AMSER Case of the Month: March 2020

77 year-old male with left shoulder pain

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Patient Presentation

77 year-old male presents to his PCP after a fall onto his left shoulder from standing.

Primary complaint was non-radiating left shoulder pain. He denied pain in the left clavicle, chest, back, or any right extremity pain.

Physical exam was positive for tenderness over the anterior left shoulder with decreased range of motion.

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

American College of Radiology
ACR Appropriateness Criteria®
Shoulder Pain–Traumatic

Variant 1: **Traumatic shoulder pain. Any etiology. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Radiography shoulder	Usually Appropriate	☢
CT arthrography shoulder	Usually Not Appropriate	☢☢☢☢
CT shoulder with IV contrast	Usually Not Appropriate	☢☢☢
CT shoulder without and with IV contrast	Usually Not Appropriate	☢☢☢
CT shoulder without IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢
MR arthrography shoulder	Usually Not Appropriate	O
MRI shoulder without and with IV contrast	Usually Not Appropriate	O
MRI shoulder without IV contrast	Usually Not Appropriate	O
Bone scan shoulder	Usually Not Appropriate	☢☢☢
US shoulder	Usually Not Appropriate	O

This imaging modality was ordered by the physician

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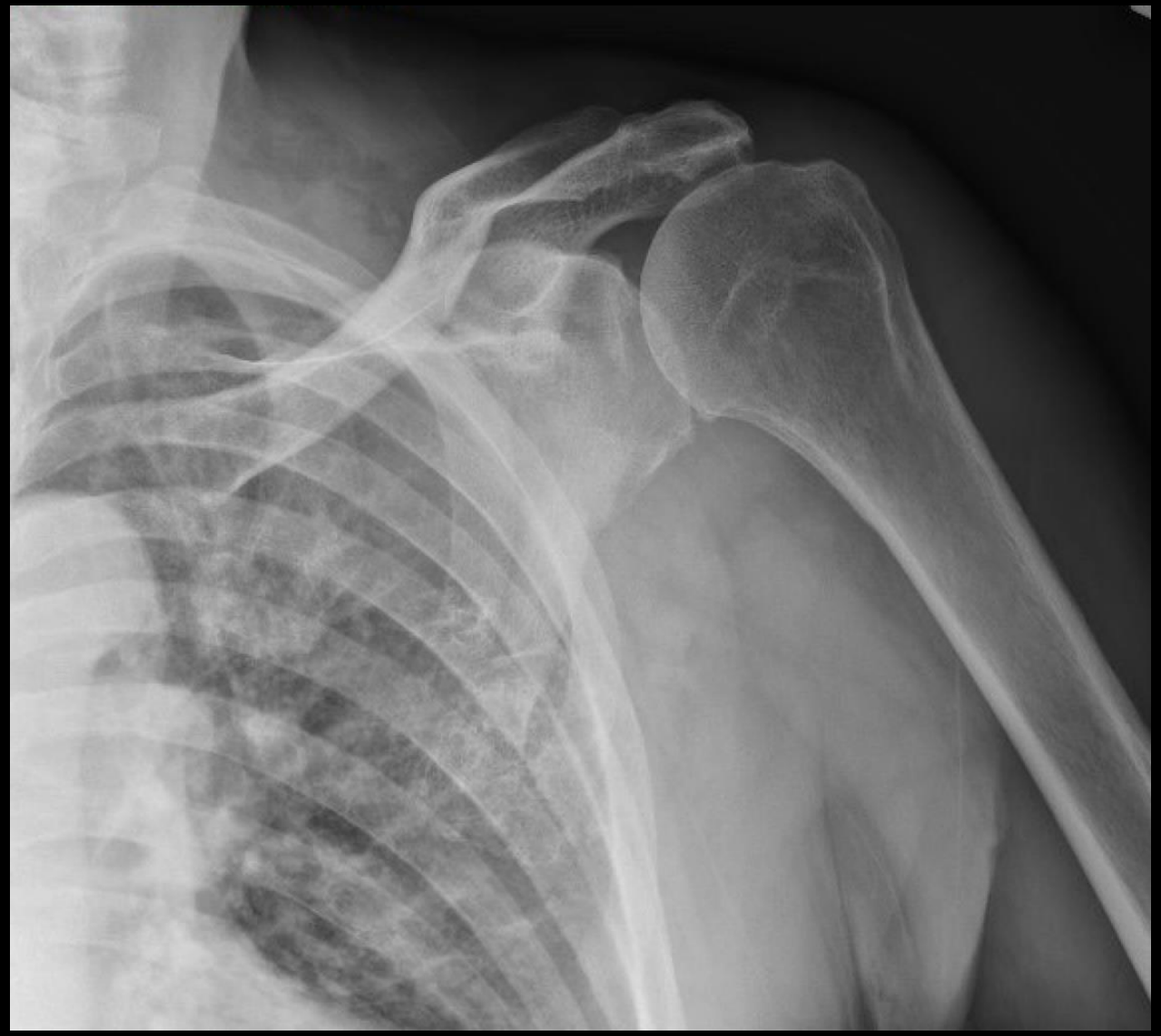
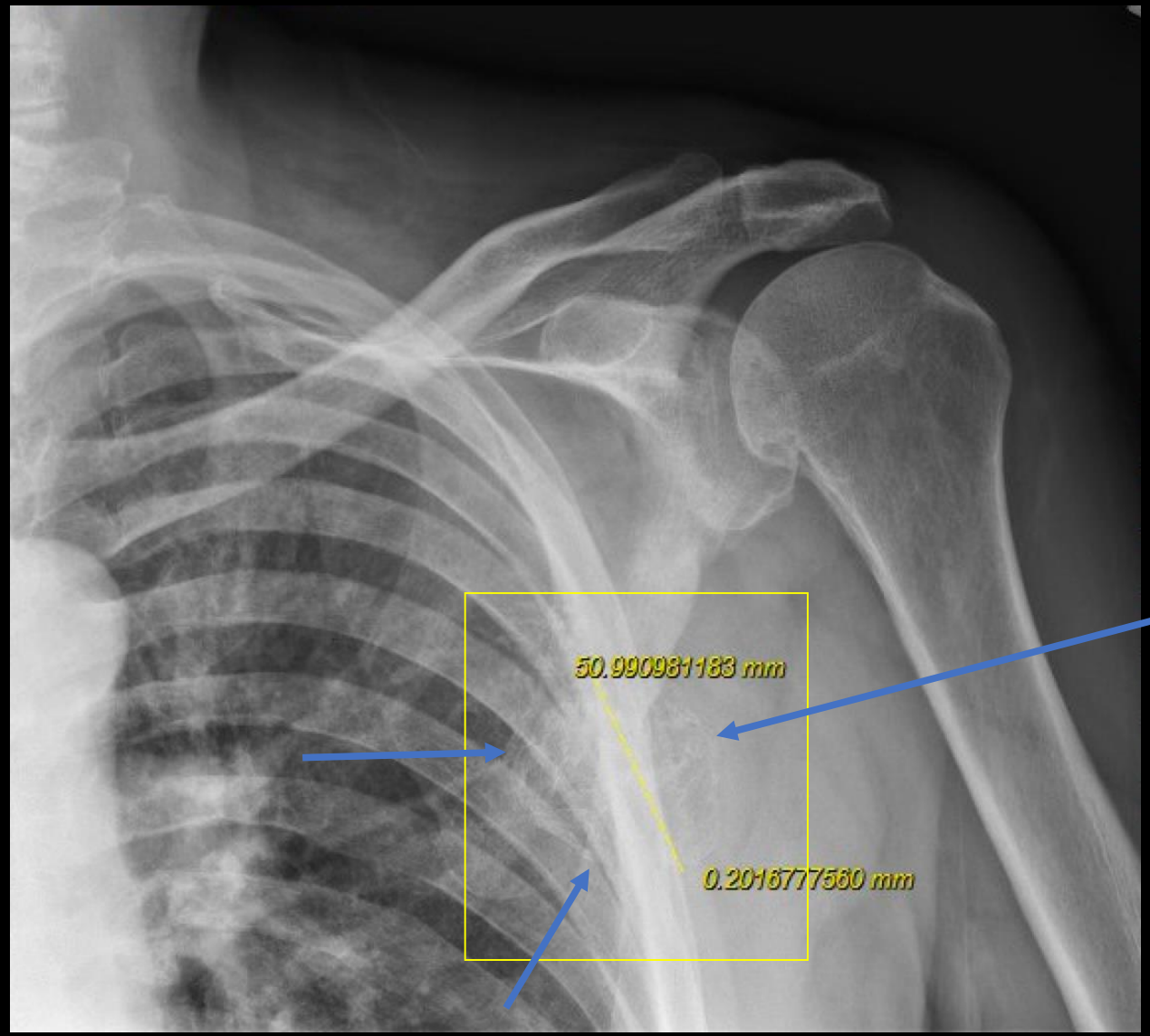
Findings (unlabeled)



Findings: (labled)



Partially mineralized (ossified or calcified) soft tissue mass of the left hemithorax. Exact location of this mass is indeterminate.

