AMSER Case of the Month May 2025

73-year-old female presenting with a growing neck mass

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Patient Presentation

- HPI: 73-year-old female presented with a progressively enlarging neck mass over the past year, along with additional masses in the left supraclavicular and axillary regions. She reports discomfort, particularly when standing, but denies significant pain. She is currently being evaluated by ENT for the palpable mass in the context of a potential renal transplantation.
- PMH: CKD stage 5, currently on peritoneal dialysis, being worked up for a kidney transplant.

Pertinent Labs

- None

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 1: **Nonpulsatile neck mass(es). Not parotid region or thyroid. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT neck with IV contrast	Usually Appropriate	☢☢☢
MRI neck without and with IV contrast	Usually Appropriate	O
MRI neck without IV contrast	May Be Appropriate	O
US neck	May Be Appropriate	O
CT neck without IV contrast	May Be Appropriate	☢☢☢
CT neck without and with IV contrast	Usually Not Appropriate	☢☢☢
CTA neck with IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢
FDG-PET/MRI skull base to mid-thigh	Usually Not Appropriate	☢☢☢
MRA neck without and with IV contrast	Usually Not Appropriate	O
Arteriography cervicocerebral	Usually Not Appropriate	☢☢☢
MRA neck without IV contrast	Usually Not Appropriate	O

This imaging modality was ordered by the ENT surgeon

The decision to not order with IV contrast could have been due to concerns about contrast-induced nephropathy or institutional policies. Contrast would have been acceptable and is endorsed by the American College of Radiology and National Kidney Foundation [6].

