

Total Gangrene of the Penis due to Improper Application of a Condom Catheter

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ABSTRACT

We describe an unusual case of penile gangrene in a patient suffering from urinary incontinence secondary to cerebrovascular accident. Gangrene developed due to continuous tourniquet effect on the penis caused by a condom catheter. Since gangrene of the penis is an irreversible process, this case highlights the importance of proper care and routine maintenance of condom catheters in preventing this complication.

KEYWORDS: Penis, Gangrene, Condom catheter, Penectomy, Suprapubic cystostomy

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INTRODUCTION

Condom catheters are external urinary drainage devices mainly applied in bedridden and incontinent patients [1]. Although these catheters are more comfortable and less painful than indwelling catheters, they are not completely without risk. Various complications have been described in the literature, including skin irritation, maceration, ulceration, allergic reactions, urinary tract infections, fistula formation, penile edema, localized ischemia, and gangrene [2-8]. We report a rare complication of total gangrene of the penis due to an improperly applied condom catheter.

CASE HISTORY

A 75-year-old male was admitted to our emergency department for cerebrovascular accident (CVA) due to left parieto-occipital infarction. He developed right hemiparesis and intractable urge urinary incontinence. After stabilization, he was put on anticoagulants and was discharged with a condom catheter. Two weeks later, he presented with complaints of swelling and discoloration of the penis. On examination, a constricting band (the adhesive tape used to secure the condom catheter) was seen at the base of the penis. The distal penis was engorged

and gangrenous with a clear line of demarcation (fig. 1). No sensations were present, and pulsations distal to the constriction were absent. His scrotum, testis, and biochemical parameters were normal. Color Doppler study of his common, internal, and external iliac arteries showed mild reduction in caliber and incomplete patchy color filling. Spectral Doppler showed high resistance pattern. Penile Doppler showed no color filling. Patient was immediately hospitalized, the constricting adhesive tape was removed, and he was started on broad-spectrum antibiotics. Since dry gangrene had already developed, total penectomy and suprapubic cystostomy was performed. At the time of this report, he was doing well, recovering from right hemiparesis, and planning for perineal urethrostomy at a later date.

DISCUSSION

Improperly managed condom catheters lead to a variety of complications. Total gangrene of the penis due to a condom catheter is a very rare occurrence with very few reported cases. Steinhardt and McRoberts [8] reported total distal penile necrosis caused by a condom catheter. Similarly, in our case, the dry gangrene of the penis occurred due to a constriction effect of the adhesive applied to secure the condom catheter to the penis.

The mechanism of the development of gangrene is similar to strangulation by metallic objects [9]. The tourniquet effect causes penile engorgement from the decrease in venous and lymphatic drainage. If the tourniquet effect continues, arterial flow is also compromised, resulting in ischemia and gangrene of the penis. Since these patients have underlying atherosclerotic changes in the iliac arteries, there is interference to the flow of the distal penile arteries. Any degree of obstruction will result in a further decrease of blood flow to the penile arteries, subsequently resulting in distal penile gangrene.

The diagnosis of this condition is based mainly on clinical examination, which includes local assessment of temperature, color, sensations, and pulsations distal to the constriction band. Color Doppler study of the penis is helpful in identifying pulsations and flow distal to the constriction band. Intravenous fluorescent imaging followed by Wood's lamp examination will identify devitalized tissue in doubtful cases [10].

Proper application and routine care of condom catheters is important in preventing this complication. Some important guidelines have to be followed for using condom catheters. Before applying the condom catheter, the penis should be cleaned with soap and water and then dried. It is helpful to clip the hair or even shave the area near the base to ensure secure attachment of the condom to the penis. The appropriate size of condom suitable for the penis should be selected. The condom should be gently rolled and adhesive tape applied at the base of penis. It is most important to note that the adhesive tape is not applied too tightly. The skin of the penis needs to be inspected 1 hour after applying the condom catheter to assure that the catheter is not placed too tightly. The applied condom catheter should be changed every 48 hours. Immediate medical attention has to be sought if the penis becomes very red or

swollen or if the patient complains of dysuria or fever with chills and rigors.

If the patient presents early in the course of the problem, the penis can be salvaged by promptly removing the offending device. Total penectomy and perineal urethrostomy is necessary if gangrene has set in. Because it is easier to manage, temporary suprapubic diversion has to be done in unstable patients.

CONCLUSIONS

Penile gangrene resulting from improperly applied condom catheters is a rare but serious condition. Prompt diagnosis and early treatment are essential in avoiding devastating consequences. Prevention of the problem is best done by maintaining strict hygiene and frequent monitoring of the device. It is very important that the all the members involved in managing these patients should be aware of the potential complications associated with condom catheter use.



Figure 1. Total gangrene of the penis
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