

## Idiopathic giant scrotal calcinosis: a rare case report and literature review



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### ABSTRACT

**Background:** Scrotal calcinosis is a rare abnormality of external genitalia. To date, the pathogenesis of this con is still debated. However, reconstructive surgical therapy is still the treatment of choice in managing this disease. This case report presents our experience in performing extensive excision followed by reconstruction of scrotal defects in patients diagnosed with scrotal calcinosis.

**Case Presentation:** A 62-year-old healthy man was referred to our department with multiple nodules on the testicular sac that did not cause symptoms but began to disrupt his quality of life. The diagnosis was made by physical examination, and anatomic pathology examination results from a needle biopsy that had been done before. Extensive excision of the scrotum lesion was followed by defect closure. There were no significant intraoperative or postoperative. The procedure was uneventful, and the reconstruction results showed satisfying results.

**Conclusion:** Scrotal calcinosis is an uncommon skin disease caused by insoluble calcium salts accumulated in scrotal skin tissue. Although the origin and etiology of scrotal calcinosis are debatable, surgical excision is the preferred treatment with a low recurrence rate and good cosmetic results.

**Keywords:** Calcinosis, Excision, Idiopathic, Scrotal.

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## INTRODUCTION

Scrotal calcinosis (SC) is a benign and rare disorder characterized by numerous, asymptomatic calcified nodules on the scrotal skin. This disease is more often found in young and adult men.<sup>1</sup> The prevalence of SC is still unknown, with only a few cases worldwide reported. Exact occurrence is difficult to record because this case is usually recognized as individual case reports, and the literature includes small numbers of case series.<sup>2,3</sup> In addition, its etiology and pathogenesis remain controversial. Nonetheless, the current definitive management for SC is a surgical reconstruction because it can provide excellent cosmetic results and has a low recurrence rate.<sup>4</sup>

Based on those mentioned above, this case study aims to evaluate the giant scrotal calcinosis in a 62-year-old man with a brief literature review.

## CASE PRESENTATION

A healthy 62-year-old man was referred to our department with a 16-year history of

multiple painless scrotal nodules that had gradually increased in size and number. Some of these nodules coalesced in different locations forming larger nodules. The lesions did not interfere with urination or sexual activity. The patient stated that he had no previous history of sexually transmitted infection, chronic illness or medication use. There has been no history of pain during urination and any presence of blood, pus, or sand grains in the urine. There has also been no history of trauma or scrotal inflammatory disease found to be related to the scrotal lesions. The patient initially went to the local clinic for his condition. He was given antibiotics, but nothing changed. The patient then went to a dermatovenereology clinic, and a needle biopsy was performed, with the pathology evaluation showing scrotal calcinosis.

General physical examination was unremarkable. External genitalia examination showed multiple firm, non-tender nodules spread over the scrotal wall. The nodule size varied with the maximum length of 1 x 1 x 0,5 cm. The skin over the nodules was shiny, with some



**Figure 1.** Multiple brown, yellowish nodules involving scrotal skin



**Figure 2.** The lesion was widely excised

yellowish points suggesting the underlying deposition of calcium. No ulceration or erythema of the overlying skin or discharge was found from any of the lesions. No other skin lesions were found, including the extension to the surrounding anatomy.

No other abnormalities were identified in the genital organs.

We decided to perform a wide surgical excision under spinal anesthesia. Care was taken to excise the lesions as a whole and to include the scrotal skin surrounding them. Margins are drawn 0.5 cm from the lesion to healthy skin. The lesion was completely excised and sent for histopathological examination. The defect was covered by continuous suture using vicryl 4-0 for the dartos and by interrupted suture using vicryl 3-0 for the scrotal skin. So far, there have been no postoperative complications,

and the patient has excellent cosmetic results.

The specimen was sent for pathological anatomy examination, which revealed that the scrotum was covered with ortho keratotic epidermal tissue. The dermis layer comprises fibro collagenous connective tissue and muscle tissue containing multiple amorphous calcified masses arranged in a pattern of lobules. Lymphocytes, histiocytes and foreign body data cells were found around the amorphous mass. This appearance consistent with scrotal calcinosis

**DISCUSSION**

Scrotal calcinosis (SC) has been discussed in the literature since the 1800s. This condition is generally found in men between 20 and 40 years old.<sup>3</sup> The manifestation of this disease is somewhat asymptomatic, so it is not uncommon for patients to be delayed in seeking treatment. With such a nature of the disease, the most common complaint presented by patients is related to esthetic issues that sometimes have a major impact on a patient's quality of life. Not only in the scrotum, cases of calcinosis in the vulva and penis have also been reported.

