



Images In Medicine

Extensive Subcutaneous Soft Tissue Calcification—a Benign Differential Diagnosis

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A 65 year-old female with hypertension, type 2 diabetes, and end stage renal disease on hemodialysis, presented with bilateral wet and dry gangrene. The patient had distal arterial Doppler signals, but no palpable pulses. A CT Angiogram of the lower extremities was performed. In addition to infrageniculate arterial stenoses, the CTA revealed extensive subcutaneous calcifications (Figures 1 and 2). Physical examination by the radiologist at the time of the CTA revealed diffuse, subtly palpable and firm subcutaneous nodules.

The differential diagnosis for such findings is extensive. Calciphylaxis is the deposition of calcium and phosphorus in the wall of small blood vessels secondary to end stage renal disease, which results in thrombosis, skin necrosis and ulceration. Fat necrosis or saponification causes subcutaneous masses on physical exam which are usually localized to sites of idiopathic trauma, such as injection sites.¹ Calcinosis cutis is associated with connective tissue disorders, such as CREST syndrome, dermatomyositis, Ehlers-Danlos, and systemic lupus erythematosus.² Metastatic calcinosis cutis is secondary to dystrophic calcification or calcium deposition in the skin around large joints and is associated with malignancy.³

Our patient had no history to support any of these possibilities. She did have chronic venous insufficiency^{3,4} with extensive venous varicosities. Calcinosis secondary to extensive thrombosis

within these venous structures with phleboliths was considered, but most of the calcification was outside of the veins.

Finally, tumoral calcinosis secondary to chronic renal failure results from elevated levels of phosphorus and calcium, which is often clinically visible. While our patient's levels of phosphorus and calcium at the time of CTA were normal, she had a history of secondary hyperparathyroidism from her renal failure. This was felt to be the most likely cause of the impressive, but incidental findings on her CTA and no further treatment was necessary.



Figure 2. Radiograph of the left knee, demonstrating extensive calcification of the soft tissues in the same patient.

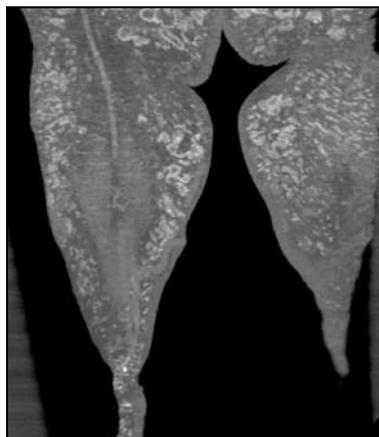
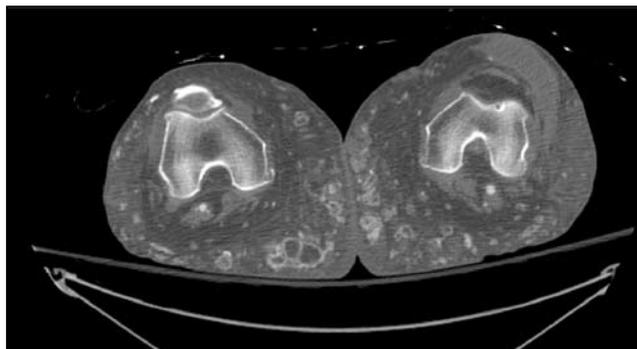


Figure 1. (above and left) Axial and coronal images from a CTA of the lower extremities, bone windows.

REFERENCES

1. Ullman HR, Dasgupta A, Recht M, Cash JM. CT of dystrophic calcification in subcutaneous soft tissues secondary to chronic insulin injection, a case report. *J Comp Assisted Tomo.* July/August 1995; 19(4): 657-9.
2. Goolamali SI. Subcutaneous calcification presenting in a patient with mixed connective tissue disease and cutaneous polyarteritis nodosa. *Clin Exp Dermatol.* 01-July 2009; 34(5):e141-4.
3. Miedinger D, Daikeler T. Images in Clinical Medicine. Chronic venous insufficiency and dystrophic subcutaneous calcification. *N Engl J Med.* 28-February 2008; 358 (9):e10.
4. Tokoro S. Latent dystrophic subcutaneous calcification in patients with chronic venous insufficiency. *Acta Derm Venereol.* 01-January 2009; 89(5): 505-8.

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Disclosure of Financial Interest

The authors and/or their spouses/significant others have no financial interests to disclose.

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