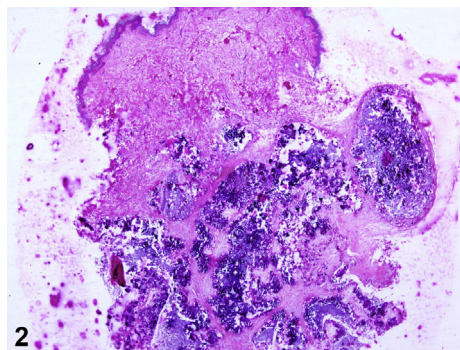


## Whitish elbow nodules in a healthy 11-year-old girl



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**Key words:** calcinosis cutis; calcium; idiopathic; skin calcification.



### CASE PRESENTATION

An 11-year-old healthy girl presented with a 16-month history of asymptomatic lesions on her elbow. She had no history of trauma or previous treatment. Examination showed hard, erythematous, whitish nodules with yellowish crust on the posterior left elbow (Fig 1). Range of motion was unaffected. Results of complete blood count and comprehensive metabolic panel and calcium, phosphate, parathyroid hormone, 24-hour urinary calcium, and aldolase levels were normal. Serologic test results were negative for antinuclear antibody, rheumatoid factor, anti-Jo, anti-Sm, anti-Scl-70, anti-RNP, anti-Ro, anti-La. Radiography showed periarticular soft tissue calcifications. Magnetic resonance imaging showed no joint involvement. A 4-mm punch biopsy showed large, amorphous, irregular, basophilic deposits in the deep dermis (Fig 2).

### Question 1: What is the most likely diagnosis?

- A. Gout
- B. Calcinosis cutis
- C. Rheumatoid nodules
- D. Xanthoma tendinosum
- E. Subcutaneous granuloma annulare

### Answers:

**A.** Gout – Incorrect. Gout occurs most commonly in middle-aged men due to accumulation of uric

acid. Chronic tophaceous gout occurs after more than 10 years on average of having this condition. Pathologic analysis shows amorphous eosinophilic material in the dermis and subcutaneous tissue with needle-like clefts.

**B.** Calcinosis cutis – Correct. The patient's presentation of whitish nodules with superficial crust and histopathologic analysis results showing large, amorphous, irregular, basophilic deposits of calcium in the deep dermis are consistent with this diagnosis.

**C.** Rheumatoid nodules – Incorrect. Rheumatoid nodules present as subcutaneous nodules overlying

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Funding sources: None.

Conflicts of interest: None disclosed.

Presented as part of an e-poster at the American Academy of Dermatology Annual Meeting, Washington, DC, 2019.

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JAAD Case Reports 2019;5:752-3.

2352-5126

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<https://doi.org/10.1016/j.jidcr.2019.06.008>

joints in the setting of rheumatoid arthritis. Pathologic analysis shows palisading granulomas in the deep dermis or subcutaneous tissue surrounding central eosinophilic degraded fibrin.

**D.** Xanthoma tendinosum – Incorrect. Xanthoma tendinosum presents with skin-colored nodules on the heel, elbows, knees, or hands. It occurs in the setting of lipid metabolism disorders. Pathologic analysis shows large foam cells in the dermis.

**E.** Subcutaneous granuloma annulare – Incorrect. The subcutaneous variant of granuloma annulare occurs most commonly in children, affecting boys more than girls. Lesions are typically skin-colored, whereas this patient presented with whitish lesions. Pathologic analysis shows palisading granulomas surrounding connective tissue degeneration and mucin.

**Question 2: What type of calcinosis cutis does this patient have?**

- A.** Dystrophic
- B.** Metastatic
- C.** Idiopathic
- D.** Iatrogenic
- E.** Calciphylaxis

**Answers:**

**A.** Dystrophic – Incorrect. Dystrophic calcinosis cutis occurs with normal serum calcium and phosphate levels due to local tissue damage.<sup>1</sup> It is the most common subtype and is often seen in connective tissue disease, in certain inherited disorders, in cutaneous neoplasms, and as a result of trauma.<sup>1-3</sup>

**B.** Metastatic – Incorrect. Metastatic calcinosis cutis occurs due to abnormal calcium or phosphate metabolism.<sup>1</sup> This patient had normal calcium and phosphate test results.

**C.** Idiopathic – Correct. Idiopathic calcinosis cutis occurs in the absence of local tissue injury or abnormal calcium or phosphate metabolism, as was seen in this patient.<sup>1</sup> This patient specifically had tumoral idiopathic calcinosis cutis, which is rare but has been reported to occur in otherwise healthy adolescents around large joints.<sup>1,4</sup>

**D.** Iatrogenic – Incorrect. Iatrogenic calcinosis cutis occurs as a result of medical causes, such as extravasation of intravenous calcium gluconate therapy.<sup>1,2,4</sup>

**E.** Calciphylaxis – Incorrect. Calciphylaxis occurs in the setting of end-stage renal disease when there

is deposition of calcium in blood vessels in the dermis or subcutaneous fat, and it presents with different clinical skin findings.<sup>1</sup>

**Question 3: Which of the following is not a reported treatment option for calcinosis cutis?**

- A.** Minocycline
- B.** Surgical intervention
- C.** Diltiazem
- D.** Aluminum hydroxide
- E.** Enalapril

**Answers:**

**A.** Minocycline – Incorrect. Size reduction and a decrease in inflammation and ulceration have been reported with minocycline at doses of 50 or 100 mg/day.<sup>5</sup>

**B.** Surgical intervention – Incorrect. Surgical intervention has been shown to be useful, although recurrence varies.<sup>5</sup> Some have reported resolution, but others have reported a high chance of relapse.<sup>5</sup>

**C.** Diltiazem – Incorrect. Case reports have shown improvement in patients with dystrophic calcinosis cutis with diltiazem at doses of 2 to 4 mg/kg/day.<sup>5</sup>

**D.** Aluminum hydroxide – Incorrect. Aluminum hydroxide has been shown to be useful in the treatment of dystrophic calcinosis cutis in case reports at doses ranging from 1.8 to 2.4 g/day.<sup>5</sup>

**E.** Enalapril – Correct. There are no reports of enalapril used for calcinosis cutis. Because of the rarity of this condition, evidence for treatment derives from single cases or small case series.<sup>5</sup> Minocycline, surgical intervention, diltiazem, and aluminum hydroxide are all potential therapies. Because there is no standard treatment, options should be discussed with each patient.<sup>5</sup>

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