CASE REPORT

Calcinosis Cutis Secondary to Trauma in a Patient with Systemic Lupus Erythematosus and Ovarian Cancer

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Summary

Calcinosis cutis is characterized by the accumulation of insoluble calcium salts in the cutaneous and subcutaneous tissue. This condition is classified into four subtypes of calcification: dystrophic, metastatic, idiopathic and iatrogenic. Here, we describe a case of calcinosis cutis in a patient with systemic lupus erythematosus (SLE) who was recently diagnosed with ovarian cancer. Following total hysterectomy with bilateral salphingo-oophorectomy, she developed a painful erythematous plaque over the anterior aspect of the left forearm which turned into single thin yellowish plaque over the following days. Multiple attempts of intravenous cannulation for intravenous fluids occurred at the site. Skin biopsy revealed calcification in the dermis and subcutaneous fat associated with altered dermal collagen. Von Kossa stain demonstrated the presence of calcium deposition. She responded to topical calcineurin inhibitor which resulted in a complete resolution of the skin lesion.

Key words: *Calcinosis cutis, Systemic lupus erythematosus, Ovarian cancer*

Introduction

Calcinosis cutis is characterized by the accumulation of insoluble calcium salts in the cutaneous and subcutaneous tissue. This condition is classified into four subtypes of calcification: dystrophic, metastatic, idiopathic and iatrogenic.[1-3] Dystrophic type is closely linked to autoimmune connective tissue diseases. Here, we describe a case of calcinosis cutis in a patient with systemic lupus erythematosus (SLE) who was recently diagnosed with ovarian cancer.

Case Report

A 58-year-old lady presented with a 2-week history of a single plaque on her left forearm. This patient was diagnosed with SLE since 2007 and is currently in remission. Her treatment included prednisolone 5mg daily and hydroxychloroquine 200mg daily. She was also taking calcium carbonate and vitamin D supplement for more than 10 years. Recently, she was diagnosed with ovarian clear cell carcinoma and a total hysterectomy with bilateral salphingo-oophorectomy was performed. Post-operatively, she developed a painful erythematous plaque over the anterior aspect of the left forearm. This was the site where multiple attempts of intravenous cannulation

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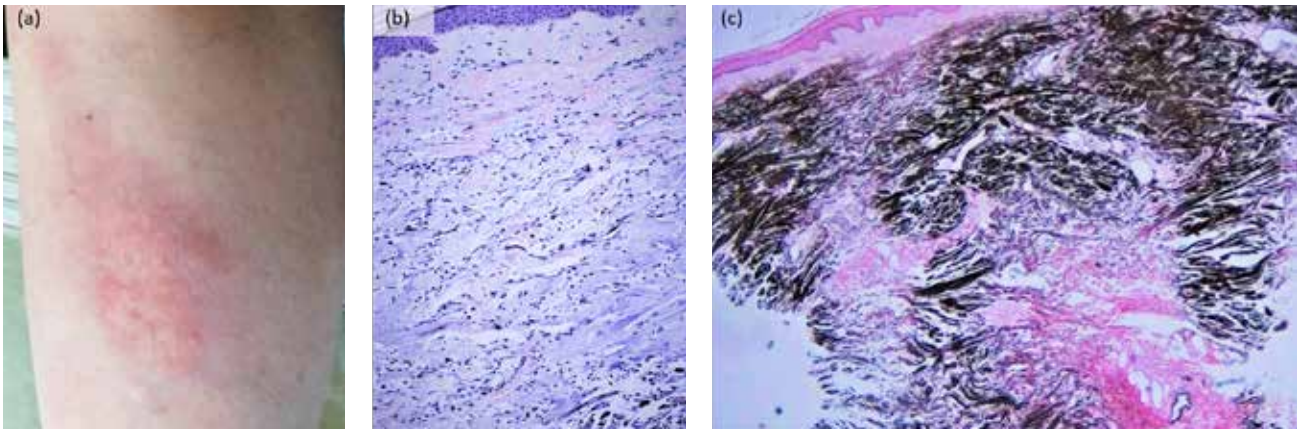
Figure 1. (a) Single thin yellowish plaque over the left forearm; (b) Histopathology shows calcification in the dermis and subcutaneous fat (H&E x 100); (c) Calsium deposits in the dermis using Von Kossa stain x 20)



for intravenous fluids occurred, however there was no drug administered intravenously.

Over the following few days, a single thin yellowish plaque appeared at the same site with an ill-defined border and surrounding erythema (Figure 1a). The plaque was tender and not associated with any blister, ulcer or discharge. Patient was otherwise well with no similar lesion elsewhere on her body. Plane xanthoma and necrobiosis lipoidica were considered as differential diagnoses.

