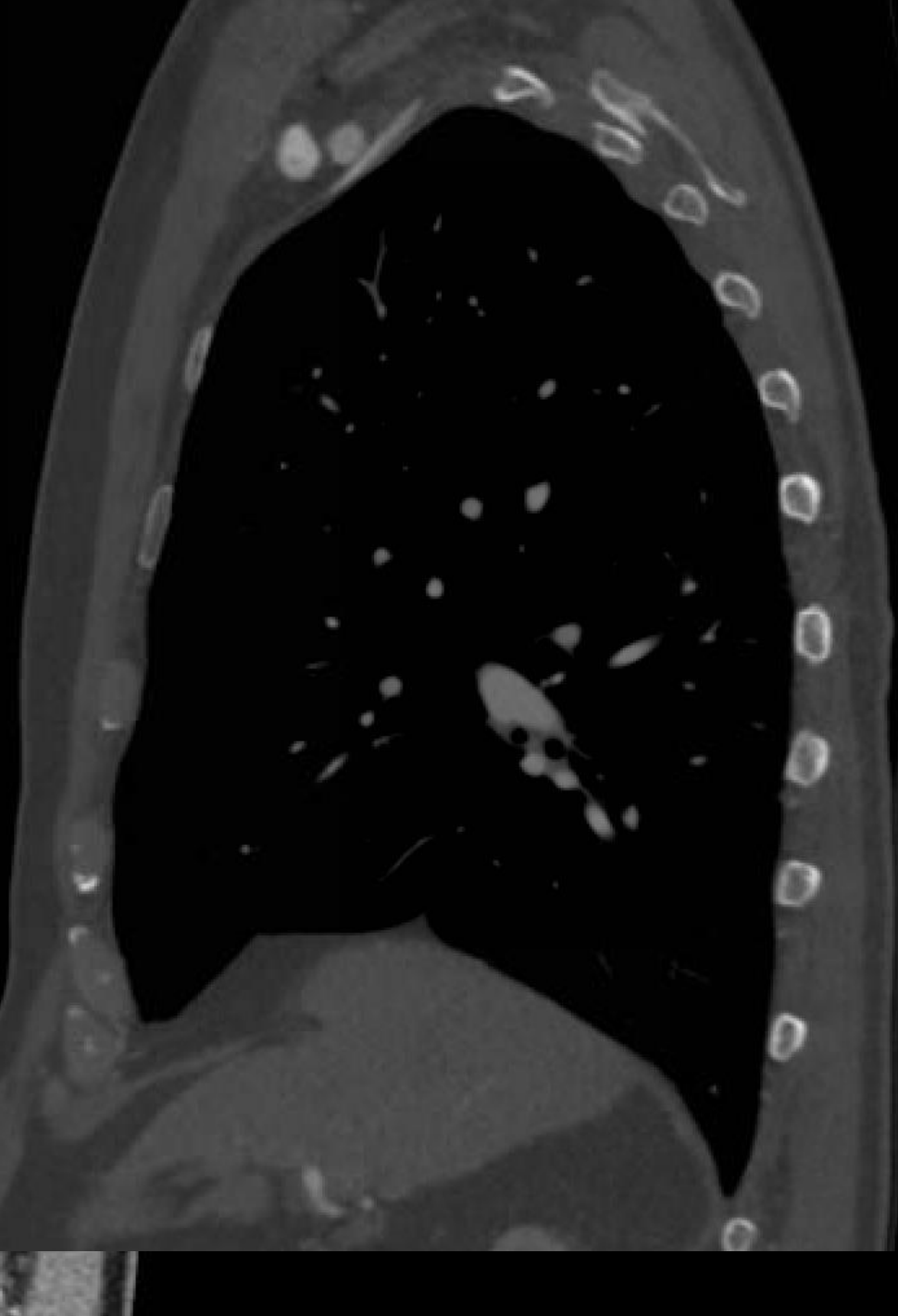
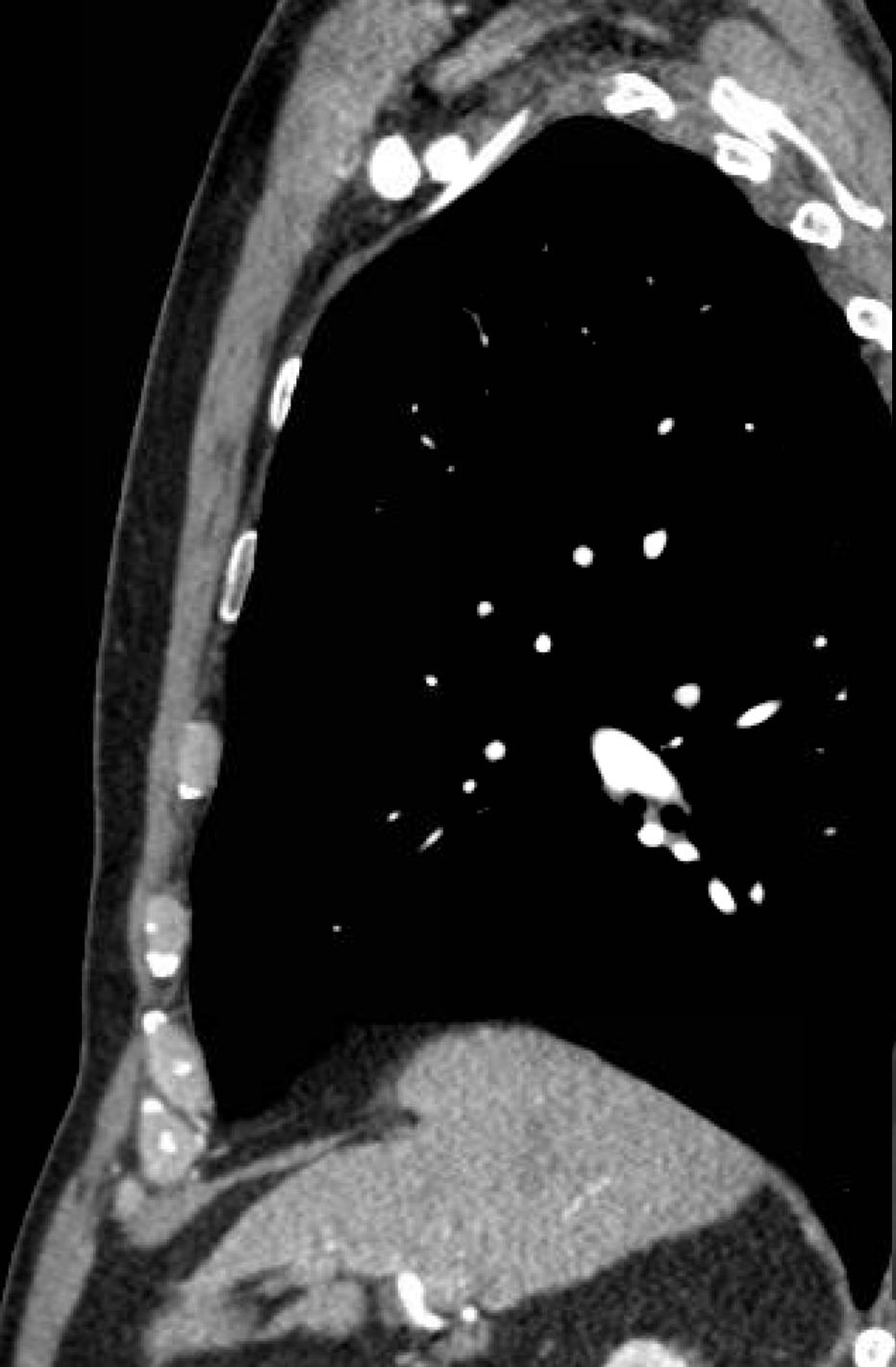
