

Case Report

Jeep driver's disease of the penis: ultrasound-guided management of a penile pilonidal sinus: a case report and review of the literature

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Received: 02 September 2026

Accepted: 10 October 2026

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ABSTRACT

Pilonidal sinus is a chronic inflammatory condition resulting from the subcutaneous trapping of hair, most commonly in the sacrococcygeal region. Penile involvement is exceptionally rare and, because the presentation is non-specific and it is frequently mistaken for a penile abscess or for malignancy. Diagnosis in the published literature has been almost invariably retrospective, following excision and histopathological examination. We report a 25-year-old uncircumcised, morbidly obese man who presented with pain and swelling over the left preputial area of five to seven days duration, resistant to oral antibiotics and analgesics, with pus discharging through a small sinus at the coronal sulcus. Ultrasonography demonstrated a subcutaneous collection containing a linear echogenic focus consistent with a hair shaft. He underwent emergency drainage of pus, division of synechiae, removal of the hair shaft from the sinus tract under intraoperative sonographic control and a dorsal slit of the preputial skin; a confirmatory scan before closure excluded residual collection or retained foreign material. His postoperative course was complicated by a fixed drug reaction, which settled on withdrawal of the offending drugs and a short course of steroids, and prepucioplasty was planned electively in view of recurrent balanoposthitis. A review identified 34 previously reported patients, which has been summarized. The causative hair can be demonstrated on imaging and its clearance was confirmed intraoperatively; thus the diagnosis may be established before histopathology and the extent of surgery required may be reduced.

Keywords: Pilonidal sinus, Left preputial area, Steroids, Prepucioplasty

INTRODUCTION

A pilonidal sinus is a chronic inflammatory condition that results from the subcutaneous trapping of hair, typically occurring in the natal cleft.¹ The incidence of pilonidal sinus disease is approximately 26 per 100,000 inhabitants, with a 2.2 times higher occurrence in men than in women.²

Manifestation of a pilonidal sinus in the penis is extremely rare; fewer than forty cases have been reported worldwide since the condition was first recorded in the urological literature in 1968.³ The exact prevalence is not well documented. Treatment often involves surgical intervention, such as circumcision, to prevent

complications, including infection, actinomycosis, abscess formation, erectile dysfunction, and phimosis.^{1,4} Presentation is usually inflammatory, with pain, local infection and erythema, although chronic ulceration or a draining sinus may occur.⁵ We report a patient who presented acutely, in whom the causative hair was identified on preoperative ultrasound and cleared under intraoperative sonographic control, and we review the patients reported previously.

CASE REPORT

A 25-year-old Asian man who was morbidly obese presented to our outpatient clinic with pain over the left penile area and swelling at the distal penile shaft for five

to seven days. The pain and swelling were resistant to oral antibiotics, oral analgesics, and lignocaine jelly application. The patient was not circumcised. He reported a significant history of inability to retract the preputial skin completely backwards because of severe pain for many years and had not sought medical attention previously. He also gave a history of masturbation at frequent intervals during these four to five days. The swelling occasionally became inflamed and increased in size, with discharge through a small opening beneath the foreskin at the coronal sulcus.

On examination, a smooth, round, mobile, subcutaneous swelling could be easily felt at the distal shaft of the penis. The foreskin was difficult to retract. Upon retraction, there was oozing of pus from all around, with a shaft of hair buried in the swelling projecting beneath the foreskin and a small sinus at the coronal sulcus (Figure 1).

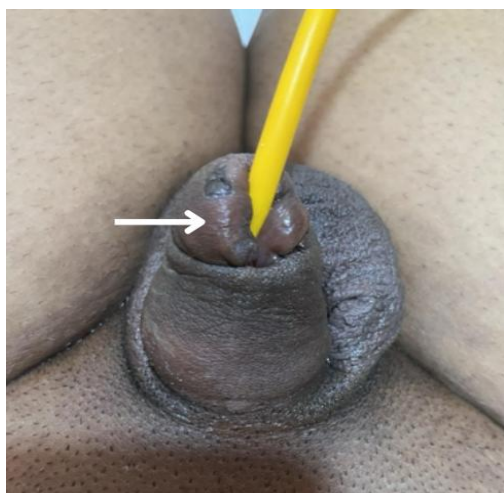


Figure 1: Preoperative clinical photograph showing an edematous, non-retractile prepuce with swelling of the distal penile shaft (white arrow).