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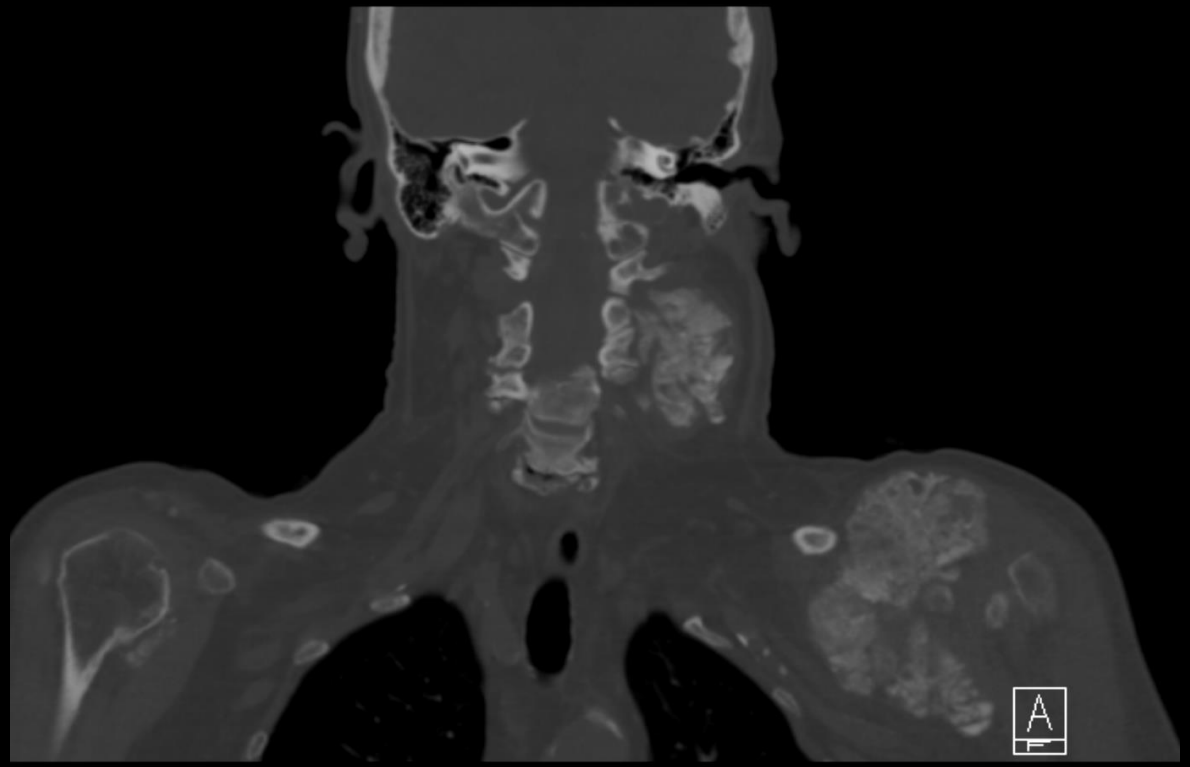
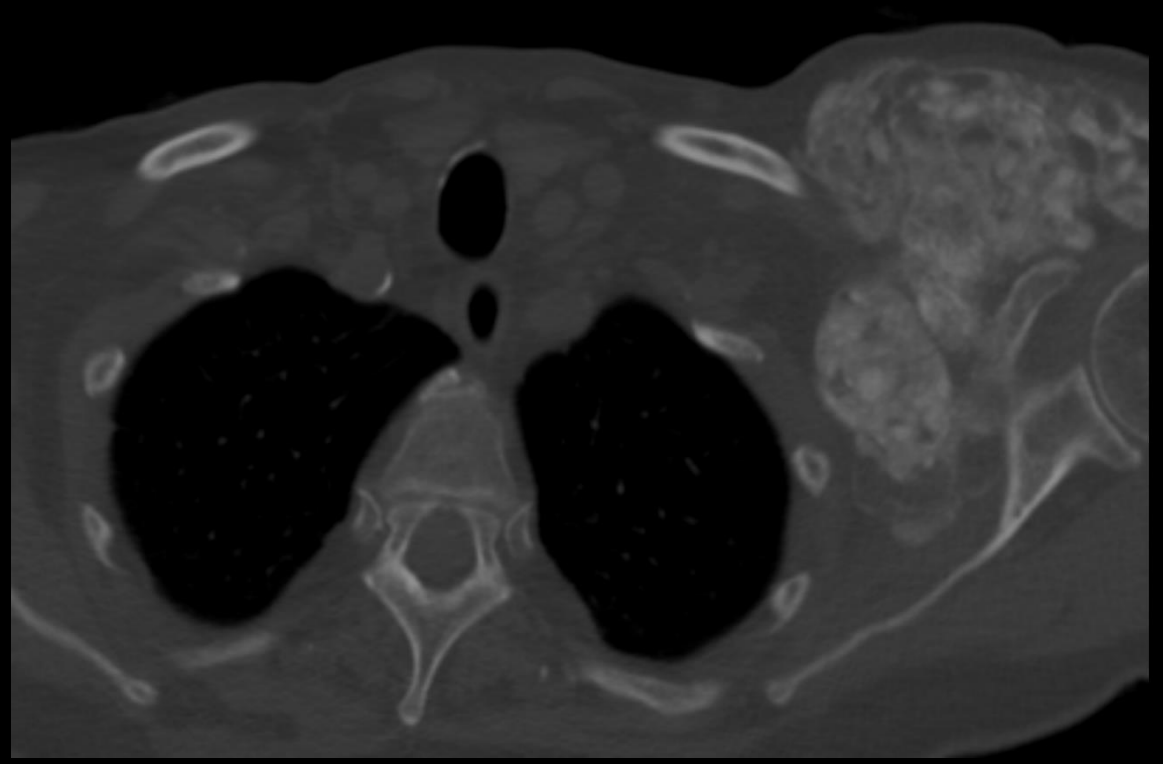
Findings (unlabeled)





Findings (unlabeled)

