Exploring a Rare Case of Idiopathic Scrotal Calcinosis: A Case Report

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Summary

Idiopathic Scrotal Calcinosis (ISC) is a rare, benign dermatological condition that primarily affects the scrotal skin. It is characterized by the spontaneous deposition of calcium within the dermis, leading to the formation of multiple asymptomatic calcified nodules. ISC is diagnosed through clinical evaluation, with confirmation via histological examination. Surgical intervention is the most effective treatment for this condition. We present the case of a 37-year-old male who developed idiopathic scrotal calcinosis, a rare disorder marked by calcium deposition in the scrotal skin. The patient first noticed multiple mildly itchy nodular masses on his scrotum 6 months ago. These masses appeared suddenly, but progressively increased in size, causing discomfort and affecting his sexual function psychologically. On physical examination, multiple well-demarcated, high-density nodules, ranging from 70 to 10 mm, were observed diffusely across the scrotal skin. The patient underwent surgical resection of the lesions, with a single-step excision and primary closure. The post-operative recovery was uneventful. Histopathological examination confirmed the diagnosis of calcinosis cutis, consistent with skin calcium deposition in the scrotum. Scrotal calcinosis is a rare yet distinct dermatological condition that requires surgical excision for both diagnosis and treatment leading to favorable outcomes and patient satisfaction.

Keywords: Case report, Scrotal calcinosis, Idiopathic, Surgical treatment

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Introduction

Scrotal calcinosis has been described in the literature for decades as it is most notable in men between the ages of 20 and 40 years (1). Scrotal calcinosis is a rare condition characterized by the presence of calcified nodules or masses in the scrotum, which are typically benign. These calcifications can develop in the skin, subcutaneous tissue, or deeper within the scrotal sacs. While the exact cause remains unclear, it is often associated with prior trauma, inflammation, or infection (1, 2). However, in some cases, no obvious cause can be identified. Clinically, scrotal calcinosis often presents as painless, hard nodules, or lumps within the scrotum. These nodules are usually discovered incidentally during a physical examination or imaging studies such as ultrasound (3). Though most cases are asymptomatic, some individuals may experience mild discomfort or a sensation of heaviness in the affected area. Histologically, the calcifications are typically composed

of calcium deposits, which may be surrounded by a fibrous capsule. The nodules are often well defined and can be mistaken for other types of scrotal masses, including epididymal cysts, lipomas, or testicular tumors (4). The treatment of scrotal calcinosis is generally not required unless the nodules cause discomfort or cosmetic concerns. In such cases, surgical excision may be performed to remove the calcifications. Most individuals with this condition have an excellent prognosis, and scrotal calcinosis does not typically lead to complications or malignancy. However, it is important to differentiate it from other more serious conditions to ensure proper diagnosis and management.

Case presentation

A 37-year-old male was admitted to the hospital in September 2024 with multiple nodular masses in the scrotum that had been present for over 6 months. The patient presented with several yellowish-white nodular masses of varying sizes, with a firm texture and a partly smooth, uneven surface. These masses were not painful, but the patient reported slight itching. There were no symptoms of urinary frequency, urgency, or hematuria. Initially, the patient had not paid much attention to the masses, but over time, their size and number increased, causing sexual discomfort and negatively impacting his quality of life. This also led to psychological distress and concerns about his sexual health, prompting him to seek medical attention. Since the onset of the condition, the patient has not experienced any other physical discomfort. He is overall in good health, with no notable medical history related to other systems or scrotal trauma, and there is no family history of similar conditions.

Clinical findings

The patient's penis was well developed, with the glans exposed and the external urethral opening free of redness or discharge. The scrotal skin displayed multiple yellowish-white nodules with an elevated surface, ranging in size from as small as "rice grains" to as large as "broad beans." Some nodules were fused together, showing limited mobility and no tenderness (Figure 1).

Figure 1. Clinical manifestations of skin lesions: multiple yellow and white nodules of different sizes in the scrotum.

There were no growths present at the anus, and digital rectal examination revealed no abnormalities.

Laboratory tests, including blood cell count, urine sediment analysis, liver function, kidney function, electrolytes, and blood sedimentation, were all within normal limits. Imaging studies, including a chest X-ray (Postero Anterior view), 12-lead electrocardiogram, and abdominal ultrasound, also showed normal results.

Diagnostic Assessment and Therapeutic Intervention

Laboratory investigations showed no evidence of systemic illness, with serum calcium, phosphate, and parathyroid hormone levels all within normal ranges. A provisional diagnosis of scrotal calcinosis was made, and the patient was counseled and informed consent was taken for surgical management.

The patient underwent surgical treatment, where careful excision of the lesions was performed, ensuring complete removal along with the surrounding normal scrotal skin. An elliptical incision was made superficial to the dartos muscle, and the defect was closed using 3-0 Ethilon sutures in a simple interrupted fashion (Figure 2). Pathological examination revealed multiple calcified nodules of varying sizes within the dermis, some showing focal giant cell reactions, which were consistent with scrotal skin calcinosis. The post-operative course was uncomplicated, and a cosmetically acceptable outcome was achieved.

