Idiopathic Scrotal Calcinosis: A Non-Elucidated Pathogenesis and Its Surgical Treatment

Abdelhak Khallouk, MD, Oussama El Yazami, MD, Soufiane Mellas, MD, Mohamed Fadl Tazi, MD, Jamal el Fassi, MD, Moulay Hassan Farih, MD

Department of Urology, Hassan II Hospital University Center, Fez, Morocco

Scrotal calcinosis (SC) is a rare, benign entity defined as the presence of multiple calcified nodules within the scrotal skin. In most cases, there are no associated symptoms. We report the case of 27-year-old man with a massive SC. Treatment was surgical with complete excision of the affected part of the scrotum wall. Histopathologically, there was no epithelial lining around the calcified nodules and no cystic structure. Therefore, our case was considered idiopathic SC.
[Rev Urol. *2011;13(2):95-97 doi: 10.3909/riu0481*]

Key words: Calcinosis • Idiopathic • Scrotum • Treatment • Surgery

Idiopathic scrotal calcinosis (SC) is a rare and benign disease of the scrotal skin. It is defined as the existence of multiple calcified and asymptomatic nodules of the scrotum skin wall. The main controversy concerns the pathogenesis of the SC. Indeed, if some authors think that SC is the result of dystrophic calcifications of preexisting structures such as epidermal cysts, others did not find any evidence of preexisting cystic structures and believe this condition to be idiopathic.

Histopathologically, SC is characterized by the presence of calcium deposits within the dermis surrounded by a foreign body–type granulomatous reaction. Despite the controversy about the origin of this entity, surgery is the treatment of choice and provides excellent results.

Case Report

A 27-year-old man presented with multiple, painless nodular lesions on the scrotum that had gradually increased in size and number during the previous 3 years. There was no history of metabolic, systemic, neoplastic, or autoimmune disease. The patient stated that he had never experienced any scrotal disease (eg, trauma, inflammation, infection). Physical examination revealed multiple, firm, painless, subcutaneous nodules within the scrotal wall that measured from 3 to 20 mm in diameter (Figure 1). There were no areas of ulcerations or discharge on the scrotum skin. Laboratory examinations, including serum calcium, phosphorus, and parathyroid hormone levels, showed no abnormality. Under local anesthesia, nodules and the involved scrotum were extirpated. The postoperative course was uneventful and the cosmetic result was excellent (Figure 2). No recurrence was observed after a 12-month follow-up period.

Histologic examination showed, under a normal epidermis, dermal nodules containing an amorphous and homogenous substance corresponding to calcium deposits. The nodules were surrounded by a fibrous capsule and no epithelial lining was noted. There was also a foreign body–type granulomatous reaction.

Figure 1. *Multiple subcutaneous nodules within the scrotal wall.*

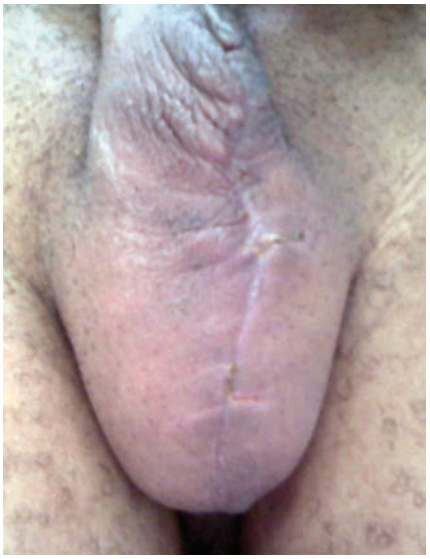

Figure 2. *Postoperative view of the scrotum.*

Discussion

Idiopathic SC is a rare and benign condition first described by Lewinski in 1883. It appears mainly in men aged 20 to 40 years. Clinically, SC consists of hard, yellowish nodules within the dermis of scrotal skin. Nodules vary in size (from 1 mm to several centimeters) and number (solitary or multiple). The nodules are usually asymptomatic and patients seek medical advice mainly for cosmetic reasons. However, in some cases, there might be some heaviness, itching, or discharge from the calcified masses. The delay between the occurrence of the disease and therapy is often several years because of the benign course and negligible symptoms encountered by the patient.

The pathogenesis of SC is unclear and controversy exists as to whether the disease is idiopathic or the result of dystrophic calcification of preexisting structures including epidermal cyst, eccrine epithelial cyst, and degenerated dartoic muscle.[1-4] The calcification of preexistent epidermal cysts is suggested by many authors as a possible pathogenesis.[3,5-7] Calcification of epidermal cysts occurs after an inflammatory reaction that triggers a degenerative process and eventually leads to the resorption of the cyst walls and the loss of their epithelial lining.[5,7,8] However, some researchers found that dystrophic calcifications of the dartos muscle was the basis of SC,[4,9,10] and they suggested that degeneration and necrosis of the dartoic muscle are the initial events in the pathogenesis of disease.[11] Ito and colleagues proposed that SC originates from eccrine epithelial cysts and the pathogenic mechanism seems to be the excessive discharge and accumulation of material debris in the lumina.[12] This eccrine origin was discovered via an immunohistochemical study using antibodies against carcinoembryonic antigen, epithelial membrane antigen, and gross cystic disease fluid protein 15. There was a positive reaction surrounding the lamina and in the content of the cyst. An idiopathic origin of the disease could still be proposed if there was no history of local or systemic favoring factors and no evidence of epithelial cystic lining.[13-15] In our patient, there was no evidence of epidermoid or pilar cystic structure

The delay between the occurrence of the disease and therapy is often several years because of the benign course and negligible symptoms encountered by the patient.

and no epithelial lining around the calcified lesions. According to the histologic findings, the case was considered idiopathic.

