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# Surgical Management of Scrotal Calcinosis: A Case Report and its Ayurvedic Relevance

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**Abstract:**

Idiopathic calcinosis cutis is usually localized to a specific area such as the genital area or chest. Scrotal calcinosis is a rare, benign entity defined as the presence of multiple calcified nodules within the scrotal skin. The cause is not well defined. In this case study surgical management and its *Ayurvedic* review of scrotal calcinosis is explained. This is a case of 40 years old male patient with complaints of multiple whitish nodules at scrotal skin since 4 years. There was no evidence of any cystic swelling around calcified Nodule. Ideally for scrotal calcinosis the choice of treatment is excision of calcinosis along with skin followed by suturing or skin graft. As per *Ayurveda*, the word *Granthi* is derived from word *granthitha* which literary means knotted or filled with. The etiological factors constitute the vitiated *doshas* which in turn affect the blood, muscular tissue and fatty tissue. In this case, *Kapha* slowly accumulates at the site were muscular and fatty tissue are vitiated and gives rise to round, elevated and slightly nodular swelling which is termed as *Kaphaja Granthi* which is correlated with Scrotal calcinosis.

**Keywords**: Ayurveda, calcified nodule, *Granthi*, idiopathic Scortal cyst, Scrotal Calcinosis.

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**Introduction:**

Calcinosis cutis is a group of idiopathic skin calcifications that are classified into four major types according to aetiology: idiopathic, metastatic, iatrogenic, or injury and dystrophic calcinosis. [1] Scrotal Calcinosis is a rare and benign condition defined as a multiple calcified cuteneous nodules resulting from the deposition of calcium and phosphate. There are three types of scrotal calcinosis that are Secondary type, Dystrophic type and Idiopathic scrotal calcinosis. Secondary type, in which calcification occurs as a result of hypercalcemia features like excess calcium in your blood means your kidneys have to work harder to filter it. This can cause excessive thirst and frequent urination. In digestive system.- Hypercalcemia can cause stomach upset, nausea, vomiting and constipation. In most cases, the excess calcium in your blood was leached from your bones, which weakens them. This can cause bone pain, muscle weakness and depression. Hypercalcemia can interfere with the way your brain works, resulting in confusion, lethargy and fatigue. It can also cause cardiac arrhythmia, and other heart problems. Or Hyperphosphatemia for example, it may be seen in short ness of breath or musle cramps.

Dystrophic type, in which the patient has normal serum levels of calcium and phosphorus, but local conditions such as inflammation promote calcium deposit formation. Otherwise, the condition is considered idiopathic type. Idiopathic scrotal calcinosis is the most common form of scrotal calcinosis. [2] Scrotal calcinosis appears, without any symptoms, as a whitish nodule that range in the size from 1mm to several centimetres. Idiopathic scrotal calcinosis is the most common type which was first reported by Lewiusky. [3] Idiopathic calcinosis has also been described in the knee, neck, breast, and so on.[4-5]The exact pathogenesis is yet unknown and the theories of origin include idiopathic calcification occurring within the normal scrotal collagen, dystrophic calcification of the inflamed scrotal epidermoid cysts, dartos muscle, and calcification secondary to minor trauma of the scrotum. [6]In this paper; a case study of 40 years male with history of painless multiple whitish nodules in the scrotal region is presented with its *Ayurvedic* perspective. As per *Ayurved*, *Khapha dosha* garher together in subcutaneous layer of scrotal skin. *Acharya Sushruta* has mentioned five types of *Granthi*: *Vataj, Pittaj, Kaphaja, Medoja, Siraj granthi.* Including above, *Acharaya Vagbhat* added other four types of *Granthi* i.e. *Raktaj, Mansaj, Asthij, Vranaj*. *Sushruta*h as mentioned various medicinal and surgical modalities for *Granthi.* He has explained different treatment for *Pakwa* and *apakwa Granthi.* In *Kaphaj* Granthi he has advised *Snehana, Swedan, Vamana, Virechana and Raktamokshana* and *lepa.* If Granthi does not get resolved by above said treatment then excision is advocated for *Apakwanagranthi* which is not situated at *Marma Pradesh.* Also

in the list of *astavidhshatrakarma* (eight surgical procedures) *Granthi* is included in *Chedya* and *Bhedya* disease by *Acharya Sushruta,* [7] *Acharya Charak* in *Shoth chikitsa* mentioned that the *Granthi* should be removed along with capsule which indicated capsulated sac of *Granthi.* So ultimately treatment of *khaphaj granthi* is a surgical excision in *Pakwa* or *Apakwa* avastha.[8] Hence considering concept of Ayurveda the patient was treated successfully.

**Case History:**

A 40 years male, farmer came to our hospital with complaints of multiple whitish hard nodules varying from 0.5 cm to 2cm in diameter within scrotal skin since 4 year [Fig-1].The patients did not have any history of previous medication and surgery. There was no preceding history of suggestive trauma and inflammation to the scrotum. He was not a known case of Diabetic and Hypertension. There was no feature suggestive of hyper calcaemia. He was not having any history of immune compromised disease such as HIV, HbsAg and HCV.

