

Giant fibroepithelial polyp of the penis associated with long-term use of condom catheter.

Case report and literature review

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Background: A condom catheter is a commonly used drainage system for incontinent patients. However, it is associated with different complications including infection and erosion. One very rare complication that has been recognized is the development of giant fibroepithelial polyps in the penis; to date, to the best of our knowledge, seven cases have been reported in the literature. We report a new case of giant fibroepithelial polyp associated with long-term condom catheter use.

Case summary: A 43-year-old incontinent man who had been using a condom catheter for 14 years following

a motor vehicle accident presented with a mass on the ventral aspect of his penis; the mass had appeared a year ago. The patient underwent excisional biopsy. Grossly, there was a mass with a maximum dimension of 4.0 cm, which had an irregular surface. Histological examination revealed a fibroepithelial polyp with vascular proliferation and edematous stroma with prominent bundles of smooth muscle. Perivascular lymphoid aggregates were seen. The morphology was similar to that in the previously reported cases; the presence of smooth muscle was distinct.

Conclusion: Giant fibroepithelial polyps can be associated with long-term condom catheter use and pathologists and urologists should be aware of this rare complication as their size can mimic carcinoma.

Key Words: condom catheter, fibroepithelial polyp, penis

Introduction

Fibroepithelial polyps (FEPs) are benign growths that commonly occur in the skin folds of the neck, axilla, eyelids, and groin area, which are often pedunculated, and measure, on average, 1 mm to 5 mm in the largest

dimension and do not exceed 1 cm in the largest dimension. In addition, FEPs can occur in the urinary tract at different levels mimicking carcinoma.¹⁻³ Microscopically, FEPs consist of a benign squamous epithelial surface with underlying fibrous stroma that may contain numerous dilated capillaries.⁴

A condom catheter is an external urinary drainage system that is usually used by incontinent men. It is an effective method to prevent complications from long-term urethral catheterization. On the other hand, a condom catheter is associated with minor complications such as irritation, maceration, or ulceration of the skin, or recurrent urinary tract infections, and more serious complications such as urethral diverticula, fistula, localized ischemia, and gangrene of the penis.^{5,6} However, long-term condom

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catheter use has very rarely been associated with giant FEPs, with, to date, to the best of our knowledge, only seven cases reported in the literature. We report of a case of giant FEP of the penis associated with long-term condom catheter use and we review the seven previously reported cases.

Case report

A 43-year-old gentleman with a 14-year history of condom catheter use due to a neurogenic bladder following a motor vehicle accident, presented with a growing mass on the ventral aspect of the penis near the glans; the mass had appeared a year ago. The patient had very poor hygiene and was using adhesive tape to keep the condom in place. Physical examination revealed a soft, dark-grey mass with a granular surface that measured 4 cm in the largest dimension. An incisional biopsy was performed that revealed a benign reactive lesion. The patient underwent excisional biopsy, and a suprapubic catheter was put in place. At the patient's 1 month follow-up examination, the wound had healed and there were no signs of FEP regrowth.

Pathological findings

Gross examination of the excised lesion showed a soft mass that measured 4 cm x 3 cm x 2.5 cm. The surface was covered by dark skin on one side and was pink and smooth on the other side. The cut surface was trabeculated and white, Figure 1.

Formalin fixed, paraffin embedded tissue samples were cut into 5- μ m sections and stained with hematoxylin & eosin (H&E) and immunohistochemical stains. Histological examinations of the sections revealed

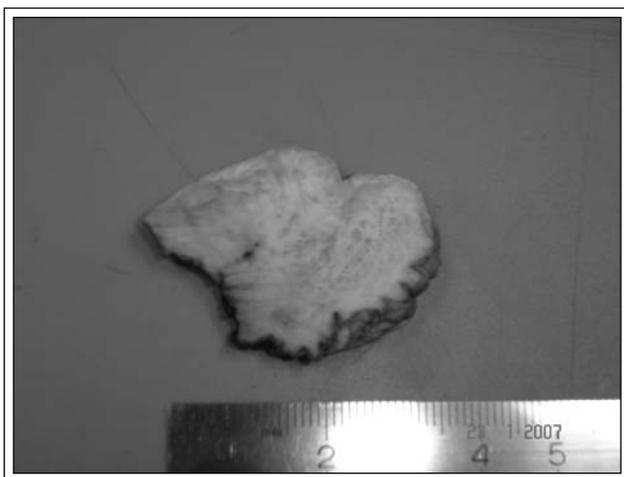


Figure 1. Gross morphology of the fibroepithelial polyp.

