

AMSER RadPathCase of the Month

34 year old female presenting to the ED with left-sided chest wall pain



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Patient Presentation

- HPI: 34 year old female presenting to the ED with left-sided chest wall pain
- Past Medical History: Neurofibromatosis type 1, GERD, Spherocytosis status post splenectomy
- Social History: Denies history of smoking
- Vitals: BP: 137/57 HR: 95 RR: 18 T: 37.3 C, SpO2: 98
- Physical Exam: Positive for chest wall pain, non-integrated mobile mass inferior to the left scapula

What Imaging Should We Order?

Variants

1. Nontraumatic chest wall pain. Known or suspected malignancy. Secondary evaluation after normal chest radiograph. Next imaging study.

Documents

Documents

Narrative

Evidence Table

Lit Search

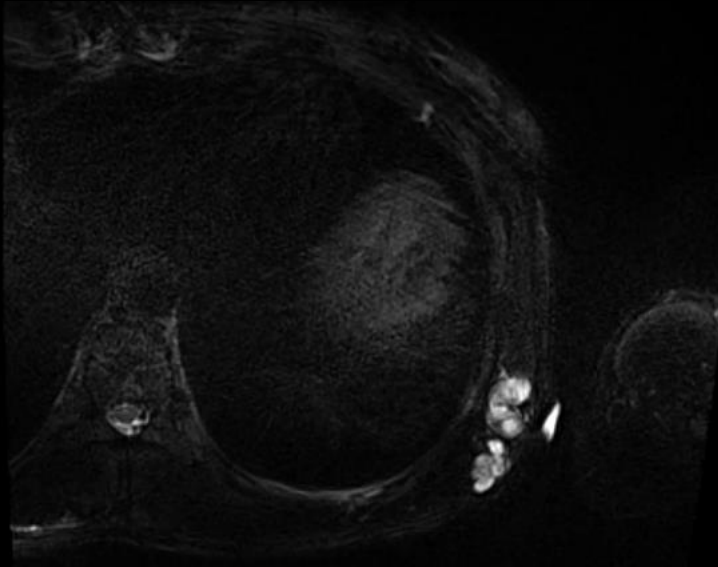
Appendix

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Chest wall pain, nontraumatic, malignancy suspected, chest radiography normal, next imaging study	3194249	● Bone scan whole body	1-10 mSv ☆☆☆	3-10 mSv [ped] ☆☆☆☆	Usually appropriate
		● CT chest with IV contrast	1-10 mSv ☆☆☆	3-10 mSv [ped] ☆☆☆☆	Usually appropriate
		● CT chest without IV contrast	1-10 mSv ☆☆☆	3-10 mSv [ped] ☆☆☆☆	Usually appropriate
		● Radiography rib views	1-10 mSv ☆☆☆	<0.03 mSv [ped] *	May be appropriate
		● MRI chest without and with IV contrast	0 mSv O	0 mSv [ped] O	May be appropriate
		● MRI chest without IV contrast	0 mSv O	0 mSv [ped] O	May be appropriate
		● FDG-PET/CT skull base to mid-thigh	10-30 mSv ☆☆☆☆	3-10 mSv [ped] ☆☆☆☆	May be appropriate
		● US chest	0 mSv O	0 mSv [ped] O	Usually not appropriate
		● CT chest without and with IV contrast	1-10 mSv ☆☆☆	3-10 mSv [ped] ☆☆☆☆	Usually not appropriate

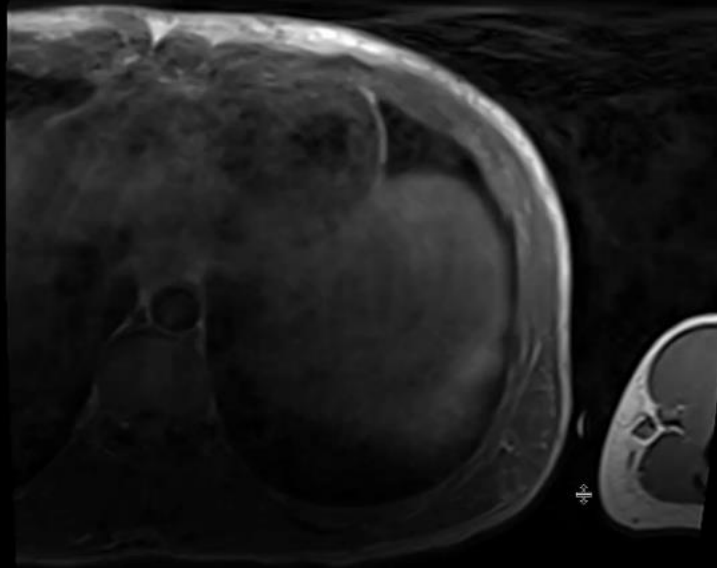
This imaging modality was ordered by the physician



