



Case Report

Scrotal Calcinosis mimicking malignancy - A rare case presentation

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ABSTRACT

Scrotal calcinosis is a rare benign disease, which presents as multiple, painless, hard nodular growth in the scrotum without any systemic metabolic disorder. Histologic features of the lesion are extensive dermal deposits of calcium, with associated lympho-histiocytic aggregates and focal foreign body giant cell reaction. The pathogenetic mechanisms could be either purely idiopathic or any form of dystrophic calcification of the lining epithelial cysts or any inflammatory process with subsequent rupture, calcification and obliteration of the cyst wall. We present a rare case report of a 23-year-old male, who presented to the general surgery clinic with complaints of multiple, firm to hard scrotal swellings for the last 6 months. Microscopic examination of the excised growth showed multiple cysts with foci of normal and inflamed lining, with luminal calcific material with foci of 'naked' calcium deposits in the dermis. Biochemical tests showed normal values of serum calcium and phosphorus levels in our patient.

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1. Introduction

Scrotal calcinosis is a rare benign disease, which presents as multiple, painless, hard nodular growth in the scrotum without any systemic metabolic disorder. Histologic features of the lesion are extensive dermal deposits of calcium, with associated lympho-histiocytic aggregates and focal foreign body giant cell reaction.^{1,2}

The pathogenetic mechanisms could be either purely idiopathic or any form of dystrophic calcification of the lining epithelial cysts or any inflammatory traumatic process with subsequent rupture, calcification and obliteration of the cyst wall.^{3,4}

Studies have reported normal blood parameters with normal serum biochemistry and electrolyte levels in scrotal calcinosis with intranodular cystic content of only calcium and phosphorus.¹ Shah and Shet have mentioned dystrophic calcification as the etiopathogenetic mechanism of this disease condition.² We present a rare case report of a 23-year-old male, who presented with complaints of multiple,

firm to hard scrotal swellings, with microscopic features of multiple cysts with both normal and inflamed epithelial lining, containing calcific concretions in the lumen, with foci of 'naked' dermal calcium deposits, consistent with scrotal calcinosis.

2. Case Summary

A 23 -year-old male presented to the general surgery clinic with complaints of multiple firm to hard scrotal swellings for the last 6 months. He also had complaints of pruritus, chalky discharge with ulceration. On local examination, multiple firm to hard, well-defined, nodular cutaneous swellings was appreciated. X-ray of the lesion showed multiple irregular cutaneous radio-opaque lesions. Ultrasonography of the scrotum revealed foci of heterogenous calcific concretions, without any mass lesions. No systemic complaints was elicited by the patient.

Routine hemogram was normal. Serum biochemistry revealed normal biochemical parameters with mean serum phosphorus of 4.3 mg/dl, mean serum albumin of 5.6 mg/dl and mean serum alkaline phosphatase of 9.6 KAU/100 ml

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except a raised mean serum calcium of 13.5 mg/dl. No other metabolic abnormality was detected.

Excision biopsy of the swellings was performed, formalin fixed, decalcified in 5 percent HNO₃, embedded in paraffin wax and stained with hematoxylin and eosin. Special stain Von Kossa was employed to detect the calcium deposits. Histopathology showed features of large isolated amorphous basophilic dermal deposits of calcium and foci of multiple small calcific concretions distributed throughout the dermis with foreign body giant cell reaction and minimal lympho-histiocytic infiltrate (Figures 1 and 2). Von Kossa stain showed positive dermal calcific deposits (Figure 3). No foci of atypia was noted. Based on the histopathologic findings, a definitive diagnosis of scrotal calcinosis was given. The postoperative period was uneventful and our patient is doing well after 6 months of follow up period.

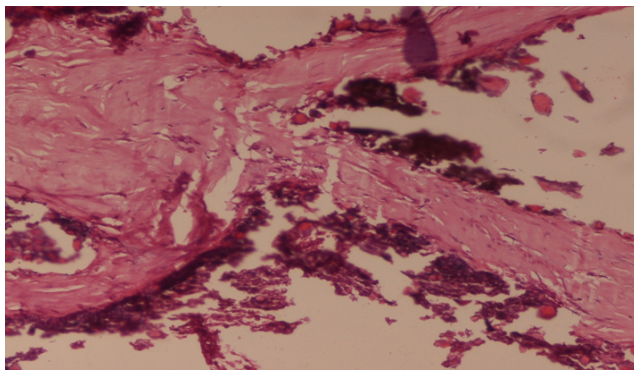


Fig. 1: Microscopic examination shows multiple cystic lesions in the dermal skin with irregular basophilic deposits in the wall and lumen with foreign body giant cell reaction, with foci of few histiocytes. Haematoxylin and Eosin x 10X.