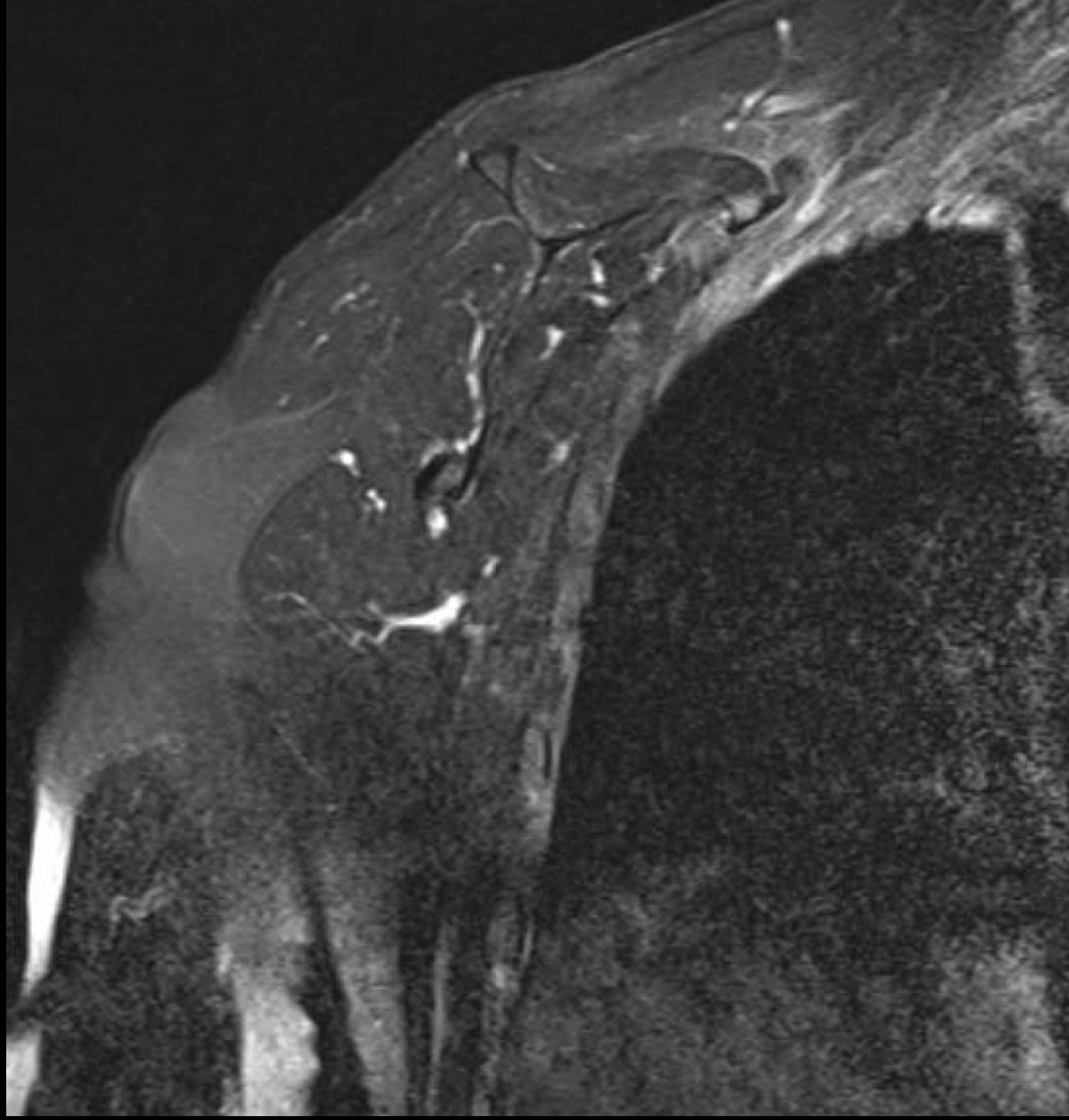