Investigations

Preoperative blood investigations were within normal limits, including the total leucocyte count. Ultrasonography of the distal penile shaft demonstrated a well-defined subcutaneous collection containing internal echoes, with peripheral vascularity and no internal flow on colour Doppler, consistent with an abscess (Figure 2). A linear echogenic structure along the superficial margin of the collection was suspicious for a retained hair shaft. The collection measured $1.88 \times 0.65 \times 2.14$ cm, with an estimated volume of 1.37 cm^3 (Figure 3).

Intraoperatively, ultrasound was used to localise the foreign body precisely: a hair shaft embedded within a sinus just below the preputial skin on the left side. Following drainage of the abscess and removal of the hair, a confirmatory ultrasound excluded residual pus or retained foreign material.

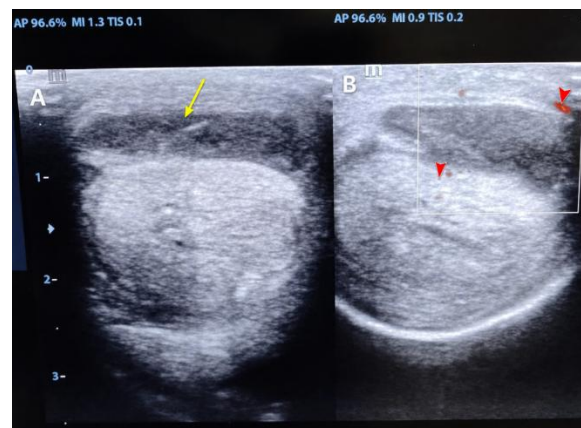


Figure 2- Preoperative ultrasonography of the distal penile shaft. (A) Well-defined subcutaneous collection with heterogeneous internal echoes (yellow arrow). (B) Colour Doppler image showing peripheral vascularity (red arrowheads) without internal flow, consistent with an abscess.

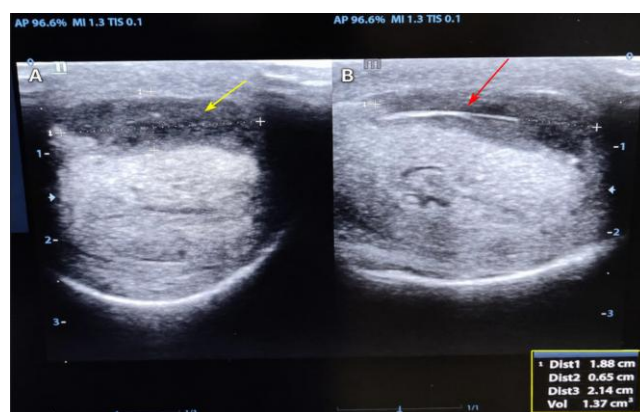


Figure 3: Ultrasound demonstrating a linear echogenic focus along the superficial margin of the collection, consistent with a buried hair shaft.

Differential diagnosis

The differential diagnosis for penile pilonidal sinus should include a variety of conditions presenting with similar clinical features. The following should be considered: infected epidermal cyst; infectious lesions such as syphilitic chancre, genital herpes and condyloma acuminatum; lichen sclerosus; malignant tumours such as Kaposi sarcoma and squamous cell carcinoma; benign non-cutaneous lesions including retention cysts, congenital or acquired inclusion cysts, syringoma and neurilemmoma; benign tumours of supporting structures including angioma, fibroma, neuroma, lipoma and myoma; and pseudotumours such as pyogenic granuloma, phlebitis, lymphangitis and early or atypical Peyronie's disease.⁶ Actinomycosis has been reported in association with penile pilonidal sinus and should also be considered.^{5,7-9} The diagnosis of pilonidal disease is primarily clinical, but it is important to distinguish it from other pathologies presenting with similar symptoms.⁶

Table 1: Reported cases of penile pilonidal sinus.