Further imaging was warranted to evaluate the location and mineralization of the mass

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Soft-Tissue Masses

Variant 3: **Soft-tissue mass. Nondiagnostic initial evaluation (ultrasound and/or radiograph). Next imaging study.**

Procedure	Appropriateness Category	Relative Radiation Level
MRI area of interest without and with IV contrast	Usually Appropriate	O
MRI area of interest without IV contrast	Usually Appropriate	O
CT area of interest with IV contrast	May Be Appropriate (Disagreement)	Varies
CT area of interest without IV contrast	May Be Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
FDG-PET/CT area of interest	Usually Not Appropriate	☢☢☢☢

This imaging modality was recommended by the radiologist due to the mineralization within the soft tissue mass and was ordered by the physician.

Mineralization is best assessed by CT imaging and poorly evaluated by MRI, making CT a better choice in this scenario.

CT chest with IV contrast was selected because of the mineralization seen on the initial radiograph. An MRI, although ranked higher in this criteria, would have been less appropriate to evaluate mineralization in the mass and more expensive.

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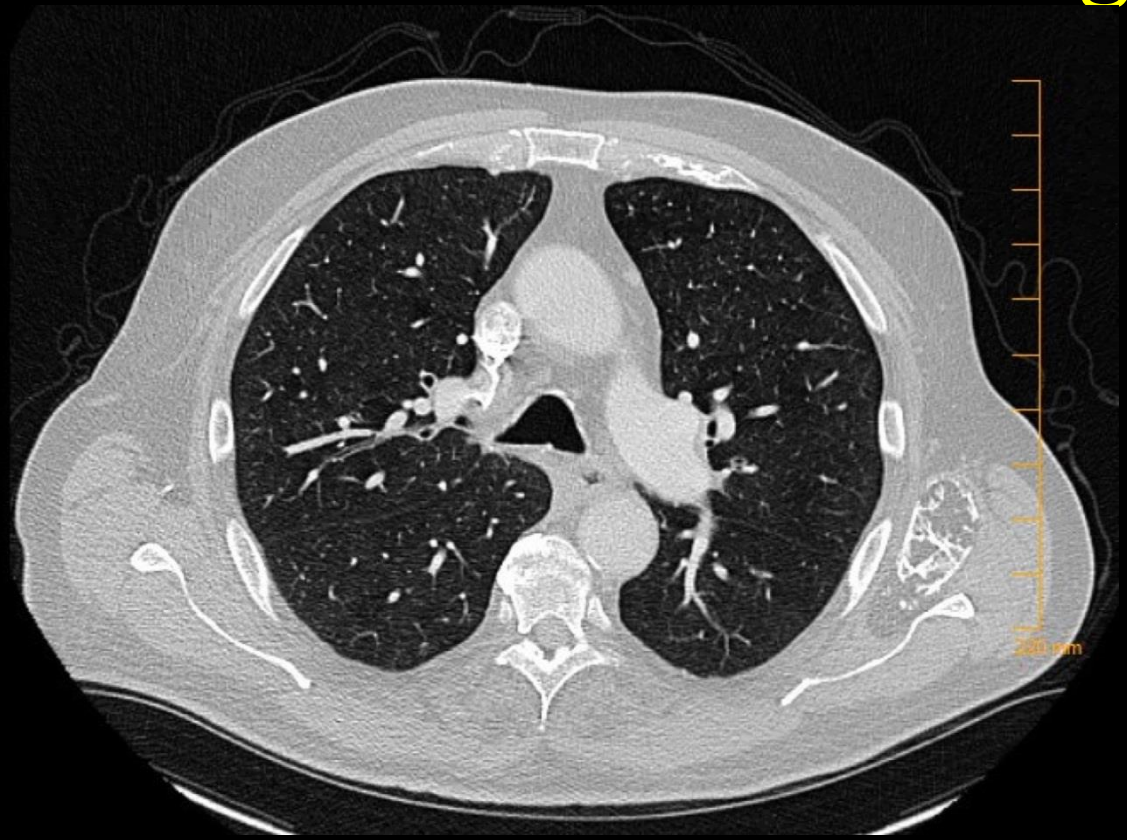
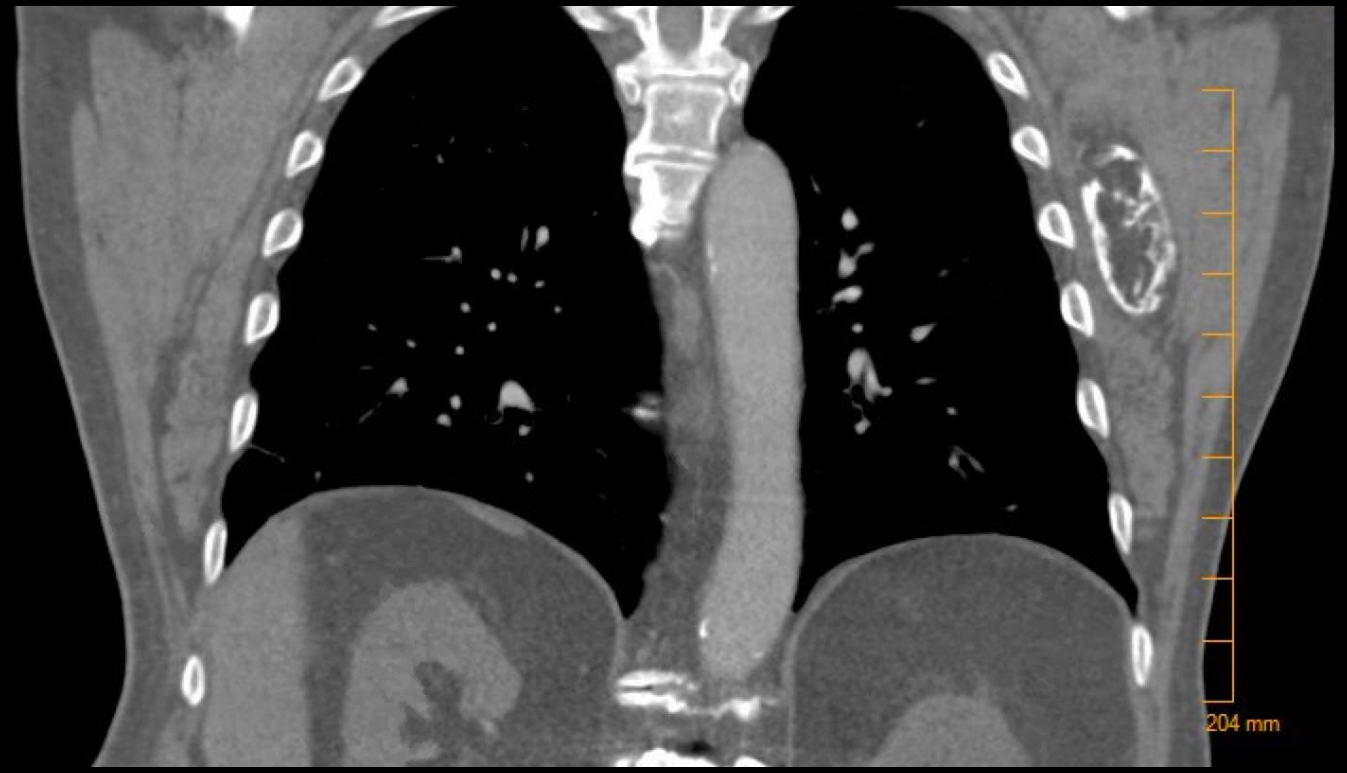
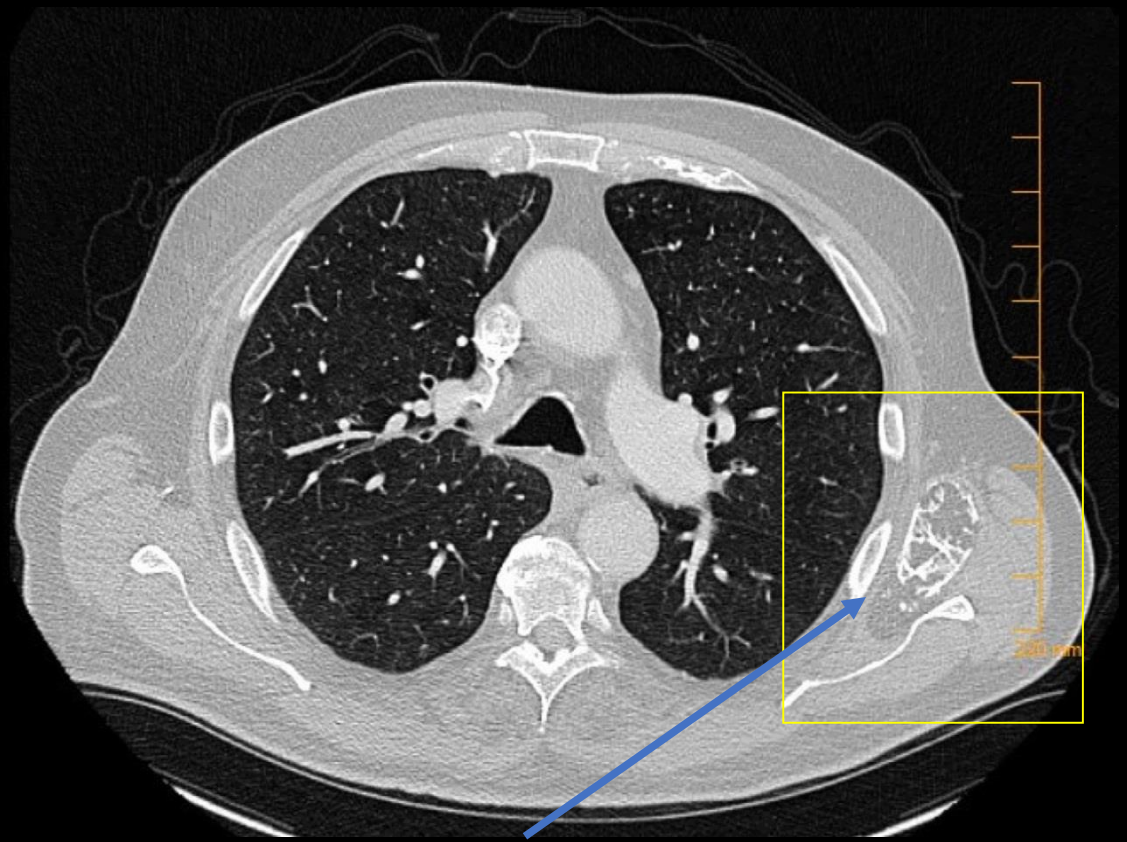
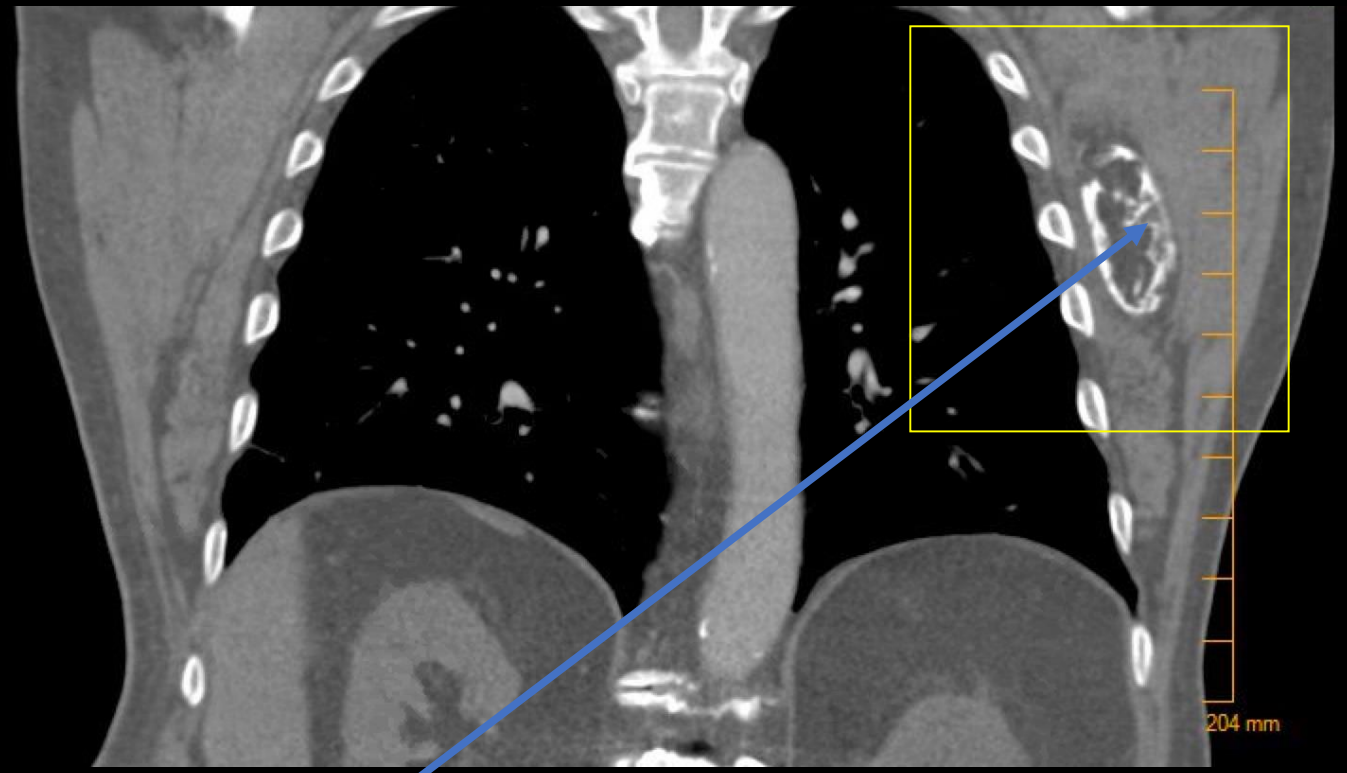
Findings (unlabeled)