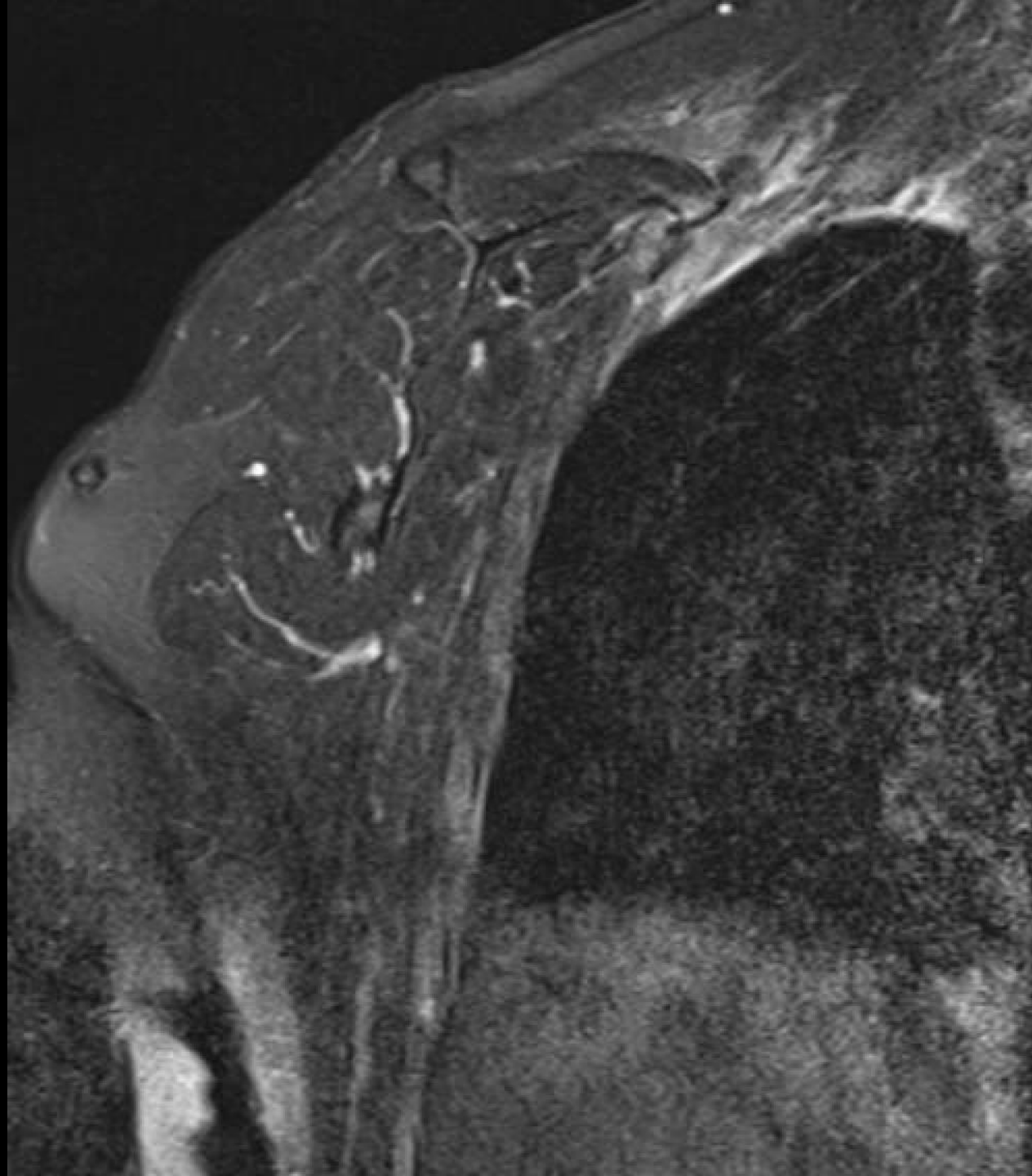


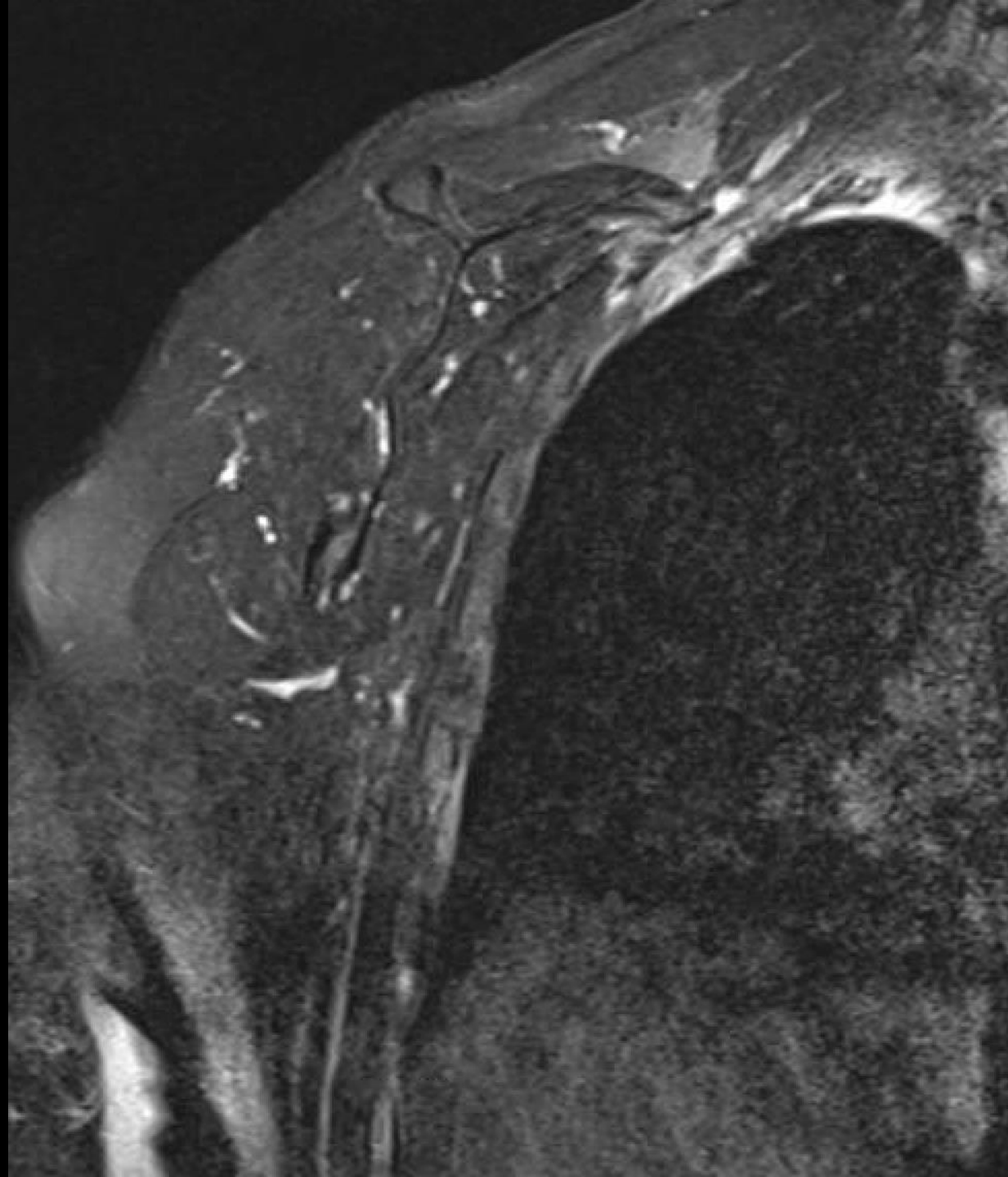
78 year old male with 3 years of scapular pain. History of prostate cancer and lymphoma











Snapping Scapula Syndrome with formation of scapulothoracic bursitis secondary to Luschka's tubercle of the scapula

- Snapping Scapula syndrome – aka scapulocostal syndrome, scapulothoracic syndrome, scapulothoracic crepitus, rolling scapula, washboard syndrome, scapulothoracic bursitis, grating scapula.
 - A grating, grinding, popping or snapping sensation of the scapula on back side of ribs or thoracic area of spine
 - May be painful or painless, palpable or audible