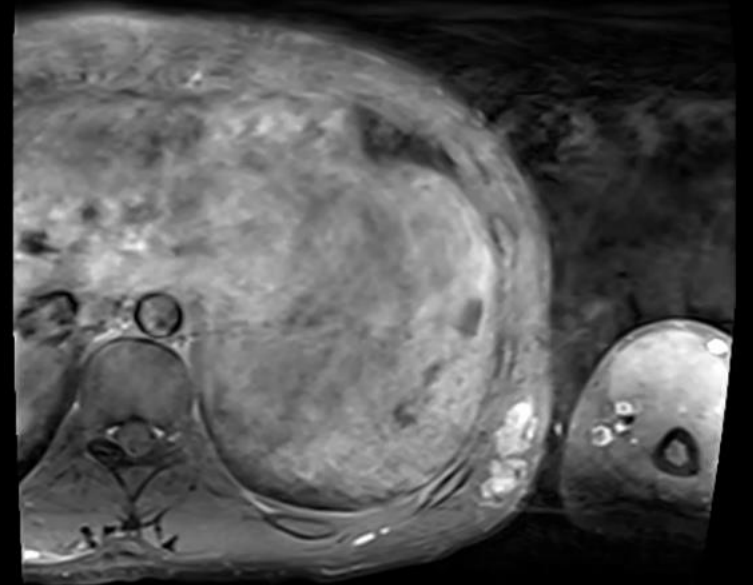
Findings (unlabeled)