Local examination revealed the multiple nodules involving the ventral surface of the scrotum. The largest nodules measured about 20mm and smallest measuring 5mm. [Figure 1]. Multiple painless nodules of various sizes with whitish appearance were present in the scrotal skin. Nodules were hard in consistency with well-defined margins limited to the scrotal skin. Superficial skin was adherent to the swelling in some nodules while some white colored nodules were popping out through the scrotal skin. On general examination, he weighed 65 kilograms. No Pallor, no icterus and physical examination revealed vital functions were stable. Before planned surgery patient was screened for lab investigations which was within normal range (Table-1)

**Table-1: Lab investigations:**

| Investigations | Observed value | Normal value |
|---|---|---|
| Hb%- | 12.5gm% | 13.5 -17.5 gm% |
| RBS | 103mg/dL | 70-140 mg/dL |
| Serum calcium | 10.2mg/dL | 9-11 mg/dL |
| Serum phosphate | 4.5mg/dL | 2.5 to 4.5 mg/dL |
| HIV I & II | Negative | Negative |
| HbsAg | Non- reactive | Non- reactive |
| HCV | Non- reactive | Non- reactive |

**Treatment Given:**

Patient posted for excision of scrotal skin along with nodules followed by suturing and grafting was done by adopting trividha karma as mentioned by Sushruta. Pre-operative profile and fitness of patient was done as routine.

**Operative procedure:** Operative procedure was done under local anaesthesia with all aseptic precautions. A wide local resection of skin with lesions was performed and haemostasis achieved [Fig-2-3]. Then primary closure of scrotal skin was done with ethilon 3-0. Whole procedure was uneventful. The operative specimens included hard and thick walled calcified nodules. The biggest one nodule measured 20mm. Excised skin with nodule sends for histopathology examination. Intra-venous antibiotics were given for 3days with oral analgesics. All the stitches were removed after 11$^{th}$ post-operative day with good surgical outcome [Fig-.4].

After excision the histopathology report of excised tissue was done to confirm the diagnosis. Section studies show epidermis and thickening of dermis and sub epithelial tissue by stroma show fibrosis interspersed in it are abundant multiple small and large rounded area of calcinosis. Scanty sub epithelial inflammatory cells seen. Impression was calcinosis of scrotal wall.

Fig-1:Scortalcalcinosis

Fig-2: During surgery


Fig-3: Resection of scortal skin


Fig-4: 11th post-operative day

**Discussion:**

Scrotal calcinosis is characterized by calcified deposits with surrounding foreign body type granulomatous inflammation in the scrotal skin. [9]The benign scrotal lesion, through commonly occurs between third and fourth decades of life, can affect both adult and paediatric age group with age range between 9 to 85 years. [10] Scrotal calcinosis is more common in dark coloured race and effect mainly male but similar lesions (vulvar calcinosis) have been reported in female. [11]Most patients are asymptomatic and few patients may present with ulcerations and discharge of chalky material with secondary infection. Clinical diagnostic confusion may arise from other scrotal lesions such as calcified onchocercoma, lipoma and fibroma. [12]In scrotal calcinosis amorphous basophilic calcium deposits surrounded by histolytic inflammation can be seen on histological examination.Inflammation of epidermal cyst leads to calcification of the cyst wall; with subsequent degeneration of cyst wall living only the calcific deposits in older lesions. [13]In this case study, 40 years male, farmer who's having complaints of multiple whitish nodules varying from 0.5 cm to 2cm in diameter. The choice of treatment is surgical excision of scrotal skin containing the nodules, which gives good clinical result. The surgical excision may be limited to the skin level, because nodules are generally localized within the dermis. Individual nodule excision is not possible in scrotal calcinosis. So multiple nodular excision en block in superficial perineal facial layer with skin is the only surgical treatment. Small size of normal skin can allowed for excellent scrotal coverage and good cosmetic results for primary closure because of the good laxicity of the scrotal skin. The majority of patients achieve satisfactory results after surgical excision. [14] Surgery should include the removal of even small nodules, to prevent the recurrence of the scrotal. [15]

As the *Ayurvedic* texts, scrotal calcinosis can compare with Kaphaja Granthi. As per the description in *Sushrut samhita* the features of *Kaphaja Granthi* are *Sheeta* (cold to touch), vivarna (discoloured), *Alpa*ruk (associated with mild pain), *Atipandu* (pale appearance), paashaanavat (stony hard on touch), *Chiraabhivruddham* (grows very slowly), *Bhinnahasravetshuklaghanam* cha *pooyam* (on opening thick, white, viscid discharge or pus presents).[16]All these features correlates with calcinosis as well as the treatment suggested by *Acharya Sushruta* is surgical excision. In this case, there was a massive occurrence of the nodules, but complete excision and primary closure was possible. Therefore, the surgical approach should be perfect and the extent of excision must include the whole lesion.

**Conclusion:**

Scrotal calcinosis is a rare benign condition that occurs in young adults. The treatment of choice is surgical excision of skin including all nodules with primary closure. In this case above treatment has given very good clinical results. According to *Ayurvedic* literature *Granthi* is entitled as a separate disease. Amongst all the types of Granthi, Kaphaj Granthi can correlate with scrotal calcinosis. As per *Ayurvedic* principle *Kaphaj Granthi* can be well managed by *Chedana* (surgical excision).

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