Author, year, country	Age (y)	Predisposing factors	Symptom duration	Clinical presentation	Circum-cised	Site	Initial clinical suspicion	Treatment	Outcome / follow-up
Yates-Bell, 1968, UK³	29	NR	NR	Swelling; abscess	NR	Dorsal	NR	NR	NR
Bervar et al, 1968, Yugoslavia¹⁰	NR	NR	NR	NR	NR	NR	NR	NR	NR
Eckhart, 1969, Australia¹¹	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ritchie, 1975, UK¹²	59	Congenitally irretractable foreskin	8 months	Enlarging mass in corona; purulent discharge	No	Ventral prepuce	Penile carcinoma	Dorsal slit; three biopsies; circumcision and excision	Complete recovery
Fisher et al, 1976, UK¹³	43	Staphylococcus albus	4 days (4 years recurrent)	Phimosis; recurrent abscess	No	Dorsal	NR	Excision and circumcision	Complete recovery
Goudarzi and McColl, 1976, UK¹⁴	40	NR	2 weeks	Painful penile swelling	No	Dorsal prepuce	NR	Circumcision	Complete recovery
Griffin et al, 1990, UK¹⁵	29	NR	NR	Ulceration	NR	Corona	NR	NR	NR
Rashid et al, 1992, UK⁷	21	Actinomyces israelii	NR	NR	No	Corona	NR	Radical excision and circumcision	Complete recovery
Khan and Scott, 1992, UK¹⁶	46	NR	NR	Abscess; swelling	NR	Dorsal	NR	NR	NR
Burgess et al, 1992, UK¹⁷	24	NR	NR	Abscess; ulceration	NR	Dorsal	NR	NR	NR
Lingam et al, 1996, UK¹⁸	30	NR	NR	Phimosis; abscess	NR	Ventral	NR	NR	NR
Saharay et al, 1997, UK¹⁹	53	NR	1 week	Painful penile swelling	No	Ventral	NR	Intravenous antibiotics; excision	Complete recovery
Val-Bernal et al, 1999, Spain (patient 1)⁹	25	Actinomyces	4 years	Phimosis; recurrent abscess	No	Dorsal	NR	Excision and circumcision	Complete recovery
Val-Bernal et al, 1999, Spain (patient 2)⁹	28	NR	3 months	Painful penile swelling	No	Dorsal	NR	Excision	Complete recovery

Continued.

Author, year, country	Age (y)	Predisposing factors	Symptom duration	Clinical presentation	Circum-cised	Site	Initial clinical suspicion	Treatment	Outcome / follow-up
O'Kane et al, 2004, Ireland ²⁰	61	NR	Several years	Phimosis; indurated ulcerative preputial lesion	No	Ventral prepuce	NR	Dorsal slit, excision, circumcision	Complete recovery
Chikkamuniyappa et al, 2004, USA (patient 1) ⁵	42	Schizophrenia; fistula-in-ano	NR	Phimosis; penile swelling	No	Dorsal, foreskin	NR	Circumcision with rectal sinus repair	Continued. recovery
Chikkamuniyappa et al, 2004, USA (patient 2) ⁵	22	Actinomyces	NR	Phimosis; caseous discharge	No	Beneath foreskin	Epidermal inclusion cyst	Circumcision with radical excision	Complete recovery
Kalsi et al, 2004, UK ²¹	56	NR	1 year	Erectile dysfunction; inflamed glans	NR	Base of glans	NR	Excision	Erectile function regained
Rao et al, 2006, UK ⁴	21	NR	2 months	Penile swelling	No	Coronal sulcus	NR	Excision and circumcision	Complete recovery
Al Chalabi et al, 2008, Ireland ²²	24	Mental illness; autism; learning disability	1 year	Recurrent ulcerative lesion	No	Dorsal mid shaft	Pilonidal sinus	Complete excision	No recurrence
Sion-Vardy et al, 2009, Israel ²³	41	NR	NR	NR	NR	Mid shaft	NR	NR	NR
Goulao et al, 2009, Portugal ²⁴	30	NR	NR	Swelling	NR	Glans	NR	NR	NR
Al-Qassim et al, 2013, UK ¹	19	NR	NR	Discharge; swelling	No	Dorsal distal shaft	NR	Excision and circumcision	Complete recovery
Cormio et al, 2013, Italy ²⁵	26	NR	3 months	Ulcerated lesion	No	Coronal sulcus / prepuce	Penile carcinoma	Excision and circumcision	Asymptomatic
Navarrete et al, 2017, Uruguay ²⁶	20	NR	NR	White papule with pinpoint orifice; dyspareunia	No	Dorsal balanopreputial fold	NR	Circumcision	Complete recovery
Ercil et al, 2018, Turkey ⁸	20	Actinomyces israelii	3 months	Discharge from ulcerative lesion	Yes	Ventral	NR	Excision and repair	No recurrence
Shanmugathas et al, 2021, UK ²⁷	28	NR	NR	Phimosis; bleeding lesion	No	Coronal sulcus	Kaposi sarcoma; squamous cell carcinoma;	Radical sleeve circumcision and reconstruction	Complete recovery