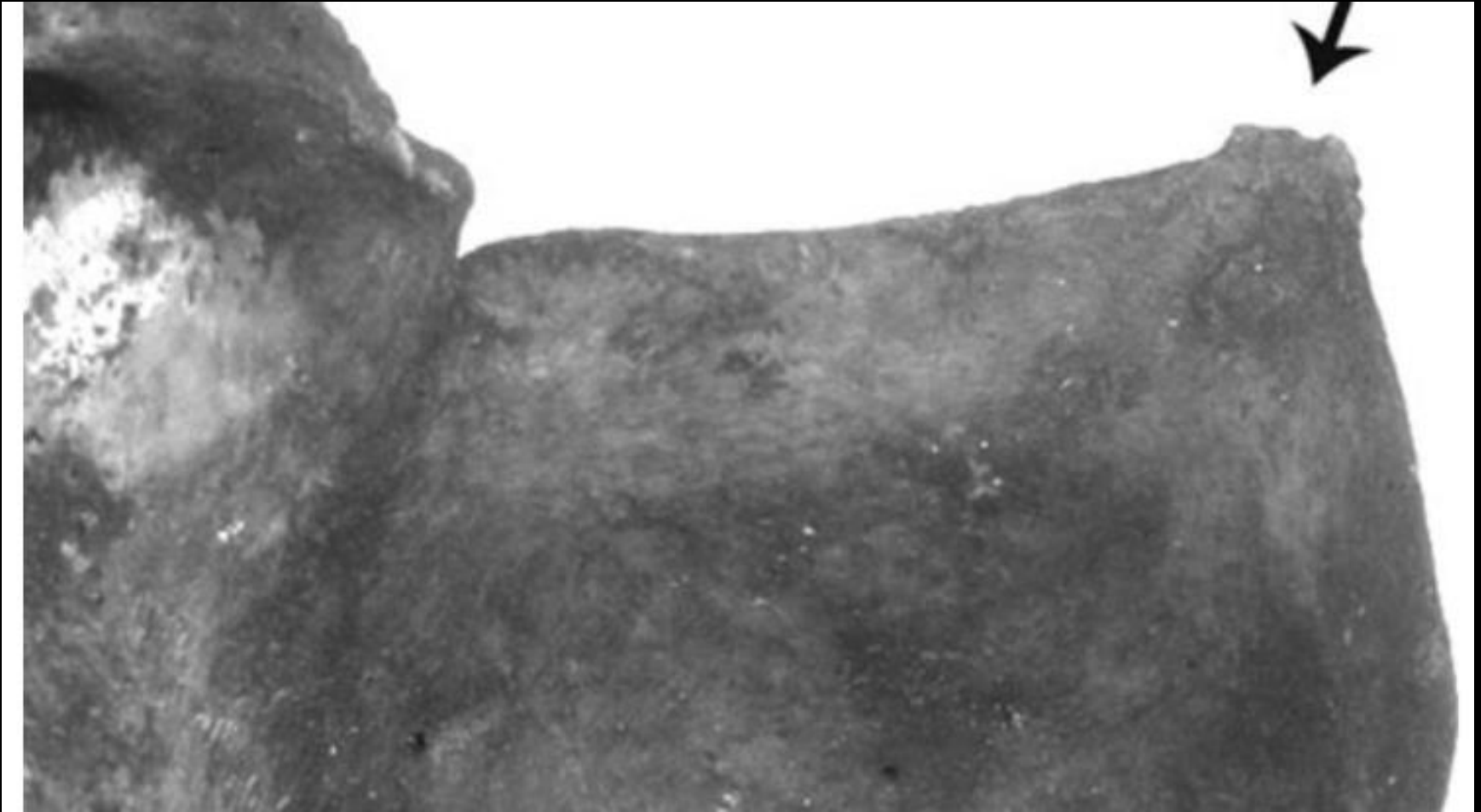
Snapping Scapula

- Mechanism- caused by disruption of the normal smooth gliding of the concave portion of the anterior scapula over the convex thorax
 - Superomedial and inferior angle of scapula are the common sources of symptoms.
- Etiology- bursitis, muscle abnormalities and bony or soft tissue abnormalities that invade into the scapulothoracic space and disrupt smooth scapula motion causing impingement and crepitus → reactive soft tissue changes and secondary bursitis.