SC is a diagnosis that is usually made clinically and histologically. The nodular lesion in the scrotum itself has several differential diagnoses. Some of them are steatocystoma multiforme, angiokeratoma, lipomata, fibromata, and lymphangioma circumscriptum, and the most difficult to distinguish clinically, calcified sebaceous cysts.<sup>6-8</sup> Although the majority believe that scrotal calcinosis is idiopathic, the pathogenesis of the disease is still controversial. Several authors have postulated possible mechanisms, such as dystrophic calcification secondary to sebaceous cysts, eccrine epithelial cysts, or degenerated dartos muscle. If the characteristics of some of the conditions above are not found in histological evaluation, as in the case presented, the origin is considered idiopathic.<sup>9</sup>

Even though SC involves calcium deposition, there is no association with abnormal calcium metabolism. A thorough laboratory assessment, including the biochemical and hormone profile, would help delineate the cause. The laboratory results will be within normal limits if the condition is idiopathic. Fine needle aspiration cytology, ultrasonography, and X-ray appeared to have limited uses in diagnosing the disease.<sup>10</sup> surgery remains the only recommended treatment that delivers excellent cosmetic outcomes while allowing diagnostic pathological confirmation.

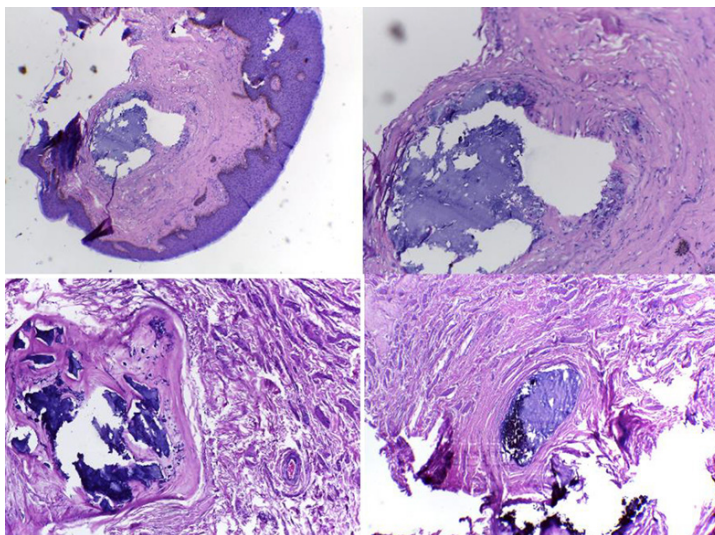
Excision followed by scrotal reconstruction has a low likelihood of recurrence besides leaving good cosmetic results. Several recurring episodes are reported in some cases, but that seems unusual. Therefore, the surgical margin



**Figure 3.** Intraoperative view showing scrotal skin defect



**Figure 4.** Postoperative view of scrotal calcinosis treated by surgical excision



**Figure 5.** Histopathological appearance of the excised lesion

is very significant at the time of excision. Surgical excision needs to be limited to the skin of the scrotum because the calcified nodules are limited to the dermis, leaving the layer of dartos intact. Such excision, similar to the technique used in the case presented, is considered key in minimizing recurrence.<sup>11-14</sup> One-stage excision has been proven to provide satisfaction to patients with improved quality of life and self-esteem. However, although time-consuming and costly, multi-stage resection of nodules is sometimes also performed.<sup>15,16</sup> In cases where numerous large lesions are diffusely located above the scrotum, tissue coverage after excision may be considered. One choice would be to make a neo-scrotum with thigh pedicle flaps from the anterior thigh. In some cases, this was achieved with some success.<sup>17</sup> Other case reports by Meissner M et al. have shown success and effectiveness in using erbium: YAG laser to manage scrotal calcinosis.<sup>18</sup> Alghamdi KL et al. also described the possibility of punch evacuative surgery to treat scrotal calcinosis.<sup>19</sup>

The limitation of our study is that we still have limited knowledge about this disease, including its epidemiology and etiology. Studies with better research designs are still needed to provide more accurate conclusions or data for future management of scrotal calcinosis.

## CONCLUSION

Scrotal calcinosis is an uncommon skin disease caused by insoluble calcium salts accumulated in scrotal skin tissue. Herein, we reported our first experience managing giant scrotal calcinosis by performing a wide excision and scrotal reconstruction. Despite its controversial pathogenesis, surgical reconstruction remains the treatment for this condition. Although many case reports are available, further study is still needed.

## CONFLICTS OF INTEREST

We have no affiliations with or involvement in any organization or

entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

## ETHICAL CONSIDERATION

All subjects gave informed consent for inclusion before participating in the study. The study was conducted following the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Faculty Medicine Universitas Indonesia with the number of ethical approval KET-893/UN2.F1/ETIK/PPM.00.02/2020

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## AUTHOR CONTRIBUTIONS

WOI contributes to gathering patient data, literature searching and manuscript writing. RA contributes to pathological expertise and manuscript writing; GR and PB contributed to manuscript writing and supervision. MTI contributes to gathering patient data and manuscript writing.

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