Case Report doi: 10.5146/tjpath.2014.01295

Cytodiagnosis of Idiopathic Calcinosis Cutis: A Case Report

İdiopatik Kalsinozis Kutisin Sitolojik Tanısı: Olgu Sunumu

Monisha CHOUDHURY, Kiran AGARWAL, Smita SINGH, Savita AGARWAL

Department of Pathology, Lady Hardinge Medical College, NEW DELHI, INDIA

ABSTRACT

We report a case of idiopathic calcinosis cutis diagnosed by fine needle aspiration cytology in a 50-yr-old female who presented with a subcu taneous swelling near the left iliac crest. Cytological finding of amorphous calcium salts with histiocytes and the appropriate clinical background led to the cytodiagnosis of idiopathic calcinosis cutis as subsequently confirmed on histopathology. Pitfalls in the diagnosis of calcinosis cutis on cytology smears are also discussed.

Key Words: Calcinosis, Skin, Fine needle aspiration biopsy

ÖZ

Sol iliak krest yakınında soliter subkutan nodülü olan ve ince iğne aspirasyon biopsisi ile tanı konan 50 yaşında kadın idiopatik kalsinozis kutis olgusu sunulmuştur. Klinik veriler ışığında değerlendirilen yaymalarda sitolojik olarak amorf kalsiyum tuzları ve histiyositlerin varlığı, uygun klinik verilerle birlikte idiopatik kalsinozis kutis sitopatolojik tanısına ulaşmayı sağlamış ve bu tanı histopatolojik olarak doğrulanmıştır. Kalsinozis kutis tanısının sitolojik yaymalarda karşılaşılan zorlukları tartışılmıştır.

Anahtar Sözcükler: Kalsinoz, Deri, İnce iğne aspirasyon biyopsi

INTRODUCTION

Calcinosis cutis develops due to deposition of hydroxyapatite crystals of calcium phosphate in the skin. There are various causes such as abnormal calcium or phosphorus metabolism, tissue damage or idiopathic factors. We present a case of idiopathic calcinosis cutis diagnosed on fine needle aspiration (FNA) cytology in an otherwise healthy woman. Points of caution for a correct interpretation of the cytological findings are also discussed.

CASE REPORT

A female patient in her fifties presented with a solitary, slowly growing lump close to left iliac crest for the last 7 years. There was no history of trauma or parenteral therapy or family history of similar lesions. No history of pain or discharge from the swelling was present. Clinically, there was no evidence of any inherited or connective tissue disorder and tests for anti nuclear antibodies and dsDNA were negative. The patient had no other swelling or cutaneous lesions such as blister or ulceration elsewhere in the body. The nodule was located subcutaneously and measured 2.5x1.5 cm. It was hard to palpate with no connection with the underlying bone. All biochemical and hematological investigations including serum calcium and phosphorus were within normal limits. Radiological survey showed a calcified mass separate from adjacent bone. FNA of the nodule was performed with a 22-gauge needle attached to a 10 ml syringe and yielded chalky white granular material. Giemsa and Papanicolaou stains were used to stain the smears. Microscopy showed amorphous granular material staining bluish on Papanicolaou and dark grey on Giemsa stain (Figure 1A). A few histiocytes were also seen. The smears were strongly positive with the Von-Kossa stain for calcium (Figure 1B). A cytodiagnosis of calcinosis cutis was provided. The patient underwent surgical excision of nodule followed by histopathological examination. The gross specimen showed a hard, irregular lesion measuring 3x2 cm. On sectioning, the lesion was gritty with chalky white calcified areas. Representative sections were taken and stained with H&E and the Von-Kossa stain. Sections showed nests of calcified material separated by fibrous septa in the dermis without any significant inflammation (Figure 2). The overlying epithelium was normal. Calcified material was positive by the Von-Kossa stain, indicating a diagnosis of calcinosis cutis.

DISCUSSION

There is localized and organized deposition of calcium in the skin in calcinosis cutis. Virchow first described the disorder in 1855 (1). From the pathogenesis point of view, the condition is classified as metastatic, dystrophic, iatrogenic, idiopathic and calciphylaxis. Serum calcium and phosphate levels remain normal in dystrophic calcification whereas it is abnormal in metastatic calcification.