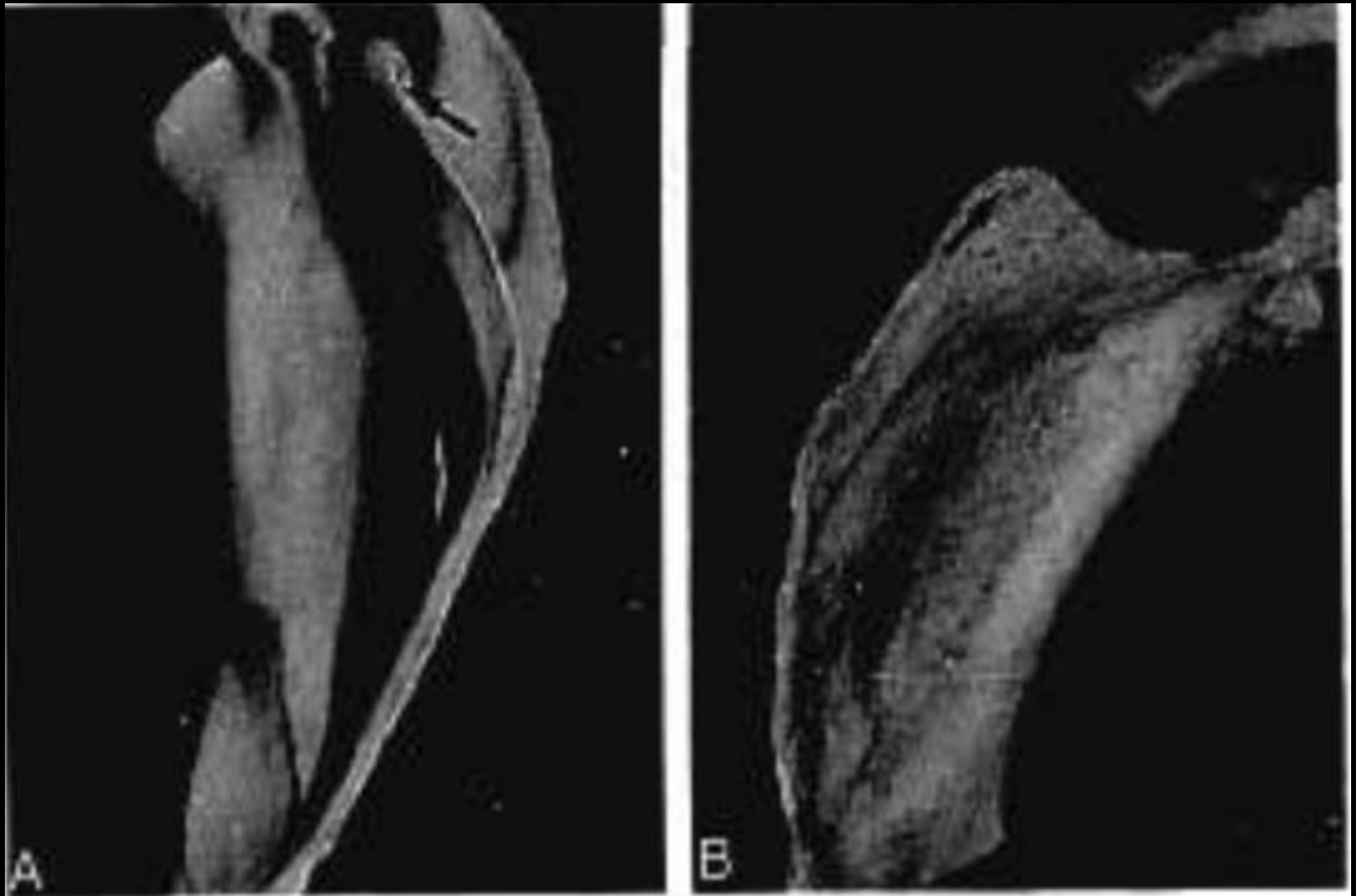
Snapping Scapula

- Pathologic lesions in scapulothoracic space – osteochondromas, malunited rib or scapula fractures, elastofibroma dorsi, chondrosarcoma
- Non pathologic anatomical variations of the scapula comprise the most common subgroup of bony structures
 - Luschka's tubercle- superomedial angle
 - Teres major process- bony protuberance inferior angle curved towards chest wall
 - Concave medial scapular border
 - Excessive anterior curvature of the superomedial scapular angle

Luschka's Tubercle



Totlis T, Konstantinidis GA et al. Bony structures related to snapping scapula: correlation to gender, side and age. *Surgical and Radiologic Anatomy J* (2014) 36:3-9.



Edelson, JG. Variations in the Anatomy of the Scapula With Reference to the Snapping Scapula. *Clinical Orthopaedics and Related Research* (1996) 322:111-115

Teres Major Process

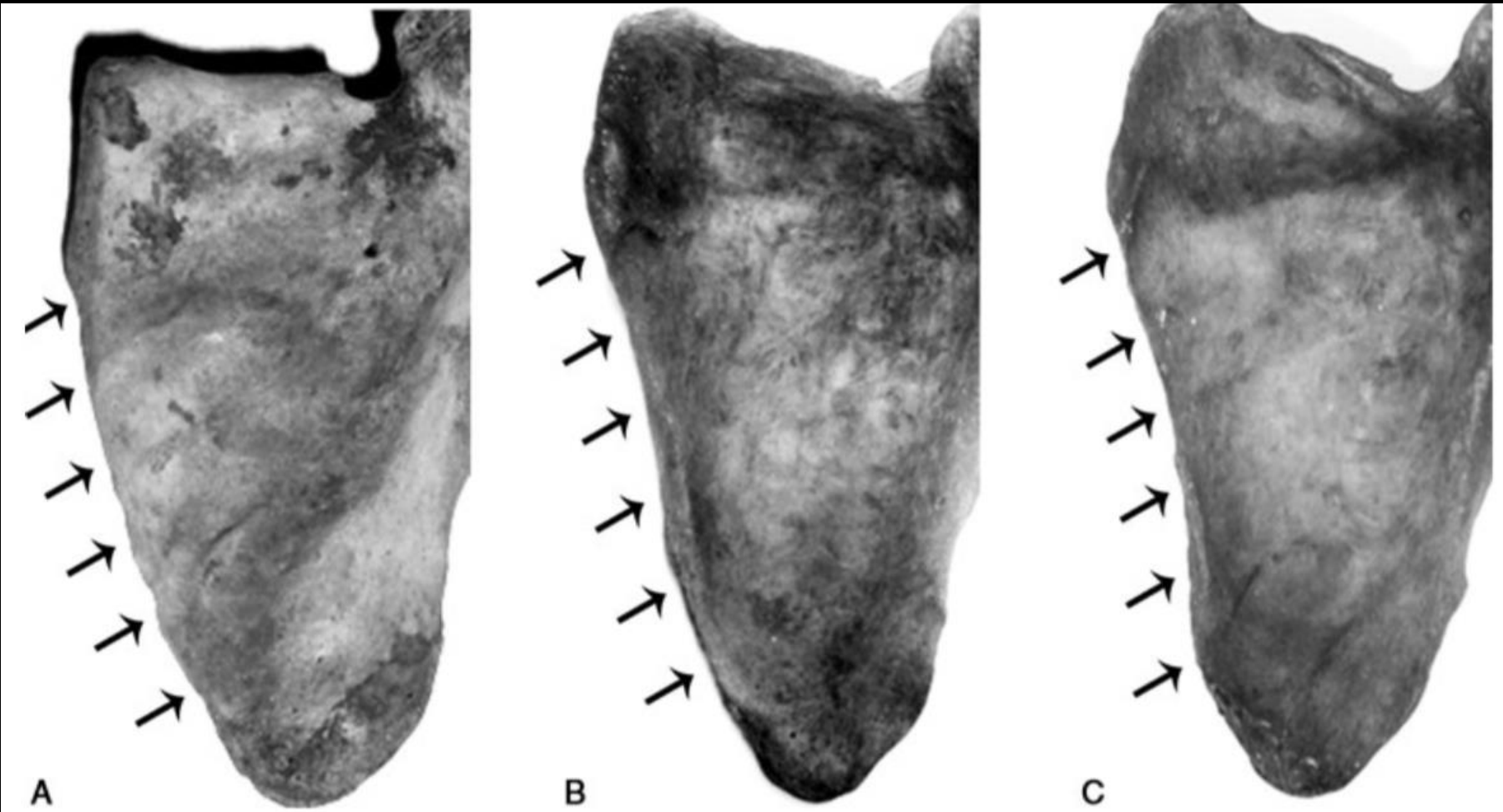
- A bony projection at the inferior angle of the scapula at origin of teres major muscle
 - > 2cm – Teres Major Process- seen in 6.8%
 - Further characterized as curving towards the chest wall (3.4%) or no curvature (3.4%)
 - < 2cm – called a Teres Major Tubercle- seen in 43%
 - No tubercle – 50%



Totlis T, Konstantinidis GA et al. Bony structures related to snapping scapula: correlation to gender side and age. *Surgical and Radiologic Anatomy J* (2014) 36:3-9.

