

CLINICAL IMAGE

Patterns of vascular calcification in patients with end-stage renal disease and calcific uremic arteriolopathy

Abhilash Koratala , Muhannad Leghrouz, Melinda H. Phillips & Vikrampal Bhatti

Division of Nephrology, Hypertension and Renal Transplantation, University of Florida, Gainesville, Florida

Correspondence

Abhilash Koratala, College of Medicine/UF Health, 1600 SW Archer rd., Room CG 98, Communicore Building, Gainesville, 32610 FL. Tel: 352-294-8694; Fax: 352-392-3581; E-mail: akoratsla@ufl.edu

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Case Description

Calciphylaxis and vascular calcification are thought to be a continuum of extraskeletal osteogenesis, and we recently reported a case of an end-stage renal disease (ESRD) patient with calciphylaxis and extensive vascular calcifications [1]. On plain radiographs, vascular calcification can take various forms. Irregular and patchy pattern is thought to represent intimal calcification, while a linear or railroad-track arrangement suggests medial calcification [2]. Calciphylaxis has been traditionally associated with linear calcification. However, we present three ESRD patients with lower extremity lesions suggestive of calciphylaxis that were associated with three distinct patterns of vascular calcification. Patient 1 with a serum parathyroid hormone (PTH) of 849 pg/mL (150–300 for ESRD) had linear calcifications (Fig. 1) and improved with sodium thiosulfate therapy, which is currently the standard treatment, in addition to intensification of dialysis regimen and optimization of serum calcium and phosphate levels [3]. Patient 2 with a PTH level of 1099 pg/mL had patchy vascular and soft tissue calcifications (Fig. 2) and improved with sodium thiosulfate therapy as well. Patient 3 with a PTH level of 553 pg/mL had calcifications with railroad-track appearance (Fig. 3) and

Key Clinical Message

Calcific uremic arteriolopathy or calciphylaxis is a rare and potentially fatal condition, which manifests as skin ischemia and necrosis, usually seen in patients with end-stage renal disease. It is frequently associated with vascular calcification visible on plain radiographs, which can occur in various patterns.

Keywords

Calcification, calciphylaxis, end-stage renal disease.



Figure 1. X-ray of the right lower extremity demonstrating linear vascular calcification. Associated foot lesion is shown in the inset.

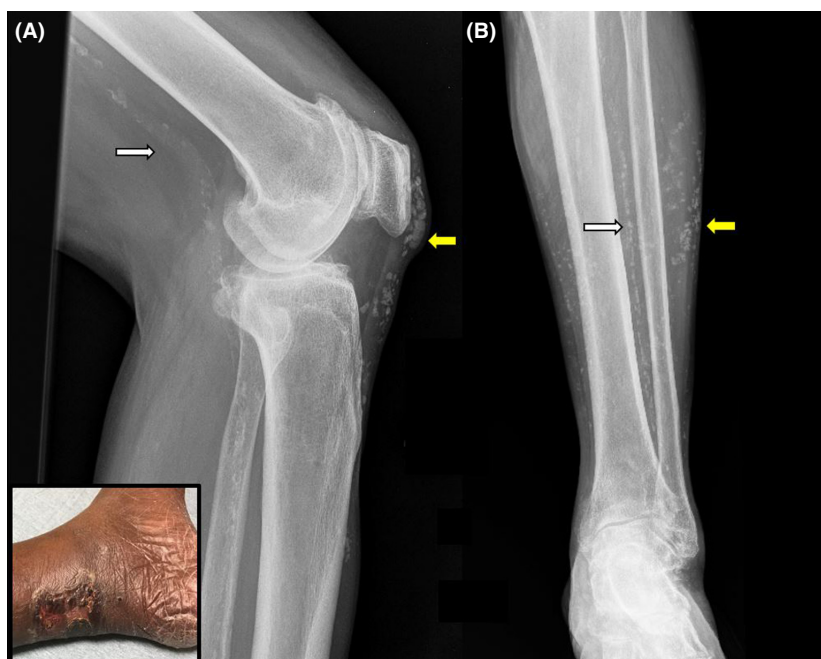


Figure 2. (A and B) X-ray of the left lower extremity demonstrating patchy vascular (white arrows) and soft tissue (yellow arrows) calcification. Associated skin lesion is shown in the inset.



Figure 3. X-ray of the right lower extremity demonstrating railroad-track pattern of vascular calcification. Associated foot lesion is shown in the inset.

required amputation of the foot because of infection and gangrene. All three patients were in their 50s and had hyperphosphatemia and a long dialysis vintage.

Informed Consent

Informed consent has been obtained for the publication of this clinical image from all the three patients.

Authorship

All authors made substantial contribution to the preparation of this manuscript and approved the final version for submission. AK: acquired the images and drafted the initial version of the manuscript. ML and MP: participated in the care of the patients and performed literature search. VB: revised the manuscript for critically important intellectual content and approved for final submission.

Conflict of Interest

The authors have declared that no conflict of interest exists.

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