Continued.

Author, year, country	Age (y)	Predisposing factors	Symptom duration	Clinical presentation	Circum-cised	Site	Initial clinical suspicion	Treatment	Outcome / follow-up
							tuberculous or syphilitic ulcer		
Keurlings et al, 2022, Netherlands²⁸	43	NR	NR	NR	NR	NR	NR	NR	NR
Randhawa et al, 2022, UK (patient 1)²⁹	34	NR	6 weeks	Swollen inflamed foreskin; dyspareunia	No	Dorsal	Balanitis	Excision and circumcision	Complete recovery
Randhawa et al, 2022, UK (patient 2)²⁹	40	NR	1 year	Swollen foreskin; recurrent pain and discharge	No	Dorsal	Penile abscess	Incision, drainage, circumcision	Asymptomatic
Hasbun et al, 2023, Chile³⁰	30	NR	14 years	Dyspareunia; purulent discharge; pinpoint orifice	No	Glans	NR	NR	NR
Kanafani et al, 2024, Lebanon³¹	21	Friction	Weeks; recurrence at 6 months	Painful swelling; later phimosis and rupture	No	Mid-distal shaft / coronal sulcus	Penile abscess on first ultrasound	Incision and drainage, then excision and circumcision	No recurrence at 5 months
Sawaqed et al, 2025, Jordan³²	30	NR	NR	Swelling	NR	Mid shaft	NR	NR	NR
Taccogna et al, 2026, Italy³³	22	NR	Long-standing	Antibiotic-refractory lesion, Firm white papule with central pinpoint orifice	No	Dorsal balanopreputial fold	Suspicious penile lesion	Radical sleeve circumcision with reconstruction	No recurrence
Present case, India	25	Morbid obesity; non-retractile prepuce; frequent masturbation	5-7 days	Acute pain and swelling of distal shaft; pus discharge; visible buried hair shaft	No	Distal shaft / left coronal sulcus	Pilonidal abscess	Ultrasound-guided drainage with hair retrieval; dorsal slit	Discharged day 5; fixed drug reaction; prepucioplasty planned

NR: not reported

Treatment

The patient was kept nil by mouth and taken for emergency surgery under intraoperative ultrasound and with a radiologist in attendance. Pus was drained and synechiae were excised. The foreign body, a hair shaft, was removed from the sinus tract under sonographic guidance, and a dorsal slit of the preputial skin was performed. A confirmatory intraoperative ultrasound was performed before closure to exclude a residual collection or retained foreign material.

Outcome and follow-up

The patient was discharged on the fifth postoperative day on antibiotics and analgesics, following which he developed a fixed drug reaction; the antibiotics and analgesics were withheld, and low-dose steroids were started for the generalised rash. The rash was in the disappearing phase over the next two to three days, and regular dressings were continued for the penile wound. The wound had no further pus discharge, but in view of further synechiae formation it was dressed daily for observation and prevention. The dorsal slit of the preputial skin allowed the prepuce to be retracted with ease, and the need for prepucioplasty in the future was explained to the patient in view of recurrent balanoposthitis. At one and three-month follow-up, the wound had healed completely, with no recurrence of swelling or discharge.

DISCUSSION

Pilonidal sinus disease is a relatively common acquired disorder of the natal cleft, but its occurrence on the penis is exceptionally rare. The most widely accepted mechanism is that loose hair fragments penetrate vulnerable skin through friction and local negative pressure, producing a chronic foreign-body inflammatory reaction.¹ The uncircumcised penis provides a similar environment on a much smaller scale: the preputial fold creates apposed, moist skin surfaces where shed hair may become trapped and subsequently driven beneath the skin. On the penis, sexual activity may provide both the mechanical force and the introduced hair, and coital or masturbatory friction has been implicated. In our patient, frequent masturbation in the days preceding presentation, together with intraoperative identification of a hair shaft within the sinus, supports this mechanism. His longstanding inability to retract the prepuce may also have facilitated hair entrapment.