Morphology of Medial Scapular Border

- Convex- 51%
- Straight- 38%
- Concave- 11%
 - May predispose to snapping scapula because it is usually associated with deficiency of the muscles inserted on the scapula



Totlis T, Konstantinidis GA et al. Bony structures related to snapping scapula: correlation to gender side and age. *Surgical and Radiologic Anatomy J* (2014) 36:3-9.

Totlis T, Konstantinidis GA
et al. Bony structures
related to snapping
scapula: correlation to
gender side and age.
*Surgical and Radiologic
Anatomy J* (2014) 36:3-9.



- As get excessive
anterior curvature of
the superomedial
scapular angle,
rubbing across the
ribs and invades the
scapulothoracic
space.

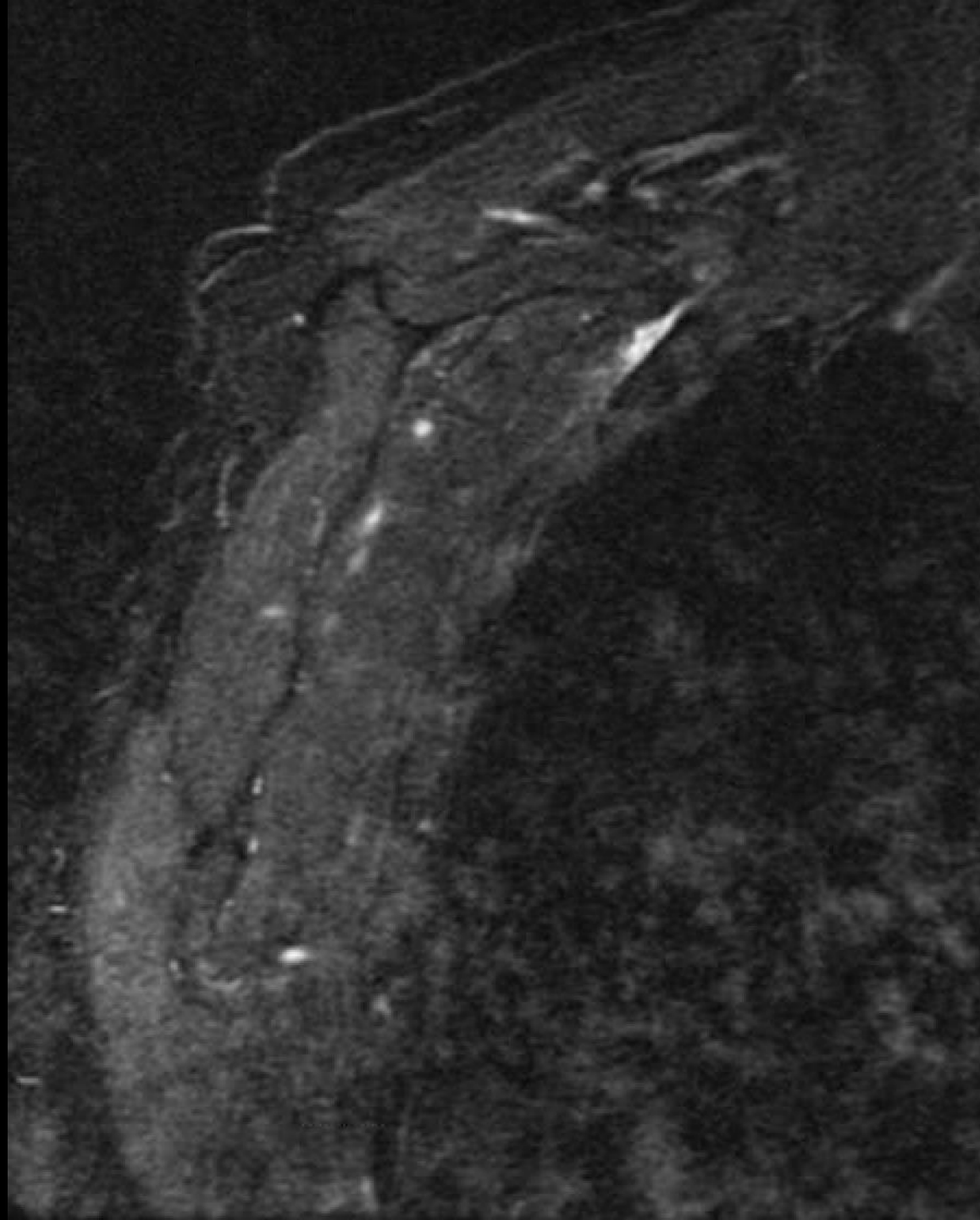
- No set angle where
pathologic. One
study said < 142
degrees, another said
< 130. Varies.

