Case Report

# Idiopathic scrotal calcinosis: A case report of a long-standing scrotal mass

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## ABSTRACT

Idiopathic scrotal calcinosis (ISC) is a rare, benign disorder characterized by multiple calcified nodules within the scrotal dermis in the absence of abnormalities of calcium or phosphate metabolism. Although described more than a century ago, its etiopathogenesis remains controversial, with debate regarding dystrophic calcification of cysts versus a truly idiopathic origin. We report a case of a 58-year old male presenting with a progressively enlarging, painless, multinodular scrotal swelling of 15 years duration. All nodules were surgically excised, the largest measuring 3 × 3 × 2 cm, while the remaining lesions were smaller. Gross examination revealed multiple chalky-white areas. Histopathologically, amorphous basophilic calcific deposits surrounded by foreign-body giant cell reaction and chronic inflammatory infiltrate, without identifiable epithelial lining, confirmed the diagnosis of ISC. The patient remained asymptomatic with no recurrence on follow-up. Histopathological evaluation is essential for definitive diagnosis, and complete surgical excision is curative with excellent prognosis.

**Key words:** Histopathology, Idiopathic scrotal calcinosis, Scrotal nodules, Surgical excision

Idiopathic scrotal calcinosis (ISC) is a rare, benign dermatological condition characterized by the deposition of calcium salts within the scrotal dermis in patients with normal serum calcium and phosphate levels [1]. The condition was first described in the late 19th century, and since then, only sporadic case reports and small case series have been published in the literature. Due to its rarity and indolent clinical course, ISC is often under recognized or misdiagnosed clinically.

The exact pathogenesis of ISC remains a subject of debate. Several authors have suggested that ISC results from dystrophic calcification of pre-existing epidermoid or eccrine cysts following inflammation and degeneration [2,3]. In contrast, others have reported cases in which no epithelial lining or cyst remnants were identified, supporting a truly idiopathic mechanism [4,5]. Clinically, ISC presents as multiple firm, painless nodules that slowly increase in size over several years and may cause cosmetic concern or local discomfort.

Given its rarity and diagnostic ambiguity, histopathological examination plays a pivotal role in confirming the diagnosis. We report a classical case of ISC in a middle-aged male, highlighting its clinicopathological features and briefly reviewing the relevant literature.

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## CASE REPORT

A 58-year-old male presented to the surgical outpatient department with a history of nodular swelling over the scrotum for the past 15 years. The swelling had gradually increased in size over time and was not associated with pain, discharge, ulceration, or systemic symptoms. There was no history of trauma, infection, or prior surgical intervention involving the scrotum. The patient did not report any symptoms suggestive of metabolic or endocrine disorders.

On physical examination, the scrotum revealed multiple (approximately five) firm, non-tender nodules involving the scrotal skin. The nodules were superficially located, mobile over the underlying structures, and the overlying skin was intact, although stretched and darker in color. The testes and epididymis were unremarkable. Routine laboratory investigations, including serum calcium and phosphate levels, were within normal limits. Based on the clinical findings, a provisional diagnosis of a benign scrotal skin lesion was made, and surgical

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excision was planned and performed. Ultrasonography or scrotal Doppler was not performed as the lesions were superficial, clinically benign in nature, and both testes were normal on palpation.

The patient was followed up for 6 months postoperatively and remained asymptomatic with no evidence of recurrence.

### Gross examination

The excised specimen consisted of a skin-covered multinodular mass (approximately five nodules) altogether measuring 6 × 5 × 5 cm, with the largest nodule measuring 3 × 3 × 2 cm. The overlying skin appeared darker in color and showed multiple chalky-white nodular specks imparting a rough external appearance (Figs. 1 and 2). On cut section, numerous gritty, white calcified foci were seen scattered throughout the dermis, having a firm to hard consistency. No cystic areas, necrosis, or hemorrhage were identified.