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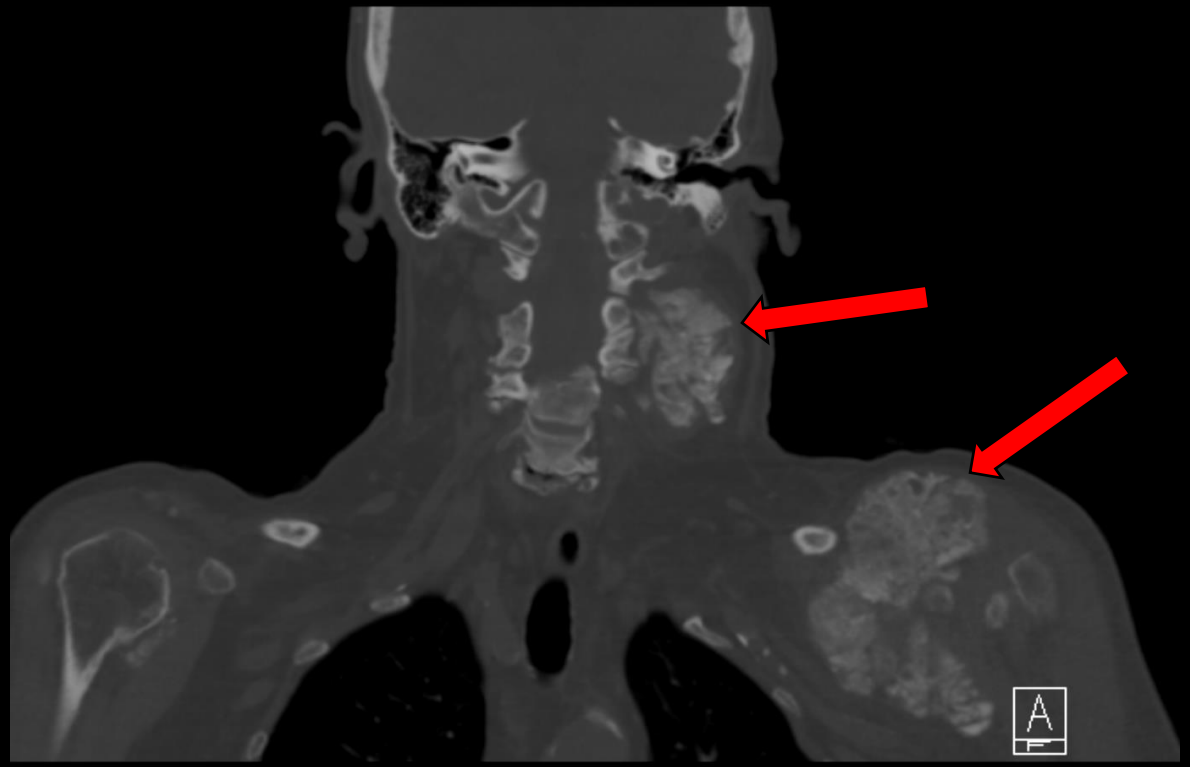
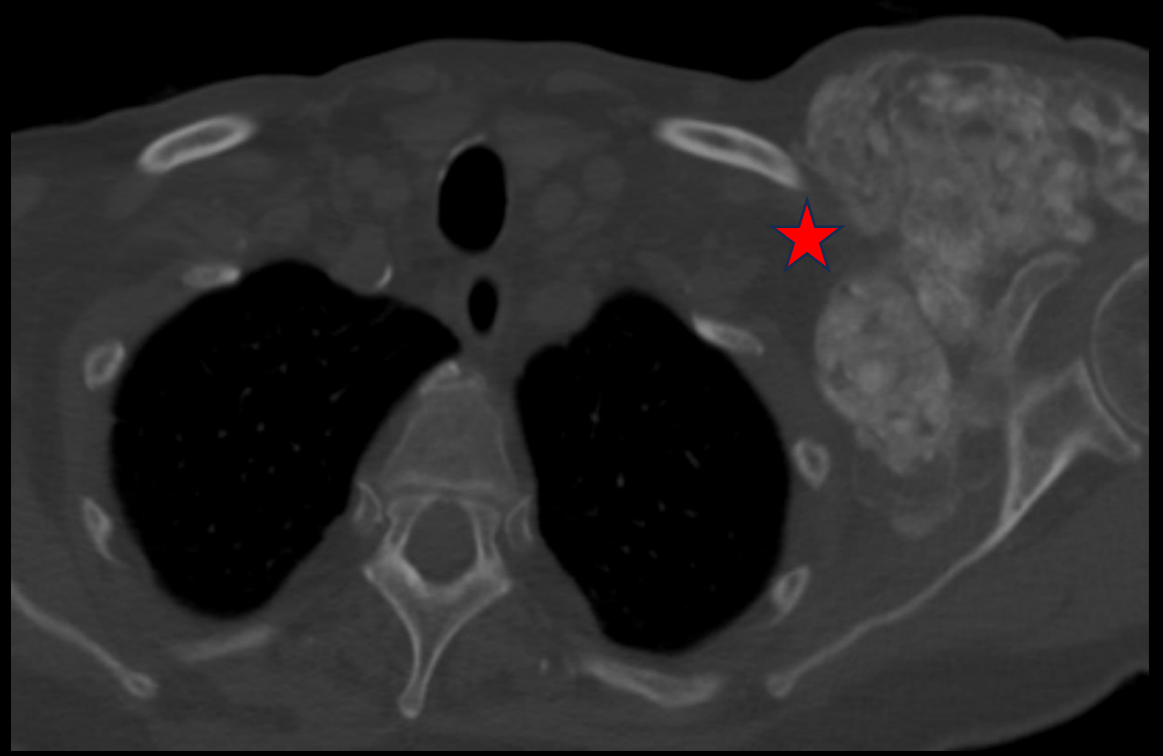


