



Erythematous plaque with yellowish papules on the shin

Was the eruption on our patient's leg related to the treatment he received during his hospitalization?

A 53-YEAR-OLD MAN with a 10-year history of poorly controlled hypertension was brought to our emergency department (ED) because he'd had a sudden loss of consciousness. The ED physicians discovered a spontaneous intracranial hemorrhage in his brainstem with fourth ventricle compression and immediately transferred him to the intensive care unit (ICU).

During the patient's hospitalization, he was treated for ventilator-associated pneumonia and a gastric ulcer with cefepime 1 g IV 3 times daily and esomeprazole 40 mg/d IV via the long saphenous vein of his lower left leg. The patient subsequently developed

acute renal failure with hyperkalemia and was treated with furosemide, glucose, and insulin. He also received parenteral calcium gluconate, also via the long saphenous vein in his left leg.

One week later, while still in the ICU, the patient developed an erythematous plaque with several firm yellowish papules on his lower left leg (FIGURE).

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

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FIGURE

Erythematous plaque with firm yellowish papules on the shin



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➤ Radiographs are initially negative, but can show changes one to 3 weeks after the initial appearance of the skin lesions.

Dx: Iatrogenic calcinosis cutis

Calcinosis cutis is characterized by calcification of the skin and subcutaneous tissue. It is categorized into 5 major types based on the etiology: dystrophic, metastatic, idiopathic, calciphylaxis, and iatrogenic.¹ Calcification results from local tissue injury inducing alterations in collagen, subcutaneous fat, and elastic fibers. Typically, the ectopic calcification mass consists of amorphous calcium phosphate and hydroxyapatite. Serum levels of calcium and phosphate in these patients are typically in the normal range.²

Iatrogenic calcification typically occurs in patients who have received IV calcium chloride or calcium gluconate therapy.² When extravasation of calcium gluconate occurs, the venipuncture site can rapidly become tender, warm, and swollen, with erythema and whitish papuloplaques; in severe cases, signs of soft tissue necrosis or infection may also be seen.³ The lesions appear about 13 days after the infusion of calcium gluconate.⁴ Radiographs are initially negative, but can show changes one to 3 weeks after the skin lesions appear.⁴

■ **Not always obvious.** Iatrogenic calcinosis cutis is easy to diagnose when a massive extravasation of calcium infusion is followed by tender, swollen whitish papuloplaques with surrounding erythema and skin necrosis.³ The diagnosis can be more challenging when the extravasation is not obvious. In such cases, a thorough history and careful exam will help distinguish it from 3 other conditions in the differential diagnosis.

Distinguishing calcinosis cutis from these conditions

The differential diagnosis includes cellulitis, eruptive xanthoma, and gouty tophus.

■ **Patients with cellulitis** will complain of areas of increased warmth, tenderness, redness, and swelling. Constitutional symptoms such as fever, chills, and tachycardia may also be present. Laboratory results will reveal leukocytosis and elevated erythrocyte sedimentation rate and C-reactive protein levels.

■ **Eruptive xanthoma** affects patients with hypertriglyceridemia with a sudden onset of monomorphic erythematous to yellowish papules over the buttocks, shoulders, and ex-

tensor surfaces of the extremities. High serum triglyceride levels confirm this diagnosis.

■ **In gouty tophus**, hyperuricemia is a key risk factor. Patients initially present with extreme pain and swelling in a single joint—especially the first metacarpophalangeal. When left untreated, the pain and swelling may extend to the soft tissue of other articular joints and the auricular helix. Hard yellowish to whitish papulonodules with an erythematous halo may also appear. A histopathologic examination will reveal granulomatous inflammation surrounding yellow-brown urate crystals; in contrast, you will see deposits of blue calcium phosphate with calcinosis cutis.²

A conservative approach to treatment

There is no consensus on the management of calcinosis cutis, although it is typically managed conservatively.⁵ Progressive clearing of the calcification often occurs spontaneously 2 to 3 months after onset, with no evidence of tissue calcification after 5 or 6 months.⁶ When calcinosis cutis is complicated by serious extravasation injuries, such as secondary infection or skin necrosis, debridement, drainage, or skin grafting may be needed.

Our patient's road to recovery

Our patient was transferred to the respiratory care unit after he was stabilized. His lesions improved gradually, without any treatment. One month after being hospitalized, he was discharged to an assisted living facility. **JFP**

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