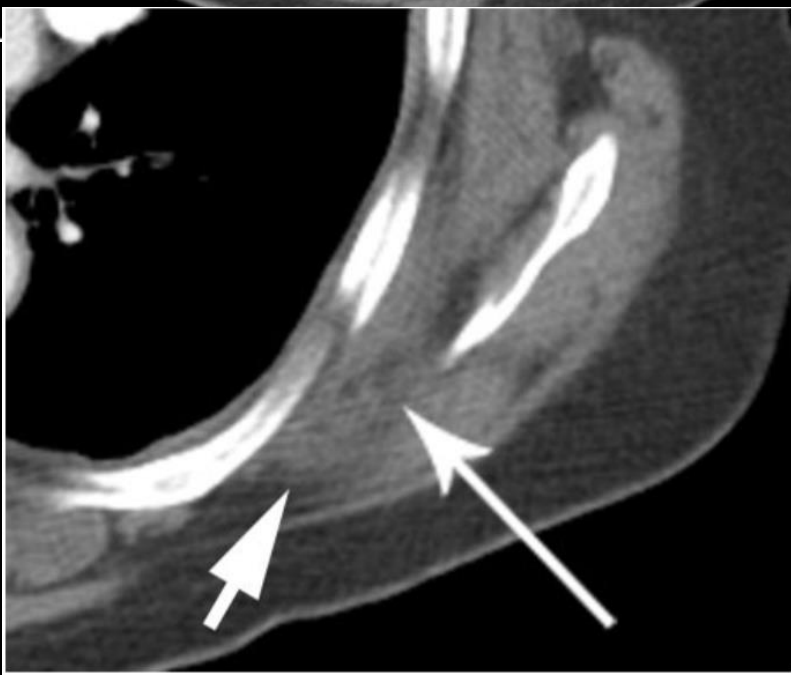
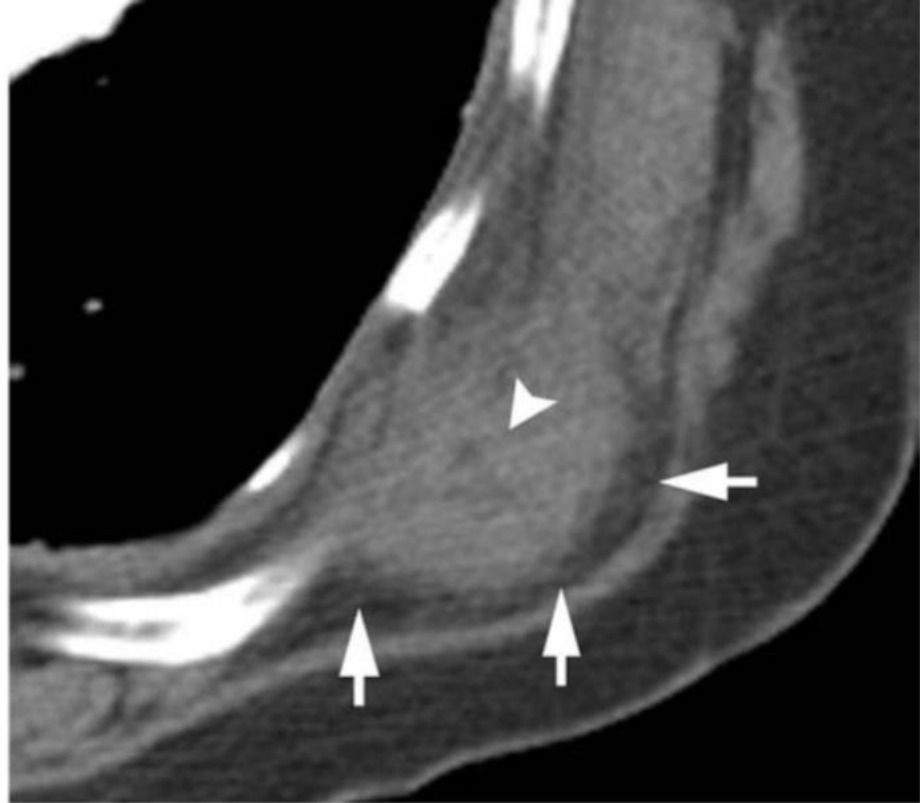
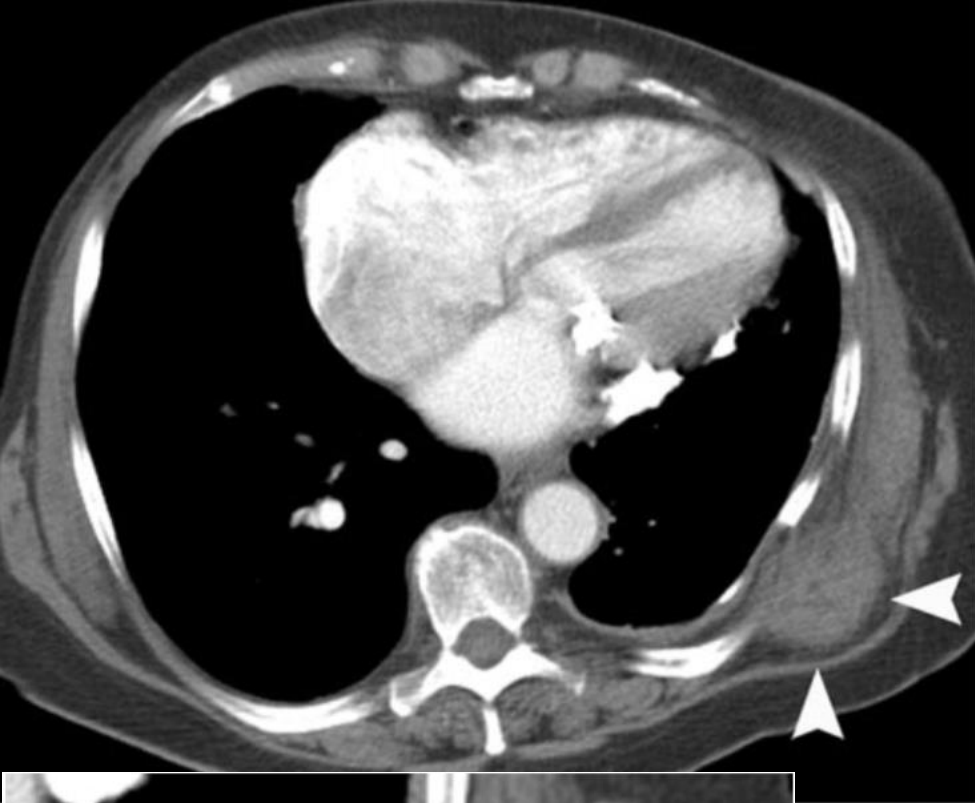
Discussion

- Snapping Scapula- more of a clinical diagnosis- where patients complain about a palpable, audible and possibly painful crepitus
 - Largely overlooked
 - Occurs largely in young active population secondary to repetitive shoulder girdle stress and overhead arm use. May develop scapulothoracic bursitis 2/2 overuse and microtraumas
 - This subset responds well to conservative treatment
 - Ice, heat, rest, NSAIDS
 - Specific musculature strengthening exercises