Axial T2

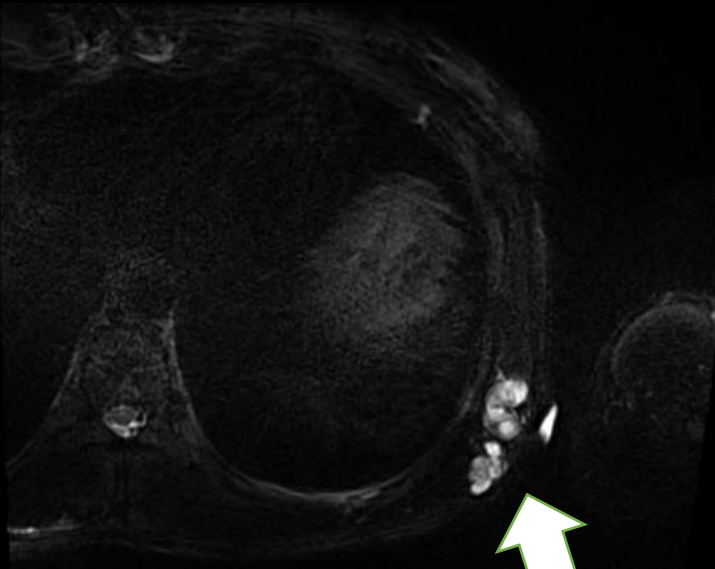


Axial T1 without contrast

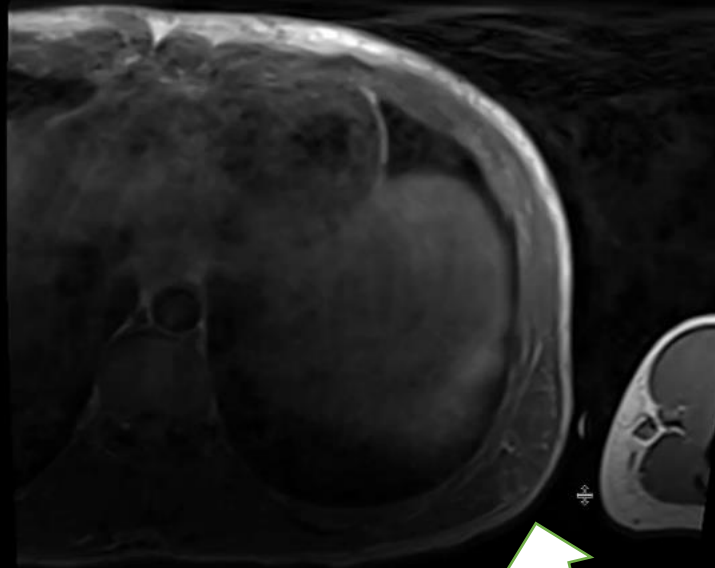


Axial T1 post contrast

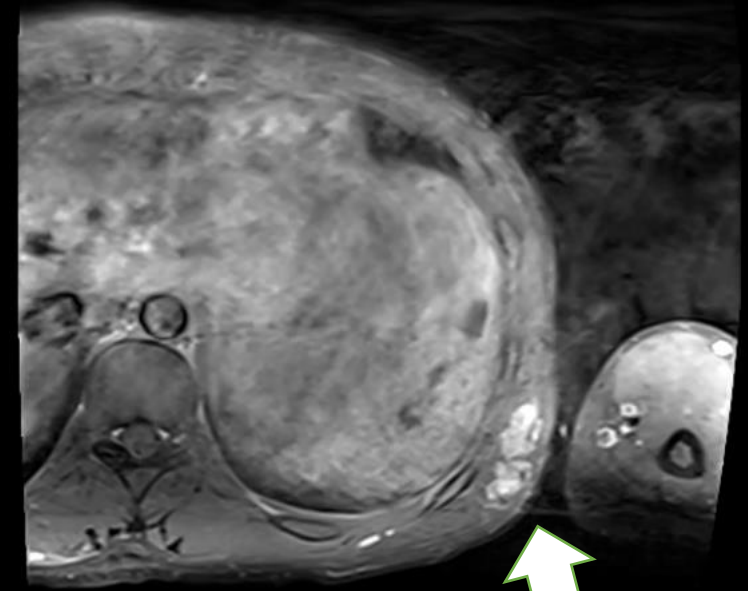
Findings: (labeled)



Lesion is T2 hyperintense and slightly heterogeneous



Lesion is T1 isointense with muscle and difficult to visualize



Lesion diffusely enhances after contrast

Differential Diagnoses Based on Imaging

- Neurofibroma
- Schwannoma
- Intramuscular lipoma
- Desmoid tumor
- Soft tissue sarcoma
- Malignant peripheral nerve sheath tumor
- Myxoma

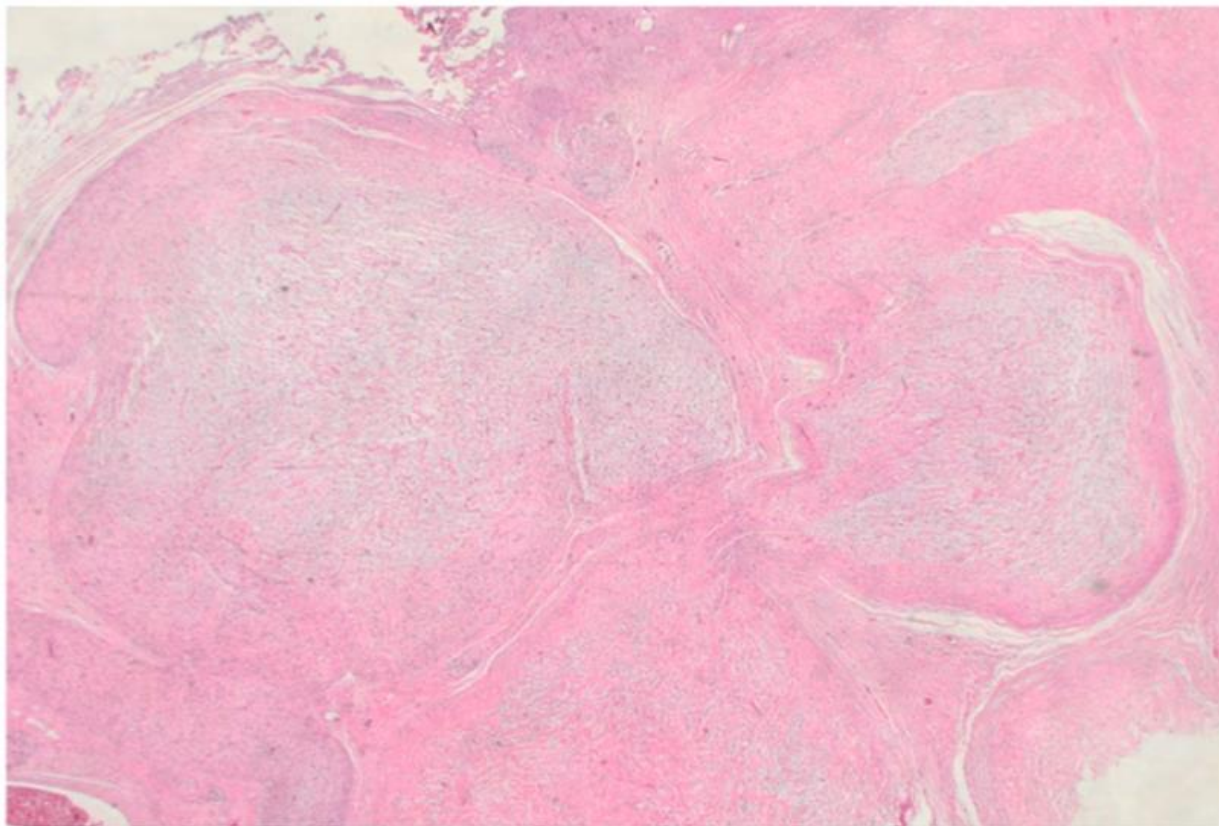
Patient referred to orthopedic oncology for surgical excision

