Diagnosis of Calciphylaxis by Imaging with Low-energy-X-rays (Mammographic Technique)

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A thirty-six year old man, diabetic with end-stage renal disease on twice weekly haemodialysis, presented with sepsis secondary to ulceration and cellulitis of both lower limbs. The ulcers started as painful, purpuric lesions which coalesced to form necrotic, indurated plaques involving the thighs, legs and penis over a four month period (Figure 1 and 2). Biochemistry revealed a calcium-phosphate product of 58 and parathyroid hormone level of 377 pg/ml. The diagnosis of calciphylaxis was confirmed by imaging with low-energy-X-rays (mammographic technique) of the thigh which revealed dramatic calcification of large, medium, small arteries and arterioles upto the subcutaneous plane (Figure 3). He was treated with antibiotics, haemodialysis with low calcium dialysate and sevelamer. Cinacalcet was contraindicated as he had severe congestive cardiac failure. Sodium thiosulphate was unavailable. The patient died of sepsis two weeks following discharge.

Calciphylaxis is a devastating disorder with a mortality rate of 80% due to sepsis and organ failure.1,4 The term calciphylaxis was first coined by Selye in the early 1960s.2 Calciphylaxis is presently termed as calcific uremic arteriolopathy (CUA) as it is commonly seen in patients with end-stage renal disease. Imaging with low-energy-X-rays (mammographic technique) can be used to diagnose calciphylaxis. As per a recent review, a netlike pattern of calcification on plain radiograph was seen in patients with calciphylaxis and this finding has a sensitivity of about 90% to diagnose calciphylaxis.3

In another review, the mammography technique was found to be a simple, safe and inexpensive technique for diagnosing CUA.4 It was found to be superior to plain soft-tissue X-ray and 3-dimensional CT in showing the hallmark arteriolar calcifications of patients with CUA. Skin biopsy may not always be feasible as there is poor healing and very high risk for secondary infection especially in patients with sepsis and skin involvement.4 Thus we suggest that the mammographic technique can be safely used in diagnosing patients with calciphylaxis.

References