### Microscopic examination

Histopathological examination of all nodules revealed amorphous basophilic calcific deposits surrounded by areas of fibrosis, foreign-body type multinucleated giant cells, and histiocytes. A chronic inflammatory infiltrate composed predominantly of lymphocytes and plasma cells was also present (Figs. 3 and 4). The overlying epidermis was unremarkable. Importantly, no epithelial lining, cyst wall, or adnexal structures were identified around the calcific nodules, effectively ruling out dystrophic calcification of epidermoid or eccrine cysts [3,4]. No evidence of cellular atypia or malignancy was observed. Von Kossa stain was not performed; however, the diagnosis was established based on classical histomorphological features on hematoxylin and eosin staining. The adjacent dermis did not show dystrophic changes, necrosis, or degenerative alterations.

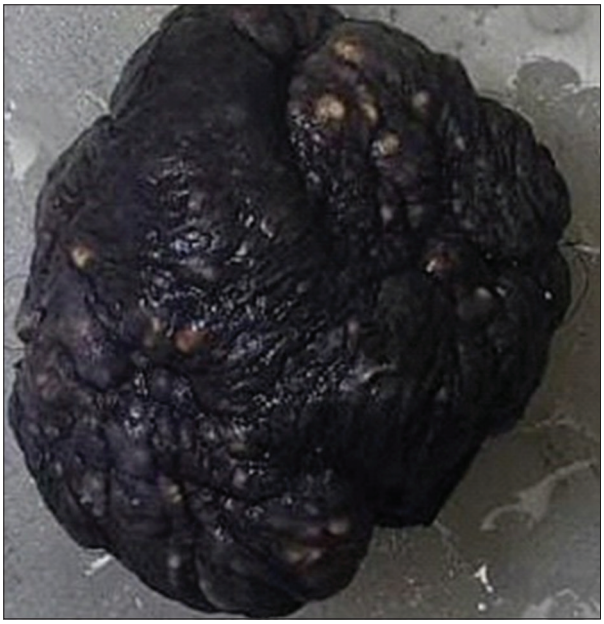

**Figure 1: Gross photograph of the excised specimen showing a skin-covered multinodular mass measuring 6 × 5 × 5 cm. The external surface shows multiple chalky-white nodular specks imparting a rough appearance**

## DISCUSSION

ISC is a rare benign condition characterized by dermal deposition of calcium. The most widely debated theories include dystrophic calcification of pre-existing epidermoid or eccrine cysts versus a primary idiopathic process [2-5]. Proponents of the dystrophic theory argue that cyst walls may be destroyed during inflammation, leaving behind residual calcified deposits. However, several reports, including the present case, demonstrate a complete absence of epithelial lining, lending support to a truly idiopathic origin [4,5].

Clinically, ISC is often asymptomatic and progresses slowly, frequently resulting in delayed presentation.

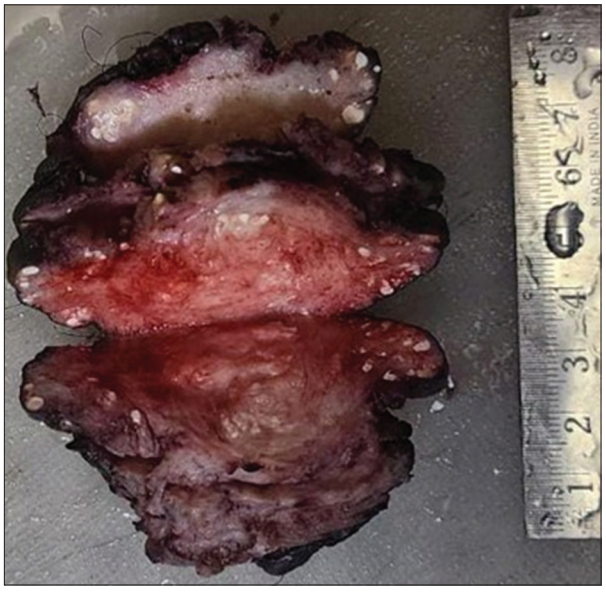

**Figure 2: Cut section of the specimen showing numerous gritty, white calcified foci scattered throughout the lesion, giving a firm to hard consistency**