Figure 2. Post excision and scrotal closure (day 0).

Macroscopic examination of the excised specimen submitted for pathology showed skin measuring 95 × 75 mm, with the underlying subcutaneous tissue measuring 80 × 70 × 5 mm. The surface displayed multiple flesh-colored nodules of different sizes, the largest being 70 × 40 × 30 mm and the smallest 10 × 10 × 10 mm (Figure 3). All features were indicative of calcinosis cutis. No recurrence was observed during subsequent follow-up visits.

Follow-up and outcomes

The patient was followed up with regular dressing changes and instructed to adhere to strict local hygiene practices. The sutures were removed on the 12th post-operative day. A few sutures developed localized inflammatory reactions, which were managed with topical antiseptic treatments. The patient resumed routine activities on the 5th post-operative day and returned to work on the 15th post-operative day. At the 1-month follow-up (32nd post-operative day), all wounds had completely healed (Figure 4).

Figure 3. Operative specimen: excision of multiple calcified nodules.

Figure 4. Post-operative follow-up (day 32).

No new lesions were observed during this period. The patient has been scheduled for follow-up every 6 months to monitor for the development of any new lesions.

Discussion

Scrotal calcinosis is a rare, benign condition primarily affecting middle-aged men, although it can occur in individuals of various age groups. The condition is reported to be more frequent in Black patients, with a higher prevalence observed between the second and fourth decades of life (1, 2). However, it has also been noted in infants and the elderly, albeit less commonly (5). The exact prevalence is difficult to determine due to the generally asymptomatic nature of the condition and the delayed presentation, as patients may hesitate to seek medical attention because the lesions affect a sensitive part of the body. Despite its benign nature, scrotal calcinosis can sometimes be mistaken for other more serious conditions, contributing to the delay in diagnosis. Patients usually do not experience significant symptoms, as the condition is often asymptomatic. However, in some cases, patients may report mild discomfort or itching, particularly if the lesions become large or irritated (4). Due to the benign and often non-painful nature of the condition, it can go unnoticed for a prolonged period, and patients may delay seeking medical advice. In some rare instances, if the lesions become infected or inflamed, they may cause localized pain or swelling (5). Additionally, scrotal calcinosis may sometimes be mistaken for other conditions, such as sebaceous cysts, lipomas, or other benign scrotal masses, making it important to consider the clinical context and conduct further evaluation when necessary (5).

Histopathologically, scrotal calcinosis is characterized by the presence of calcium deposits in the dermis, which appear as basophilic, amorphous, or needle-like crystals under light microscopy (3, 5). These calcifications are often surrounded by a granulomatous inflammatory reaction, consisting of macrophages, multinucleated giant cells, and lymphocytes, which attempt to phagocytize the calcium deposits (6). Importantly, scrotal calcinosis does not show any malignant features, such as atypical cells or mitotic activity, which helps distinguish it from other potentially more serious scrotal conditions (1, 5).

The management of scrotal calcinosis is primarily conservative, as the condition is usually benign and asymptomatic. In most cases, no active treatment is required unless the lesions cause discomfort, grow larger, or raise cosmetic concerns. For asymptomatic patients, regular monitoring is often sufficient (1, 6). When the lesions become symptomatic or bothersome, surgical excision is the most common treatment, especially if the calcifications are large or if there is a risk of infection (5). Surgical removal is generally performed under local anesthesia, and recovery is typically quick. In some cases, less invasive treatments such as cryotherapy (freezing the lesions) or laser ablation and aesthetic scrotoplasty can be considered, providing alternatives to surgery with minimal scarring (7–9). Steroid injections may be used for localized inflammation, although this approach is less common (10). Patients are advised to follow up periodically to monitor for any recurrence or complications, particularly after surgical treatment. Overall, management is tailored to the severity of symptoms and patient preference.

Patient perspective

Post-surgery, a patient with scrotal calcinosis may experience a range of emotions and physical sensations as they recover from the excision of the calcified nodules. Many patients are initially relieved after the procedure, knowing that the lumps have been removed, and the risk of any potential complications, such as infection or malignancy, is eliminated. The reassurance that the condition is benign helps ease anxieties about future health. In the longer term, the patient also led to a subjective improvement in the quality of life, satisfaction, and motivation to commence his sexual life and return to normal after a brief period of rest. Follow-up visits with the healthcare provider are essential to ensure proper healing and to monitor for any signs of recurrence. Overall, post-surgery, most patients feel a sense of closure, with the emotional burden of the condition largely lifted.

Conclusion

Idiopathic scrotal calcinosis is a benign condition, although its exact cause remains unclear. However, it can usually be effectively managed through simple surgical excision. Pre- and post-operative patient counseling is an essential aspect of the overall treatment plan. Histopathological examination is important for confirming the diagnosis and excluding more serious underlying conditions. In most cases, post-operative outcomes are favorable, with a low recurrence rate following excision.

Author contributions

All authors equally contributed in conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, supervision, validation, visualization and in writing, reviewing & editing of the original draft.

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