(Turk Patoloji Derg 2015, 31:145-147)

Received : 20.11.2011 **Accepted :** 03.01.2012

Correspondence: Savita AGARWAL
Lady Hardinge Medical College, Department of Pathology,
NEW DELHI, INDIA
E-mail: savvymedico@gmail.com Phone: +91 0525 223 29 85

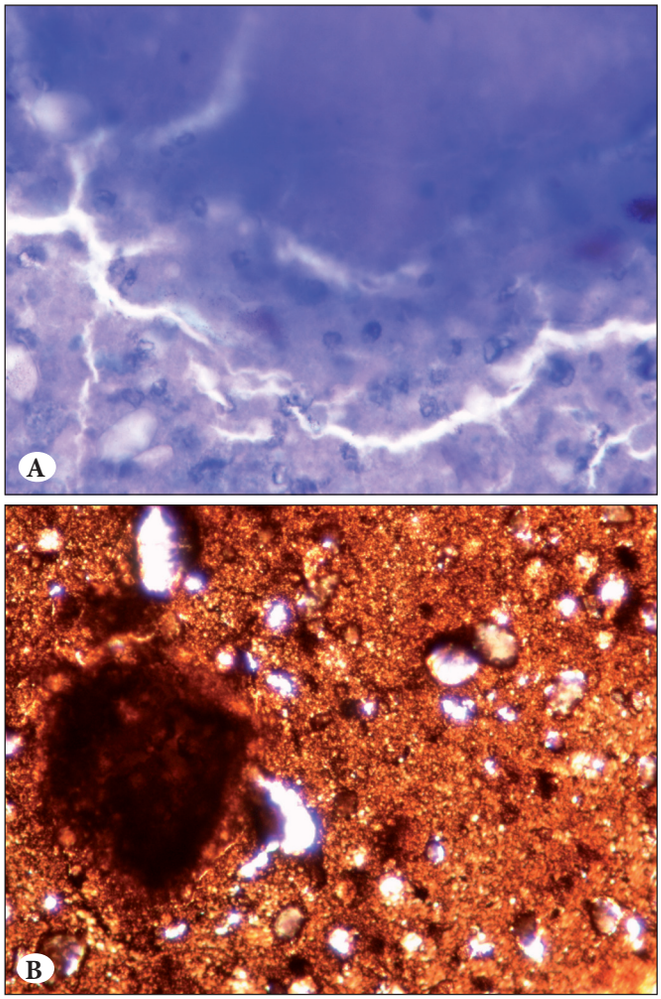

Figure 1: **A)** Calcific material with few histiocytes (Giemsa; x400), **B)** Black calcified material (Von Kossa; x40).

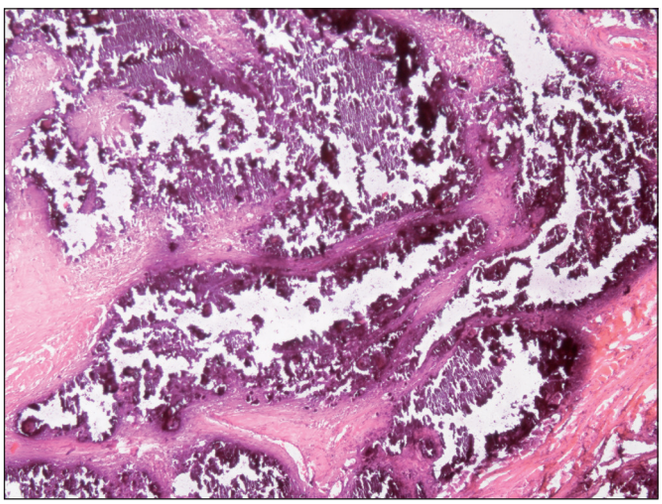

Figure 2: Histopathological section of resected mass showing lobules of calcification separated by thick fibrous septa (H&E; x400).

Calciphylaxis is associated with small vessel calcification in the dermis and subcutaneous fat causing infarction and there may be associated hyperparathyroidism and disturbances in the phosphate and calcium metabolism (2). The idiopathic calcinosis term is used in the absence of any identifiable cause of tissue calcification. In the present case, a negative history of trauma and parenteral therapy or any preceding pathological lesion at the site, along with normal serum calcium and phosphorus levels clearly excluded the possibility of dystrophic, iatrogenic and metastatic causes. The pathogenesis of calcification is unknown. However, levels of gamma carboxyglutamic acid (GIa) have been found to be elevated in calcified tissue as well as in the urine of patients with calcinosis. It has been suggested that de novo production of GIa can lead to ectopic soft tissue calcification (3, 4).