Findings (labeled)





CT demonstrates a peripherally mineralized mass located anterior and deep to the left inferior scapula, measuring 7.0 x 2.7 x 7.7 cm. There is preservation of adjacent fat planes. This corresponds to the area of mineralization on the shoulder X-ray.

The mass contains fat and soft tissue density as well as dystrophic mineralization. The mass does not arise from bone or cartilage. The mineralization is not the typical chondroid (arc-and-ring) or osteoid (dense or cloudy) matrix. Findings are consistent with an elastofibroma dorsi, a benign lesion.

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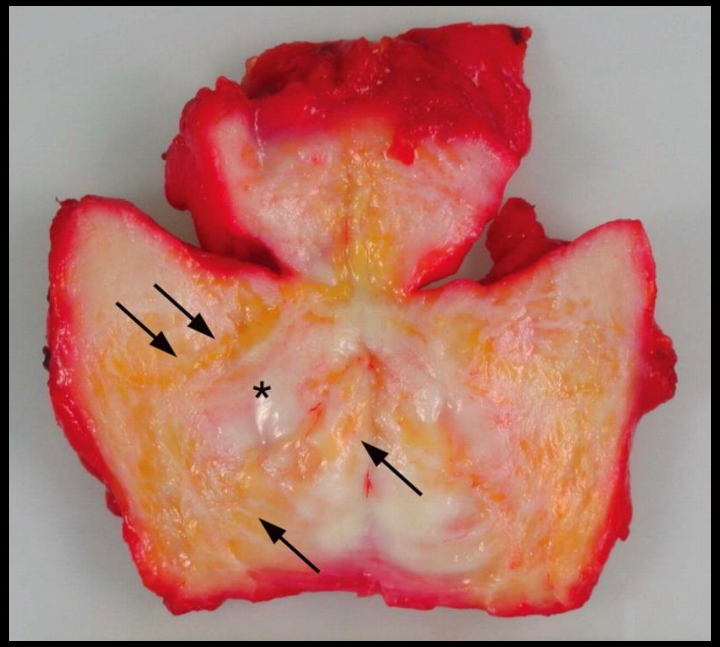
Final Dx:
Elastofibroma Dorsi with peripheral dystrophic mineralization.



A resected and split elastofibroma dorsi
(not from our patient)

Case Discussion

Elastofibroma is a benign soft tissue tumor. It is slow-growing and typically occurs between the scapula and posterior thoracic wall. They can be unilateral or bilateral.

Elastofibroma dorsi are believed to be caused by the repeated mechanical stress of the scapula rubbing against the chest wall.

They typically present in the elderly population and are often asymptomatic, as was the case in our patient. However shoulder pain, and a clicking or clunking sensation of the shoulder have been described.

Symptomatic patients may require surgical excision. Our patient was asymptomatic and was treated conservatively.

Case Discussion

IMAGING FINDINGS:

Elastofibroma dorsi are usually poorly visualized on radiographs. They typically do not have mineralization. The mineralization in our case is felt to be from prior trauma.

On CT, they appear as ‘streaked’ or ‘layered’ soft tissue masses attenuating similarly to the surrounding muscle with interspersed fat attenuation. Adjacent fat planes are preserved.

On MRI they appear as masses isointense to muscle with high signal fat striations.

Gross and histological findings: Examination of resected elastofibroma reveals intermixed mature adipose, elastin, and collagen (see prior gross specimen). This corresponds to the fibrous and fatty ‘streaking’ seen on imaging.

References:

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