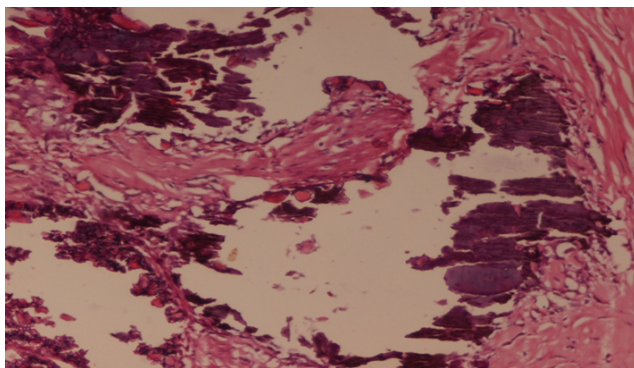


Fig. 2: Tissue section shows cysts with multiple small irregular basophilic to purplish deposits of calcium with foreign body giant cell reaction, with few histiocytes in the dermis. Haematoxylin and Eosin x 40X.

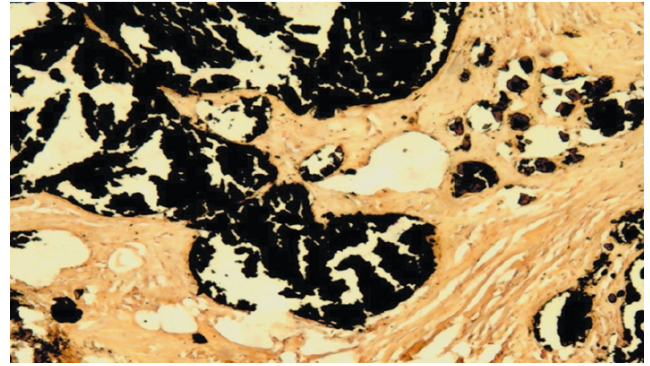


Fig. 3: Von Kossa stain showed positive dermal calcific deposits. Von Kossa x 40X

3. Discussion

H.M. Lewinski in 1883 and later Hutchinson in 1888 have described calcinosis of the scrotum, but the etiopathogenetic mechanism of the disease has remained elusive.^{4,5} However, Shapiro et al. in 1970 was the first to establish the idiopathic nature of scrotal calcinosis.¹ They defined the relevant clinical findings and histological features of the lesion characterized by variable sized cystic masses devoid of any epithelial lining, with basophilic to purplish calcific concretions scattered in the dermis, with associated foreign body giant cell reaction.

Ito in his report of 6 cases has hypothesized dystrophic calcification due to minor pressure or trauma as the etiology of scrotal calcinosis, with similar clinical and histological features.³ A foreign body (thorn) was found in one of these cases, which was considered the initiating factor for dystrophic calcification.³ Saad and Zaatari have hypothesized that scrotal calcinosis was due to dystrophic calcification of the dartoic muscle.⁶ Hicheri et al. have reported an unusual case of calcinosis of the scrotum, associated with distortion and postulated that the calcium deposits on the dead and injured scrotal tissue was the most possible mechanism of the disease.⁵ Electron microscopy have shown extracellular deposits of calcium in the collagenous matrix with fibrosis.^{7,8}

Shah and Noel et al proposed that idiopathic calcinosis of the scrotum is secondary to the rupture of epithelial cysts in the scrotal skin with calcium deposits.^{2,9} Noel et al reported 3 patients of scrotal epidermoid cysts with coexistent scrotal calcinosis and suggested that scrotal calcinosis could be the end result of dystrophic calcification in the inflamed cysts.⁹ They further postulated the hypothesis of rapid resolution of epidermoid cysts with associated calcification.⁹ Shah and Shet have stated that most cases of scrotal calcinosis arise from the calcification of preexisting epithelial cysts. They explained the spectrum of changes in scrotal calcinosis, with cystic dilation of the hair follicle, calcification within this cyst and loss of the epithelial

elements with residual areas of calcification, supporting the theory of dystrophic calcification of epidermoid cysts.²

The histopathological features of scrotal calcinosis normal or inflamed intact epithelial cysts with foci of luminal basophilic to purplish calcium or ruptured lining epithelium with calcific concretions in the dermis, with compressed collagen fibers, with foreign body giant cell reaction and minimal lympho-histiocytic infiltrate.¹⁰ The presence of both and ruptured cysts, with foci of calcium deposits, coupled with the normal biochemical profile, supports the theory of dystrophic calcification of epithelial cysts in the pathogenesis of scrotal calcinosis.^{3,8,9} The diagnosis of scrotal calcinosis is established by the presence of von Kossa positive dermal calcium deposits.

Treatment of the condition is surgical excision of the affected part of the scrotal wall. Scrotal reconstruction is done if the disease is extensive with wider area involved. Surgery is generally curative and relapses are extremely rare.^{5,10}

4. Source of funding

None.

5. Conflict of interest

None.

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