Histopathological examination of the skin lesion revealed calcification in the dermis and subcutaneous fat associated with altered dermal collagen (Figure 1b). Von Kossa stain demonstrated the presence of calcium deposition. Hence, the diagnosis of calcinosis cutis was made (Figure 1c). Serum calcium, phosphate and lipid levels were within normal limits. Our patient was prescribed topical calcineurin inhibitor to reduce the inflammation. She had completed systemic chemotherapy post operatively for her ovarian carcinoma. During her last clinic visit, there was a complete resolution of the skin lesion with no recurrence noted.

Discussion

Calcinosis cutis is more frequently manifested as chalky white subcutaneous nodules. In this case the clinical appearance of a yellowish plaque could be misleading and may look similar to xanthoma, as previously reported by Ankad *et al*.[4] Von kossa stain would be helpful to confirm the diagnosis of calcinosis cutis.

The exact pathophysiology of calcinosis cutis is still unclear. Some studies hypothesized that local inflammation following tissue injury might lead to tissue calcification.[2,3] At the site of trauma, increased cell permeability and damaged proteins of necrotic cells may further attract calcium deposition.[1,2] In our case, local skin microtrauma caused by repeated cannulation might promote the development of calcinosis cutis as suggested in past studies.[5-7]

SLE-associated calcinosis cutis is usually localised with the tendency to develop over the limbs and buttocks.[1,8] Typically, calcinosis cutis presents in patients with a long history of established SLE.[2,8] Similarly, our patient had SLE for more than 10 years before developing calcinosis cutis, despite her SLE currently being in remission.

Elevated level of calcium or phosphate metabolism is usually found in metastatic calcification and calciphylaxis.[1] Normal level of serum calcium and phosphate is observed in idiopathic and dystrophic calcification (as reflected in our case). The patient is unlikely to have idiopathic calcification due to the presence of tissue damage. Other type such as iatrogenic calcification mostly occurs following an intravenous calcium treatment.[1] Whether the oral calcium and vitamin D supplement intake contributed to cutaneous calcification in our patient is unproven.

The treatment of calcinosis cutis in SLE is variable with no standardised algorithm.[8,9] Several medical treatments which are reported to be beneficial include diltiazem, colchicine, minocycline. Surgical treatment is generally considered for large localised and symptomatic lesions.[9]

Conclusion

When encountering a patient with long-standing SLE, normal serum calcium and phosphate levels, and following trauma especially at intravenous cannulation sites, the presence of yellowish plaque should prompt the clinician to consider dystrophic calcinosis cutis as a differential diagnosis.

Conflict of Interest Declaration

The authors have no conflict of interest to declare.

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References

1. Reiter N, El-Shabrawi L, Leinweber B, Berghold A, Aberer E. Calcinosis cutis: Part I. Diagnostic pathway. J Am Acad Dermatol 2011;65:1-12.
2. Kim MS, Choi KC, Kim HS, Song IG, Shin BS. Calcinosis cutis in systemic lupus erythematosus: A case report and review of the published work. J Dermatol 2010;37:815-8.
3. Ammouri W, Harmouche H, Ahrikat O, Maamar M, Tazi MZ, Adanaoui M. Extensive calcinosis cutis in a patient with systemic lupus erythematosus: An exceptional complication. Press Med 2018;47:410-1.
4. Ankad BS, Miskin AT, Math MK, Sakhare PS. Calcinosis cutis mimicking xanthoma: A case report. Our Dermatol Online J 2018;9:95-6.
5. Larralde M, Giachetti A, Cáceres MR, Rodríguez M, Casas J. Calcinosis cutis following trauma. Pediatr Dermatol 2005;22:227-9.
6. Kanda A, Uchimiya H, Ohtake N, Setoyama M, Kanzaki T. Two Cases of Gigantic Dystrophic Calcinosis Cutis Caused by Subcutaneous and/or Intramuscular Injections. J Dermatol 1999;26:371-4.
7. Chung EH, Kim YH. Iatrogenic calcinosis cutis of the upper limb arising from the extravasation of intravenous anticancer drugs in a patient with acute Lymphoblastic leukemia. Arch Plast Surg 2016;43:214-6.
8. Gutierrez Jr A, Wetter DA. Calcinosis cutis in autoimmune connective tissue diseases. Dermatol Ther 2012;25:195-206.
9. Balin SJ, Wetter DA, Andersen LK, Davis MDP. Calcinosis cutis occurring in association with autoimmune connective tissue disease: The Mayo Clinic experience with 78 patients, 1996-2009. Arch Dermatol 2012;148:455-62.