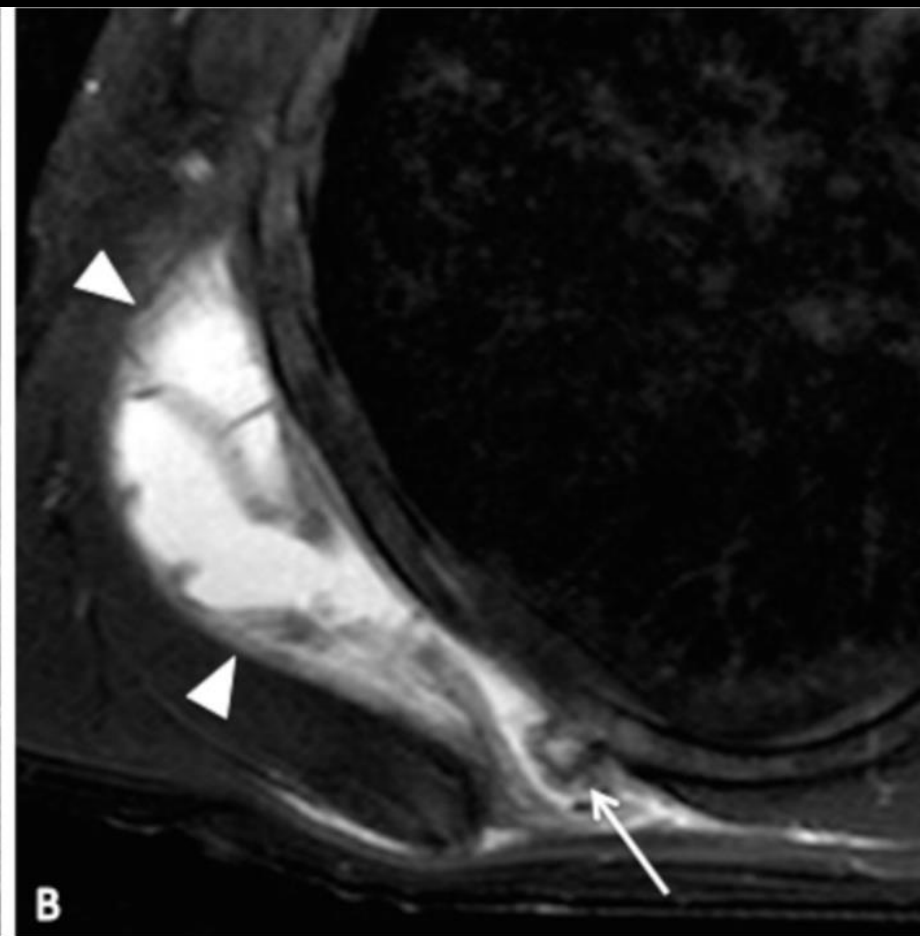
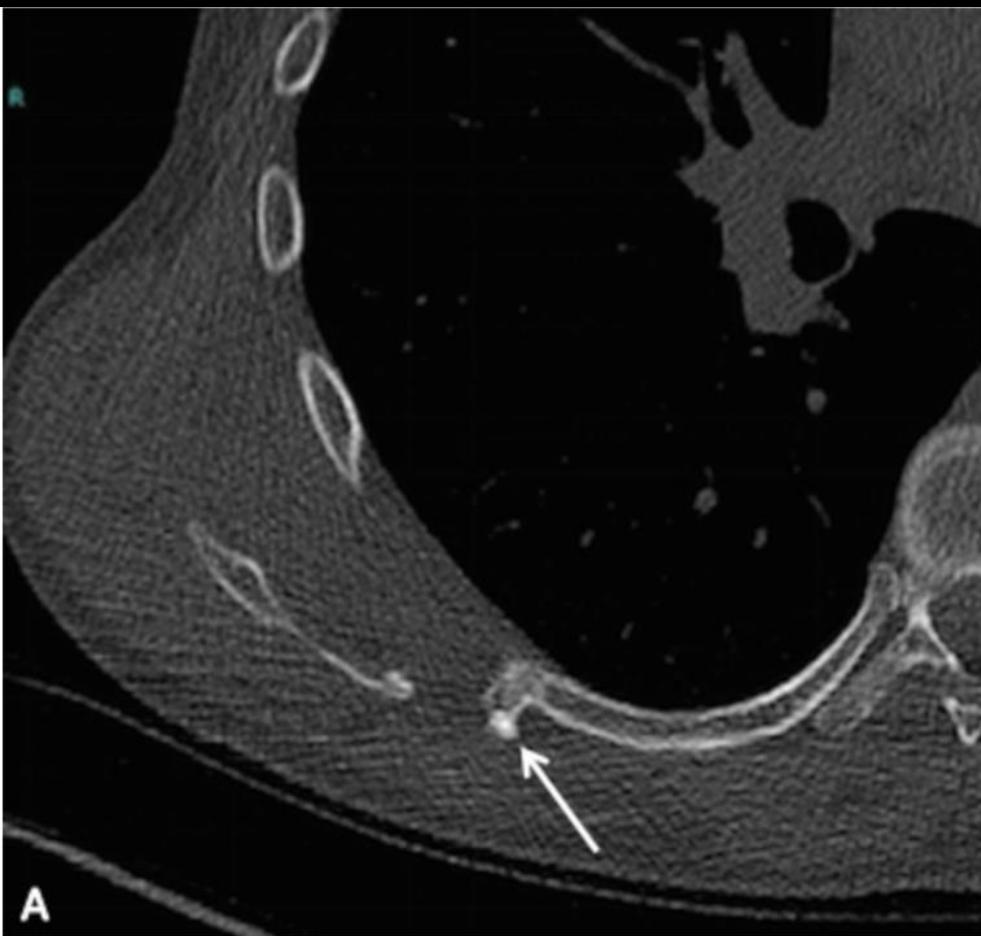
Discussion

- Imaging- Assess for pathologic lesions (osteochondroma, elastofibroma dorsi, etc) and non pathologic bony anatomic variations (Luschka's Tubercle, Teres Major Process, etc) that may be source of snapping scapula syndrome
 - Don't improve with conservative treatment
 - Surgical resection usually successful





Oschner JE, et al. Elastofibroma Dorsi.
Radiographics 2006; 26:1873-1876.



Boden BJH, Campbell R. Scapulothoracic bursitis and snapping scapula: Imaging perspectives. ESSR- European Society of Musculoskeletal Radiology 2015; Educational Poster

References

1. Totlis T, Konstantinidis GA et al. Bony structures related to snapping scapula: correlation to gender side and age. *Surgical and Radiologic Anatomy J* (2014) 36:3-9.
2. Edelson, JG. Variations in the Anatomy of the Scapula With Reference to the Snapping Scapula. *Clinical Orthopaedics and Related Research* (1996) 322:111-115.
3. Oschner JE, et al. Elastofibroma Dorsi. *Radiographics* 2006; 26:1873-1876.
4. Boden BJH, Campbell R. Scapulothoracic bursitis and snapping scapula: Imaging perspectives. ESSR- European Society of Musculoskeletal Radiology 2015; Educational Poster.
5. Merolla G et al. Snapping scapula syndrome: current concepts review in conservative and surgical treatment. *Muscle, Ligaments and Tendons J* 2013; 3(2):80-90.
6. Mozes G, Bickels J et al. The use of three dimensional computed tomography in evaluating snapping scapula syndrome. *Orthopedics* 1999; 22:1029-1033.
7. Lehtinen J et al. Quantitative morphology of the scapula: normal variation of the superomedial scapular angle, and superior and inferior pole thickness. *Orthopedics* 2005; 28: 481-486.