Although there is no consensus about the pathogenesis of this condition, the only treatment recommended is surgical. Indeed, surgical management cures the aesthetic disorder and enables the confirmation of the diagnosis of SC on histologic examination. Therefore, surgical excision must be limited to the scrotal skin because the calcified nodules are localized in the dermis.[16] In our case, there was a massive occurrence of the nodules and a partial scrototomy was performed. The risk of recurrence is also controversial, and some authors insist on the high probability of recurrence after primary excision.[16] The surgical approach must be perfect and the extent of excision must include the whole lesion—even the smallest ones—to avoid rapid recurrence.

Conclusions

Although, the pathogenesis and basic origin of SC remains controversial, surgical management is the gold standard treatment for this disease. The surgical excision should be based on the extent of the nodules and must include even the smallest nodules to avoid rapid recurrence. ■

References

1. Saladi RN, Persaud AN, Phelps RG, et al. Scrotal calcinosis: is the cause still unknown? *J Am Acad Dermatol.* 2004;51(suppl):97-101.
2. Dare AJ, Axelsen RA. Scrotal calcinosis: origin from dystrophic calcification of eccrine duct milia. *J Cutan Pathol.* 1988;15:142-149.
3. Saad AG, Zaatari GS. Scrotal calcinosis: is it idiopathic? *Urology.* 2001;57:365.
4. King DT, Brosman S, Hirose FM, Gillespie LM. Idiopathic calcinosis of scrotum. *Urology.* 1979;14:92-94.
5. Song DH, Lee KH, Kang WH. Idiopathic calcinosis of the scrotum: histopathologic observations of fifty-one nodules. *J Am Acad Dermatol.* 1988;19:1095-1101.
6. Sarma DP, Weilbaecher TG. Scrotal calcinosis: calcifications of epidermal cysts. *J Surg Oncol.* 1984;27:76-79.
7. Swineheart JM, Golitz LE. Scrotal calcinosis. Dystrophic calcification of epidermoid cysts. *Arch Dermatol.* 1982;118:985-988.
8. Parlakgumus A, Canpolat ET, Caliskan K, et al. Scrotal calcinosis due to resorption of cyst walls: a case report. *J Med Case Reports.* 2008;2:375.
9. Kelten EC, Akbulut M, Colakoglu N, et al. Scrotal calcinosis: it is idiopathic or dystrophic. *Aegean Pathol J.* 2005;2:4-7.
10. Feinstein A, Kahana M, Schewach-Millet M, Levy A. Idiopathic scrotal calcinosis and vitiligo of the scrotum. *J Am Acad Dermatol.* 1984;11:519-520.
11. Pabuççuoğlu U, Canda MS, Güray M, et al. The possible role of dartoic muscle degeneration in the pathogenesis of idiopathic scrotal calcinosis. *Br J Dermatol.* 2003;148:827-829.
12. Ito A, Sakamoto F, Ito M. Dystrophic scrotal calcinosis originating from benign eccrine epithelial cysts. *Br J Dermatol.* 2001;144:146-150.
13. Hicheri J, Badri T, Fazaa B, et al. Scrotal calcinosis: pathogenesis and case report. *Acta Dermatovenerol Alp Panonica Adriat.* 2005;14:53-56.
14. Wright S, Navasaria H, Leigh IM. Idiopathic scrotal calcinosis is idiopathic. *J Am Acad Dermatol.* 1991;24(5 Pt 1):727-730.
15. Hutchinson IF, Abel BJ, Susskind W. Idiopathic calcinosis cutis of the penis. *Br J Dermatol.* 1980;102:341-343.
16. Ruiz-Genao DP, Rios-Buceta L, Herrero L, et al. Massive scrotal calcinosis. *Dermatol Surg.* 2002;28:745-747.

Main Points

- Idiopathic scrotal calcinosis (SC) is a rare and benign condition that appears mainly in men aged 20 to 40 years, and consists of hard, yellowish asymptomatic nodules (from 1 mm to several centimeters in size) within the dermis of scrotal skin. Patients seek medical advice primarily for cosmetic reasons. In some cases, there may be itching or discharge from the calcified masses.
- The pathogenesis of SC is unclear and controversy exists as to whether the disease is idiopathic or the result of dystrophic calcification of preexisting structures, including epidermal cyst, eccrine epithelial cyst, and degenerated dartoic muscle.
- The only treatment recommended for SC is surgery, which cures the aesthetic disorder and enables the confirmation of the diagnosis of SC on histologic examination. Surgical excision must be limited to the scrotal skin because the calcified nodules are localized in the dermis.