Gross Specimen



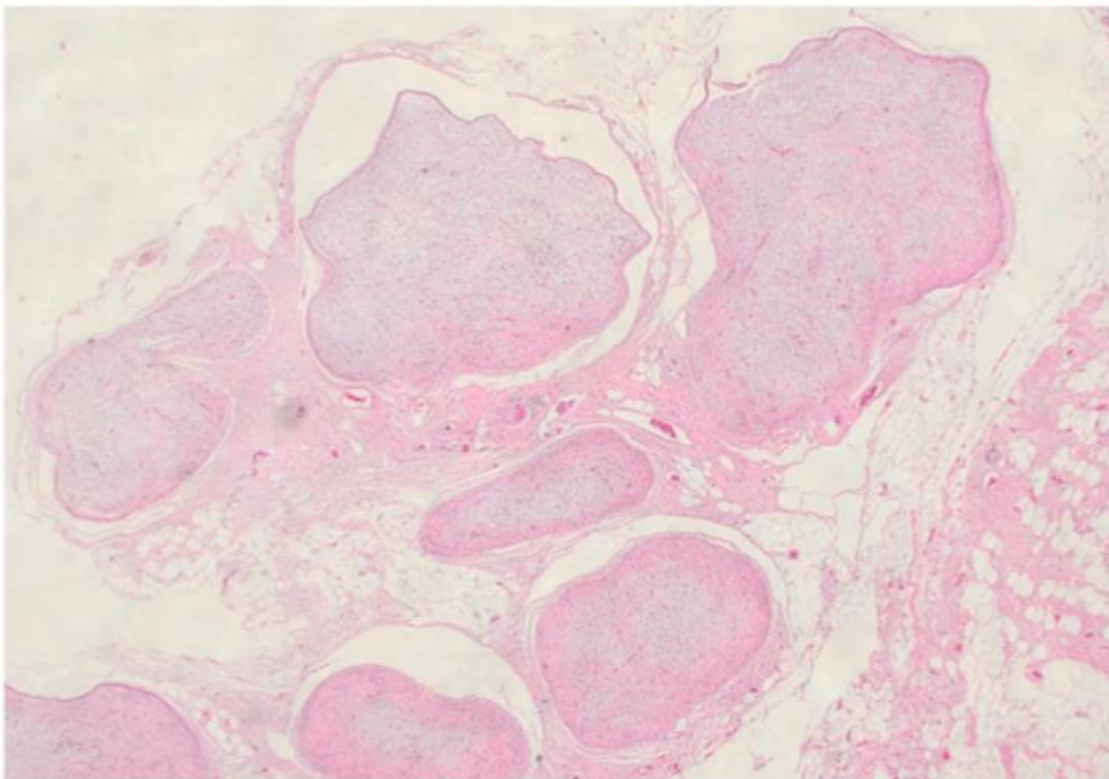
Left chest wall

Pathology



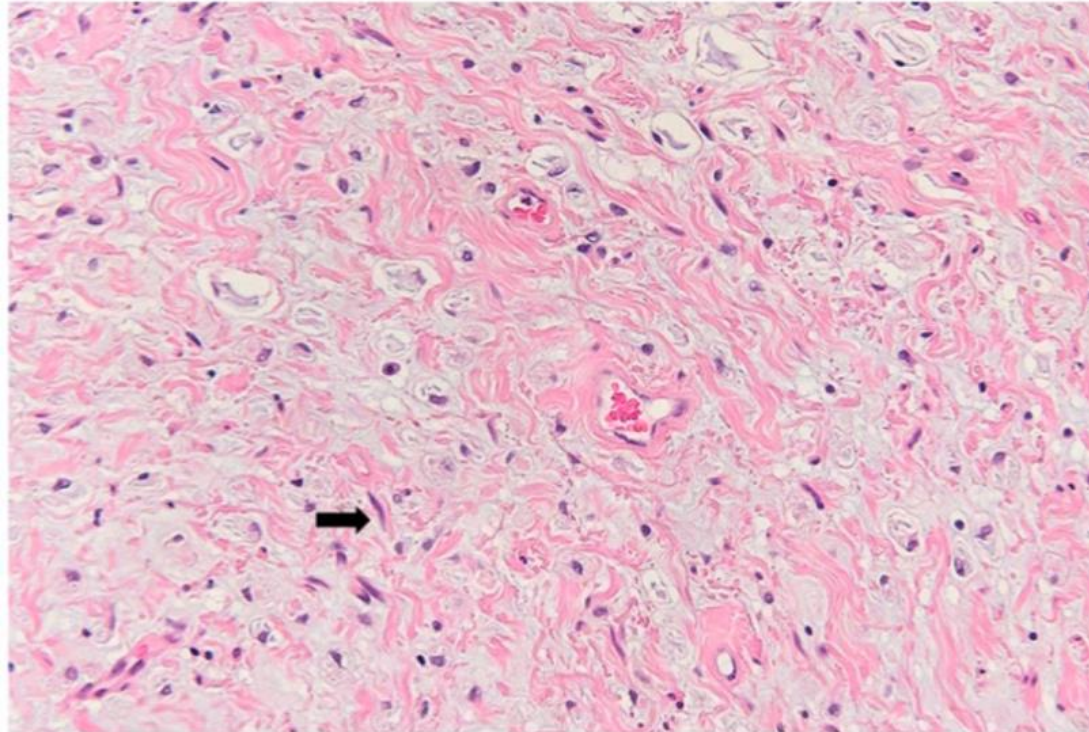
H&E (2X)
Low power image showing
the plexiform architecture

Pathology



H&E (2X)
Low power image showing
the plexiform architecture

Pathology



H&E (20X)
High power image showing bland spindled cells with wavy, hyperchromatic nuclei (black arrow) within myxoid to collagenous matrix.

Final Dx:

Plexiform Neurofibroma

Case Discussion (1-3 slides)

- Cytology: Plexiform Neurofibroma; overt evidence of malignancy is not appreciated (atypia, necrosis, and mitoses)
- Results: Lesion consistent grossly with plexiform neurofibroma frozen section on the chest wall mass consistent with neurofibroma no findings of malignancy
- Plan: Activity modification for wound healing purposes and she will follow up in approximately 2 and 1/2 weeks for wound check and review of the final pathology

Neurofibromatosis Type 1 (NF1)

- NF1 is an autosomal dominant neurocutaneous disorder caused by mutation of the *NF1* gene on chromosome 17^{1,3}
- Loss of neurofibromin results in dysregulated RAS signaling and abnormal cellular proliferation¹
- Multisystem involvement including skin, peripheral nerves, CNS, eyes, and musculoskeletal system¹
- Neurofibromas are a defining feature and are nearly universal in adults with NF1³

Neurofibromas: Imaging & Clinical Significance

- Neurofibromas are benign peripheral nerve sheath tumors composed of Schwann cells, fibroblasts, perineural cells, mast cells, and axons^{3,4}
