



# Scrotal trichilemmal cysts: a case report

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**Introduction and importance:** Trichilemmal cyst (TC), commonly known as the pilar cyst of the scrotum wall, is an uncommon disease. It is a type of epidermoid cyst (EC) with a benign course, and malignant change is quite rare. This disease is unusual in the scrotum; therefore, multiple cysts in the scrotum are much more unusual. There have been reports of TCs in other parts of the body, but this is the first instance of scrotal TCs in Pakistan.

**Case presentation:** We discuss the case of a 60-year-old male patient who presented to the clinic with a right-sided scrotal swelling, which was identified as a right-sided inguinal hernia on examination, and multiple small swellings on the scrotal skin identified as TCs. The patient had scrotoplasty after hernia surgery to remove the cysts and reconstruct the excised scrotum. Following scrotoplasty, the patient's discomfort was resolved, and cosmetic satisfaction was achieved.

**Clinical discussion:** Excision is required if TCs become infected or for esthetic reasons. In the event of big cysts, full scrotal wall resection followed by scrotoplasty is necessary. The thigh fasciocutaneous flap is used to cover the denuded testes after scrotoplasty. The procedure's advantages include a good outcome, low morbidity, early discharge, and great esthetic outcomes.

**Conclusion:** We present a literature review about multiple TCs in the scrotum and their surgical management. This case will guide surgeons and future researchers in dealing with similar cases in the future.

**Keywords:** epidermoid cyst, sebaceous cysts, scrotoplasty, scrotum

## Introduction

The epidermoid cyst (EC) was first reported in 1942 by Dockerty and Prestly. It is known as a trichilemmal cyst (TC) or sebaceous cyst or pilar cyst. It is most commonly benign and malignant transformation is rare. They are well-demarcated, and their histologic lining comprises stratified squamous epithelial cells<sup>[1]</sup>. TCs develop from the epithelium between the sebaceous gland and the arrector pili muscle<sup>[2]</sup>. Milia, or tiny ECs, are frequent throughout the neonatal period. Approximately 1% of sebaceous cysts undergo the malignant transition to squamous cell carcinoma (SCC) and basal cell carcinoma (BCC)<sup>[3]</sup>. Proliferating TCs, which have foci of proliferating cells, account for 2% of cases<sup>[4]</sup>. Ninety percent of cysts are found in hair-bearing areas such as the scalp, whereas the ear, back, face, and scrotum are rare sites of occurrence<sup>[5]</sup>. When the sebaceous duct becomes clogged and keratinous material, hair follicles, and debris gather

## HIGHLIGHTS

- Epidermoid cysts (ECs) generally affect the scalp area, eyes, etc., and the scrotal wall is a relatively uncommon site.
- Trichilemmal cyst (TC), also known as 'pilar cyst', is a type of EC that affects the scrotal wall.
- Treatment for TCs is considered for symptomatic patients or for cosmetic purpose.

within the gland, a sebaceous cyst forms. Trauma, illness, frequent hair combing, or congenital sebaceous duct development abnormalities can all lead to the formation of sebaceous cysts. It is diagnosed based on clinical appearance at the time of examination. The treatment of choice is complete excision of the sac with excellent outcomes and good cosmetic results<sup>[6]</sup>. Because of the high recurrence rate, it is important to completely remove the cyst wall<sup>[7]</sup>.

One of the established consequences of scrotal TCs is calcinosis owing to dystrophic calcification<sup>[8]</sup>. Rupture of the cystic wall produces severe discomfort and is the most prevalent reason for presenting to the clinic, followed by a cosmetic reason<sup>[9]</sup>. We provide the first instance of scrotal TCs from Pakistan since the literature is lacking such cases or someone may not disclose the cases to the investigator, resulting in a lack of data on such cases.

## Case presentation

A 60-year-old male with no known comorbidity presented to our institute's outpatient department with complaints of right scrotal swelling and pain for the past 6 months. On examination, there