Coronal CT scan showing deposits of calcifications in the left supraclavicular area and along the neck.



Axial CT scan at level T3-T4 showing extensive deposition anterior to the left glenohumeral joint.

Findings (labeled)

Axial CT scan at the level of C3-C4 showing calcifications in the left neck area.

Final Dx:

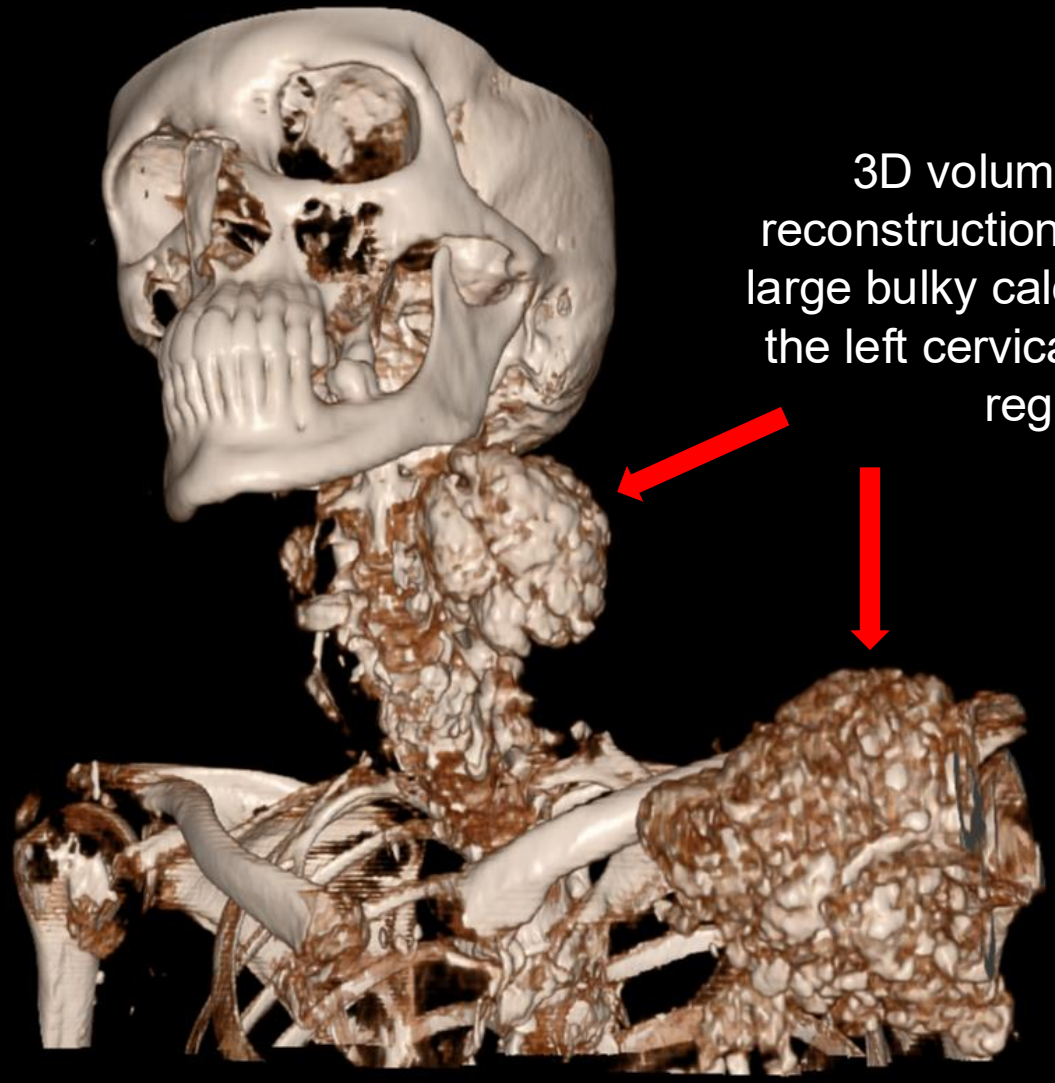
Tumoral Calcinosis

Case Discussion

Condition Overview

- Tumoral calcinosis is a rare condition involving abnormal calcium phosphate deposition in soft tissues.
- Commonly affects periarticular regions, leading to large, calcified masses.
- Most often seen in patients with chronic kidney disease or calcium-phosphate metabolism disorders (e.g, hyperparathyroidism).
- In dialysis-dependent patients, secondary hyperparathyroidism can drive calcification formation.

Case Discussion: Additional Imaging



3D volume rendered reconstruction demonstrating large bulky calcified masses in the left cervical and shoulder regions.

Case Discussion: Additional Imaging

Dual energy radiography demonstrating calcification overlying the region of the left shoulder

Case Discussion

Patient Presentation

- 73 year old female with CKD stage 5, currently on peritoneal dialysis, awaiting renal transplant.
- Presented with progressively enlarging calcified masses in neck, left supraclavicular, and axillary regions.
- Atypical presentation as tumoral calcinosis usually affects periarticular soft tissues.
- Minimal symptoms: mild discomfort, mainly when standing; no significant pain.