- Types:
 - Cutaneous: arise from dermal nerves; develop around puberty; soft, mobile nodules³
 - Plexiform: diffuse, infiltrative growth along multiple nerve fascicles; often congenital; increased risk of Malignant peripheral nerve sheath tumor^{1,3,4}
- MRI is the imaging modality of choice^{1,2}
 - T1: iso- to hypointense
 - T2: hyperintense; plexiform lesions may show a target sign
- Clinical considerations:
 - Symptoms include pain, mass effect, and neurologic deficits
 - Red flags for malignancy: rapid growth, new/worsening pain, neurologic changes^{1,3,4}
 - Management is typically conservative; surgical excision for symptomatic or suspicious lesions¹⁻⁴

References

1. Radiopaedia.org. Neurofibromatosis type 1. Radiopaedia.org. Published online 2025. Accessed January 2026. <https://radiopaedia.org/articles/neurofibromatosis-type-1?lang=us>
2. American College of Radiology (ACR). ACR Appropriateness Criteria® Case Scenario: Neurofibromatosis. Gravitas ACR Portal. Accessed January 2026. <https://gravitas.acr.org/ACPortal/GetDataForOneScenario?senariold=7217>
3. Messersmith L, Krauland K. Neurofibroma. StatPearls. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Neurofibromatosis type 1 and neurofibroma overview. Accessed January 2026. <https://www.ncbi.nlm.nih.gov/books/NBK539707/>
4. Medscape. Neurofibromatosis Type 1: Overview. Medscape.com. Published February 26, 2025. Accessed January 2026. <https://emedicine.medscape.com/article/1177266-overview?form=fpf>