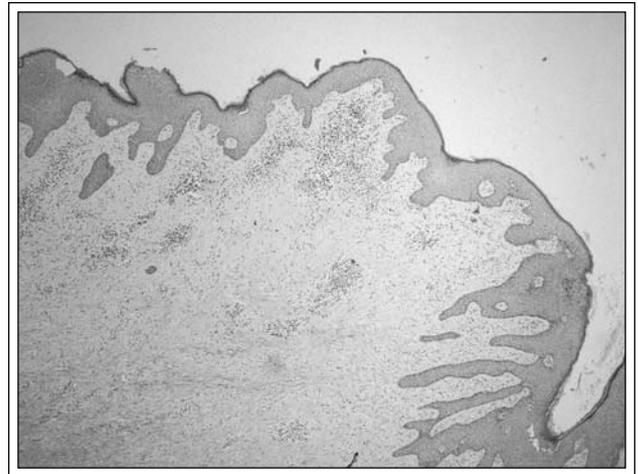


Figure 2. Histological features of fibroepithelial polyp acanthotic epithelium and inflammatory cells in the dermal-epidermal junction. (H&E, X40).

a lesion covered by an acanthotic keratinized squamous epithelium and a fibrous stroma with mild edema. The stroma contained numerous dilated capillaries and perivascular lymphoid aggregates that were more prominent at the dermal-epidermal junction, Figure 2. Rare stromal giant cells were seen. In addition, prominent scattered bundles of smooth muscle were found in the stroma, Figure 3.

Immunohistochemical staining was performed for desmin (1:50 dilution, Dako), smooth muscle actin (SMA) (1:50 to 1:100 dilution, Dako), CD34 (1:15 dilution, Biogenics), and vimentin (1:50 dilution, Dako). Immunohistochemical staining demonstrated positive expression of vimentin in the stromal cells

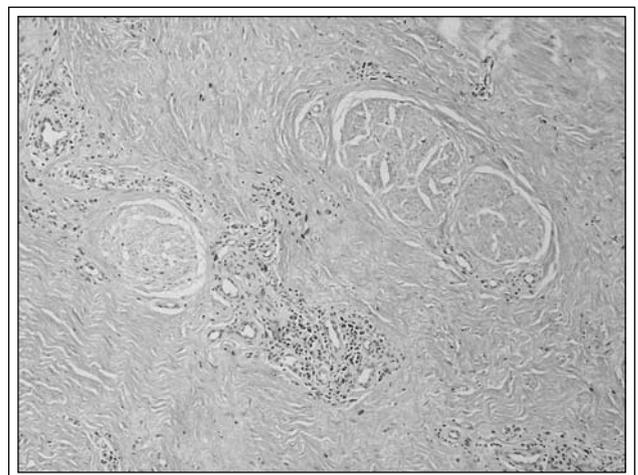


Figure 3. Smooth muscle bundles with vascular proliferation. (H&E, X100).

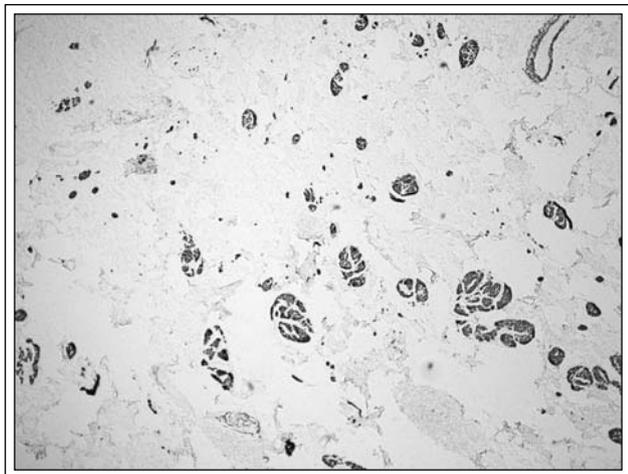


Figure 4. Immunohistochemical stain for desmin demonstrates positive expression in smooth muscle bundles.

and the muscle bundles, and positive expression of desmin and SMA in muscle bundles, Figure 4. CD34 was negative in the stromal cells.