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was a scrotal swelling, which increased in size with coughing and while in a standing position. The ultrasound examination of the abdomen and scrotum showed an anterior abdominal wall defect in the right inguinal region with protrusion of abdominal wall contents reaching into the scrotal sac. The defect was identified as a right-sided inguinal hernia. Dermatological examination of the scrotum showed multiple small swellings over the scrotal skin and the largest swelling measuring 0.8 cm, as shown in Figure 1. The swellings were pearly white and firm in consistency. The scrotal wall moved smoothly over the testes with no fluid collection. The condition was diagnosed as TCs. Informed consent was obtained from the patient for inguinal hernia repair surgery and scrotoplasty. Following hernia repair, scrotoplasty was performed by a team of plastic surgeons. The inguinal and scrotal area is cleaned using antiseptic measures. This was followed by skin and fascia incision on the thighs bilaterally. The processes involved in scrotoplasty are determined by how much reconstruction is required. To numb the region around the scrotum, a local anesthetic was used. To remove the skin, a small incision was created near the base of the patient's penis and denuded skin was removed. The cysts were excised and preserved for a histopathology examination. A sub-dartos pouch was created, and the testis was placed inside the pouch to prevent torsion. The quadrangular pedicle flap was lifted from both thighs, rotated over the naked testes, and knotted in the middle. A skin graft obtained from the lower part of the left thigh was used to cover the triangle region defect in both thighs. The incision was closed after the procedure was finished. This was accomplished using dissolvable sutures. In the postoperative period, the patient was well with a scar over the wound and was discharged following an uneventful recovery. Sutures were removed after a 1-week follow-up visit. The patient mentioned that he felt comfortable and cosmetic satisfaction was achieved. The biopsy report showed that the excised cyst's wall was lined by keratinized squamous epithelium, thus confirming the diagnosis of ECs of the scrotum wall.

## Discussion

ECs are tiny, dome-shaped cysts that form on the skin. They are white or skin-colored, range in size from around 0.5 to 4 cm, and are twice as prevalent in males as in women<sup>[10]</sup>. They can appear at any age but are mostly seen in adults. They can appear alone



**Figure 1.** Gross picture showing multiple small epidermal cysts over the scrotum wall (images used with permission).

in 30% of instances or in small clusters in 70% of cases<sup>[11]</sup>. ECs have been documented in the urological domain in the perineum, penis, and testis<sup>[12]</sup>.

ECs are most likely formed by a combination of factors. They can occur because of epidermal rest sequestration during embryonic life, blockage of the pilosebaceous unit, or the traumatic or surgical implantation of epithelial elements. Human papillomavirus (HPV) infection, ultraviolet (UV) radiation exposure, and eccrine duct blockage may also cause Palmoplantar ECs. There are several ideas that contend that ECs may have an embryonic origin from teratomas formed from germ cells, ectopic tissue derived from nearby regions, or traumatic implantation of epidermal tissue into the dermis. One of the possible mechanism involved in cyst rupture is immune cells and markers upregulation or downregulation<sup>[9]</sup>. TCs have an autosomal dominant characteristic that can be inherited. Patients with familial TCs are often younger and have many lesions at the same time<sup>[2]</sup>.

A single cyst is referred to as sebaceous, whilst many cysts are referred to as TCs. Single sebaceous cysts are often painless, whereas multiple cysts become painful after rupture. Because germs are prevalent on the scrotum, which is close to the genitourinary area, cysts on the scrotum can quickly get infected. Here, the ECs are not infected because of good genital cleanliness. Even minor scratching or friction when walking might cause infection. A cyst that has become infected is red, bloated, and painful. It may expel foul-smelling pus. Typically, a single infected cyst may be drained with the fewest complications. Infected cysts that go untreated have the potential to transmit the infection to the adjacent cysts and scrotal wall. Once the scrotal skin is infected, then it can be widely excised to avoid the risk of Fournier's gangrene and septicemia<sup>[13]</sup>. The overall prognosis of ECs is good and has a low potential for transformation to SCC or BCC<sup>[14]</sup>. Complete excision of the ECs is the treatment of choice and requires regular monitoring<sup>[12]</sup>. If the cysts reappear or become inflammatory, it is preferable to wait until the inflammation decreases before considering surgical removal. To rule out infection and guide treatment choices, culture and sensitivity of wound samples are required<sup>[2]</sup>. Following removal, a scar will develop. The cyst may reappear; however, this is less probable if the cyst has been completely removed. Pilar cysts cannot spread.

## Conclusion

Many ECs across the scrotum are an uncommon occurrence. They are often non-cancerous, with just a tiny proportion exhibiting malignant alterations, and should be treated timely to avoid deadly sequelae such as Fournier's gangrene. This case has been reported according to SCARE criteria<sup>[15]</sup>.

## Ethical approval

Ethical approval was obtained under the reference number CHK/6715.

## Consent

Informed consent was obtained from the patient for publication of this case report and accompanying images, and no patient-identifying details are present in the study.

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**Author contribution**

A.M.S.: involved in conceptualization and design; A.S. and U.K.: contributed to writing the original draft; N.R.D. and S.K.: contributed to proof reading and literature review; F.K.: supervised the whole process and did the final revision of the draft. All authors reviewed and approved the final version for submission.

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