The current study identified 34 previously reported patients (Table 1).^{1,3-5,7-33}

Penile pilonidal sinus appears to predominantly affect young adults, with a median age of 29.5 years, mirroring the demographic pattern of classical sacrococcygeal disease.³ Although only one patient with documented circumcision status was circumcised, inconsistent

reporting prevents any firm conclusion regarding circumcision as a protective factor.⁸ Most lesions occurred along the dorsal penis, prepuce, or coronal region, with considerable anatomical variability. The reported symptom duration, ranging from a few days to 14 years, highlights a markedly variable clinical course.³⁰ In contrast, our patient presented after only five days of pain and swelling, illustrating that penile pilonidal sinus may also present as an acute inflammatory lesion rather than a chronic sinus.

The main difficulty with penile pilonidal sinus is its non-specific presentation. Among previously reported cases, the lesion was mistaken for a penile abscess, balanitis, an epidermal inclusion cyst and, importantly, penile malignancy.^{5,12,25,27,29,31,33} In one report, the patient was thought to have a carcinoma of the penis and required three biopsies before a sinus containing hair was transected and the diagnosis made.¹² In another, a patient referred urgently with a suspicious penile lesion after multiple failed courses of antibiotics was found intraoperatively to have a lesion densely adherent to the tunica albuginea and the penile neurovascular bundle, requiring radical sleeve circumcision with reconstruction.³³ Misdiagnosis may have important clinical consequences: lesions treated as simple abscesses may persist or recur if the causative hair is not removed, whereas those mistaken for malignancy may undergo unnecessary investigation or more extensive surgery. Careful examination for a sinus opening or an embedded hair may therefore help to distinguish penile pilonidal disease from its mimics.

Imaging has been described in a few cases. Previous reports have supported preoperative radiological diagnosis or used dermoscopy and ultrasonography, with one identifying a hyperechoic linear structure consistent with hair.²⁹⁻³¹ However, in that case, the initial scan showed only an abscess, and the hair was detected after recurrence.³¹ In our patient, targeted ultrasonography identified the hair on the initial scan. To our knowledge, intraoperative ultrasonography has not previously been reported; it enabled real-time localization and confirmation of complete clearance before closure.

Treatment in the reported cases has been predominantly surgical, ranging from excision of the sinus tract to excision with circumcision and, occasionally, more extensive reconstruction. Primary excision with circumcision has recently been recommended in preference to incision and drainage, based on a patient who recurred six months after drainage alone.³¹ In that case, however, the causative hair was not identified at the first procedure and was demonstrated only on the second ultrasound after relapse. This supports the principle that it is clearance of the hair, rather than the extent of the skin resection, that determines outcome. In our patient the acute infection favoured a staged approach: pus was drained, the synechiae were divided, the hair was removed under sonographic visualisation and a dorsal slit

was performed to allow retraction of the previously non-retractile prepuce, with definitive prepucioplasty planned electively because of recurrent balanoposthitis. Microbiological associations have been reported, most commonly *Actinomyces*, which may require prolonged antimicrobial therapy,^{5,7-9} with isolated reports of *Candida* and *Staphylococcus albus*.¹³

CONCLUSION

Penile pilonidal sinus is a rare but distinct condition that should be considered in young, particularly uncircumcised, men with chronic, recurrent, or antibiotic-refractory penile swelling, ulceration, or a discharging sinus. Its nonspecific presentation may mimic an abscess or carcinoma. Ultrasonography, including intraoperative scanning, can identify and localize the causative hair and confirm its complete removal. When these findings are demonstrated, histopathological confirmation and extensive surgery may be avoided, allowing definitive preputial surgery to be deferred to an elective setting.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Amin S, Gajjar A, Gandhi J. Jeep driver's disease of the penis: ultrasound-guided management of a penile pilonidal sinus: a case report and review of the literature. *Int Surg J* 2026;13:2310-7.