FNA samples yielding abundant calcium require careful consideration of certain entities that include calcified fibrous pseudotumor, calcified epidermal cyst, sarcoidosis, tuberculosis, lymphoepithelial lesion, pilomatricoma, osteitis fibrosa cystica, and extra skeletal osteosarcoma in the differential diagnosis. A calcified fibrous pseudotumor shows abundant hyalinised collagen, fat, and neurovascular bundles along with calcification (5). Calcified tuberculosis and sarcoidosis show a granulomatous reaction (6), whereas calcified epidermal cyst shows anucleate and nucleate squames. Pilomatricoma shows basaloid cells, ghost cells, multinucleated giant cells in addition to calcification (7). Lymphoepithelial lesions show a polymorphous population of lymphoid cells along with histiocytes and calcification (8). Absence of any tumor cells rule out extraskeletal osteosarcoma. The clinical evaluation helps in the exclusion of osteitis fibrosa cystica. Reiter et al reviewed various conditions that may lead to skin calcification and provided information regarding laboratory tests required to differentiate various types of calcinosis cutis (2).

The treatment for small calcified deposits and large localized lesions is surgical excision which is curative and also allows histopathological examination that is required for confirmation of the diagnosis, whereas systemic therapy is required for disseminated and extended calcinosis. Various reported treatment modalities with beneficial effects include warfarin, bisphosphonates, minocycline, ceftriaxone, diltiazem, aluminum hydroxide, probenacid, intralesional corticosteroids, intravenous immunoglobulins, curettage, carbon dioxide laser, and extracorporeal shock wave lithotripsy (9).

Till date, there are very few case reports on FNA cytology of idiopathic calcinosis cutis (10-12) which if properly interpreted can lead to correct cytodiagnosis of this disorder. The technique is of great diagnostic importance in determining cases requiring medical rather than surgical treatment.

REFERENCES

1. Valdatta L, Buoro M, Thione A, Mortarino C, Tuinder S, Fidanza C, Dainese E. Idiopathic circumscripta calcinosis cutis of the knee. Dermatol Surg. 2003;29:1222-4.
2. 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; quiz 13-4.
3. Yoshida S, Torikari K. The effects of warfarin on calcinosis in a patient with systemic sclerosis. J Rheumatol. 1993;20:1233-5.
4. Lian JB, Skinner M, Glimcher MJ, Gallop P. The presence of gamma- carboxyglutamic acid in the proteins associated with ectopic calcification. Biochem Biophys Res Commun. 1976;73:349-55.
5. Fetsch JF, Montgomery EA, Meis JM. Calcifying fibrous pseudotumor. Am J Surg Pathol. 1993;17:502-8.
6. Pérez-Guillermo M, Sola Perez J, Espinosa Parra FJ. Asteroid bodies and calcium oxalate crystals: Two infrequent findings in fine-needle aspirates of parotid sarcoidosis. Diagn Cytopathol. 1992;8:248-52.
7. Unger P, Watson C, Phelps RG, Danque P, Bernard P. Fine needle aspiration cytology of pilomatrixoma (calcifying epithelioma of Malherbe): Report of a case. Acta Cytol. 1990;34:847-50.
8. Gunhan O, Celasun B, Dogan N, Onder T, Pabuscu Y, Finci R. Fine needle aspiration cytologic findings in a benign lymphoepithelial lesion with microcalcifications: A case report. Acta Cytol. 1992;36:744-7.
9. Reiter N, El-Shabrawi L, Leinweber B, Berghold A, Aberer E. Calcinosis cutis: Part II. Treatment options. J Am Acad Dermatol. 2011;65:15-22; quiz 23-4.
10. Das S, Kalyani R, Harendra Kumar ML. Cytodiagnosis of tumoral calcinosis. Journal of Cytology. 2008;25:160-1.
11. Gupta RK, Naran S, Cheung YK. Fine-needle aspiration cytology of soft-tissue calcinosis presenting as an enlarging mass in the chest wall. Diagn Cytopathol. 1998;19:465-7.
12. Agrawal P, Banik T, Dey P. Calcinosis cutis: Diagnosis by fine needle aspiration cytology-A rare case report. Diagn Cytopathol. 2011;39:917-8.