Case Discussion

Management and Outcome

- Endocrinology & nephrology teams identified the cause as abnormal parathyroid function secondary to CKD.
- Needle biopsy: confirmed dystrophic microcalcifications.
- No surgical intervention required.
- Kidney transplant was delayed due to the presence of calcifications.
- Differentiated from more aggressive forms of tumoral calcinosis that often require surgery.

References:

1) American College of Radiology. ACR Appropriateness Criteria ®. Available at

https://gravitas.acr.org/acportal. Accessed March 18, 2025.

2) Ellis CL, O'Neill WC. Dystrophic calcification: pathophysiology and clinical relevance in CKD. Semin Nephrol. 2009;29(2):96-104. doi:10.1016/j.semnephrol.2008.10.004

3) Gaillard F, Collins E, Campos A, et al. Tumoral calcinosis. Reference article. Radiopaedia.org. Accessed March 18, 2025. https://doi.org/10.53347/rID-2226

4) Goldberg M, Berdon WE, Levin TL, et al. Tumoral calcinosis: a spectrum of clinical presentations. J Clin Endocrinol Metab. 1998;83(1):265-272. doi:10.1210/jcem.83.1.4524

5) O'Neill WC. Radiology of vascular and skeletal calcification in chronic kidney disease. Clin J Am Soc Nephrol. 2008;3(6):1599-1605. doi:10.2215/CJN.02190508

6) Weinreb JC, Rodby RA, Yee J, et al. Use of Intravenous Gadolinium-based Contrast Media in Patients with Kidney Disease: Consensus Statements from the American College of Radiology and the National Kidney Foundation. Radiology. 2021;298(1):28-35. doi:10.1148/radiol.2020202903

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