Discussion

A condom catheter is a common option for use in patients with incontinence. It is easy to use and can be comfortably applied. With proper application and good hygiene, it should result in minimal complications. In the general population, although FEPs commonly occur as benign dermal lesions, their development on the penis is rare, and development of FEPs on the penis due to long-term condom catheter use is very rare. To the best of our knowledge, to date,

there have been seven reported cases of FEP associated with chronic condom catheter use.⁷⁻⁹

The first case, published in 1993,⁷ consisted of a penile mass that occurred in association with chronic condom catheter use in a 21-year-old man with neurogenic bladder. The patient presented with a mass in the dorsal aspect of the penis, which was not diagnosed as FEP but was thought to be a keloid scar or lymphoedema. However, the histological features were typical of FEP: skin with vascular proliferation and focal inflammatory edema.

A second report, by Fetsch et al⁸ from the Armed Forces Institute of Pathology (AFIP), which was published in 2004, described five cases of giant FEP associated with chronic condom catheter use. In all cases, the patients presented with cauliflower-like masses in the ventral aspect of the glans penis; the masses ranged from 2.0 cm to 7.5 cm in the largest dimension. The period of condom catheter use ranged from 5 to 21 years. Histological examination revealed polypoid masses covered by squamous epithelium with mild acanthosis. Some of the masses had focal parakeratosis and spongiosis. The stroma was edematous with vascular, capillary size proliferation. Chronic inflammatory cell infiltrate (predominantly plasma cells and lymphocytes) was seen especially at the dermal-epidermal junction. Hence, the authors designated these polyps as lymphedematous FEPs. Scattered binucleate cells and multinucleated giant cells were noted. In our patient's mass, we noted similar morphological findings except the smooth muscle bundles were distinct.

The third report of giant FEP associated with long-term condom use⁹ described a 59-year-old man who presented with a cauliflower-mass at the ventral aspect of his penis, close to the urethral meatus. The

TABLE 1. Cases of fibroepithelial polyps (FEPs) of the penis associated with long-term catheter use

No.	Reference	FEP location	FEP's largest dimension, cm	Patient age, years	Duration of condom catheter use
1	Bang R ⁷	Dorsum of penis	7.0	21	3 years
2	Fetsch J et al ⁸	Glans	2.5	25	Several years
3		Glans	3.4	29	6 months
4		Glans	2.5	32	6 months
5		Glans	2	40	10 years
6		Glans and prepuce	2.5 (recurrent lesions: 0.9 & 3)	58	NA
7	Turgut M et al ⁹	Ventral aspect of penis	6	59	NA
8	Current case	Ventral aspect of penis	4	43	14 years

patient had a history of long-term condom catheter use following trauma that had resulted in paraplegia. The histological examination of the mass showed typical features of FEP: keratinized squamous epithelium covering vascularized loose stroma.

Table 1 summarizes the clinical findings of the current case and the seven previously reported cases of FEP associated with long-term condom catheter use.

The etiology of FEPs is uncertain, although some associations between FEPs and mechanical irritation have been described. One study,¹⁰ which demonstrated that the development of FEPs in the urethra of five patients followed surgical procedures for urothelial cancer, suggested that local mechanical irritation induced by repeated transurethral procedures was causing the FEPs. In addition, one case report¹¹ described FEP in the distal ureter as a result of irritation by a stone. A third report¹² described FEPs in the urethra of two paraplegic women that had resulted from chronic catheter use. Therefore, based on these previous cases, it seems plausible that FEPs can be induced by local, chronic irritation, and this could explain the occurrence of FEPs in chronic condom catheter use. This is further supported by the series of Fetsch,⁸ in which two of the patients who continued to use the condom catheter after their masses were excised developed local recurrence.

The mass in our patient had distinct smooth muscle bundles, which are not seen in conventional FEPs. Some similar observations were noted in the reported cases of FEPs in other sites. In a giant FEP of the bladder, stromal myofibroblasts and smooth muscle cells were seen.¹³ Furthermore, Groisman and Polak-Charcon noted the expression of desmin in stromal cells in 30% of 40 cases of anal FEPs and also noted myofibroblastic differentiation on ultrastructural study.¹⁴ Similarly, desmin expression and myofibroblastic differentiation were demonstrated in 5 of 12 cases of vulvovaginal FEPs.¹⁵ Putting all these observations together, we can conclude that the stromal cells of FEPs have more than one line of differentiation and possibly underwent smooth cell differentiation. However, this needs to be confirmed in further studies and case reports. Another possible explanation is that these muscle bundles are extension of dartos muscle that is normally seen in the coronal sulcus and foreskin, and mechanical irritation caused the hypertrophy.¹⁶

In conclusion, urologists and pathologists should be aware of this rare complication of giant FEPs of the penis associated with chronic condom catheter use and not confuse these masses with carcinoma, as their size can mimic carcinoma. □

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