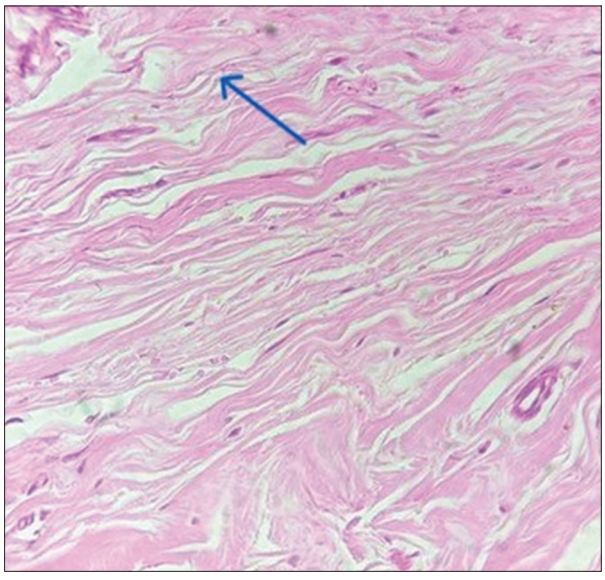

**Figure 3: Photomicrograph showing dermal fibrosis with dense, wavy collagen bundles (Blue arrow) surrounding calcific areas (Hematoxylin and Eosin, ×10)**

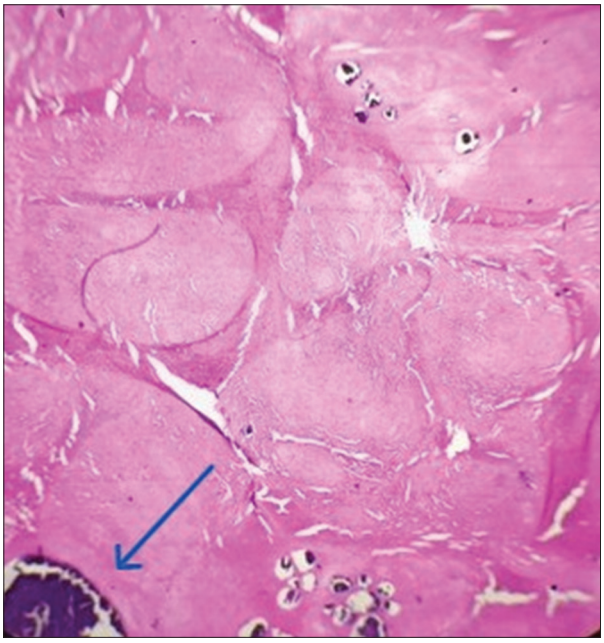

**Figure 4: Higher magnification photomicrograph highlighting fibrotic stroma with absence of epithelial lining or cyst wall around the calcific deposits (Blue arrow), supporting the diagnosis of idiopathic scrotal calcinosis (Hematoxylin and Eosin, ×40)**

The differential diagnoses include epidermoid cysts, steatocystoma multiplex, calcified fibromas, and other benign scrotal tumors [6]. ISC is considered a localized variant of calcinosis cutis and is distinguished from metastatic, iatrogenic, and dystrophic forms by the absence of systemic metabolic abnormalities [7]. Imaging studies are generally nonspecific, and histopathological examination remains the cornerstone for definitive diagnosis. Surgical excision is the treatment of choice and serves both diagnostic and therapeutic purposes. Complete excision of the lesions results in a cure with excellent cosmetic outcomes. The risk of recurrence is low, and malignant transformation has not been reported to date [8-10].

## CONCLUSION

ISC is a rare benign condition that should be considered in patients presenting with long-standing scrotal nodules. Due to its variable clinical presentation and debated pathogenesis, histopathological examination is essential for definitive diagnosis. Recognition of characteristic microscopic features, particularly the absence of epithelial lining, is crucial. Complete surgical excision is curative and is associated with an excellent prognosis.

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