Hair as the Nidus for Bladder Calculi Formation Complicating Suprapubic Cystostomy Catheterization: A Case Report

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Neurogenic bladder is a familiar sequel to spinal cord injury, and bladder calculi is a common complication of neurogenic bladder. We report a case of a 25-year-old man with spinal cord injury resulting in neurogenic bladder. Permanent cystostomy was performed, and, for 4 years, the patient received periodic replacement of a cystostomy catheter. Bladder calculi were found on follow-up radiography. Cystoscopic lithotripsy was done, and it was noted that a hair was the nidus of a calculus. The hair could have been introduced into the bladder accidentally during the cystostomy catheter replacement. We suggest routine pubic hair care, even shaving, for patients suffering from neurogenic bladder with cystostomy. In addition, patients and caregivers should take care not to introduce pubic hair into the bladder while changing cystostomy catheters.

Key Words: bladder calculi, hair, neurogenic bladder, suprapubic cystostomy

Case Presentation
A 25-year-old man suffered a C5 quadriplegia resulting in neurogenic bladder for which he had received a permanent cystostomy 4 years ago. Persistent urinary tract infection by Morganella and Enterococcus was noted. A plain radiography revealed multiple radiopaque densities about 4 cm long in the region of the bladder (Figure 1). Bladder ultrasonography showed a curved hyperechoic line with an acoustic shadow behind. Cystoscopy disclosed bladder calculi, which were fragmented easily by electrohydraulic lithotripter. As fragmentation progressing toward the center of a calculus, a hair was found to be the nidus (Figure 2). The stone was removed in toto. Since this experience, we carefully avoid introducing hairs into the bladder during cystostomy catheter replacement.
preventing complications such as urine retention, renal function impairment, and calculi formation [3]. If the patient or the caregiver cannot perform intermittent catheterization, permanent cystostomy is the second choice. Catheter-related urinary tract infection is the most common complication of this procedure. No other serious complication usually is observed. There have been some reports of bladder calculi formation in patients with neurogenic bladder, with foreign bodies as the nidus, including Foley balloon fragments [4–7] and hairs [8–12]. In these reports, pubic hairs were introduced into the bladder during cleansing intermittent self-catheterization. Our case is perhaps the first reported complication of suprapubic cystostomy-related bladder calculi formation with pubic hair as the nidus.

In our case persistent urinary tract infection was noted even with antibiotic treatment. The possible etiologies of persistent urinary tract infection include infected stones and foreign bodies, chronic bacterial prostatitis, urethral or bladder diverticula, and abscess formation. The goal of treatment should be the eradication of any infectious source. Stone removal and surgical correction of these anatomic anomalies are necessary.

The formation of bladder calculi caused by hair is a preventable complication. Pubic hairs could be introduced into the bladder by adhering to the lubricated catheter or by overlying the cystostomy orifice and then being pushed internally. Because forceful expulsion of the contents of the urinary bladder does not occur in patients with cystostomy, any foreign body introduced into the bladder tends to stay within the bladder cavity. The surface of the hair serves as a focal point for crystalloid precipitation. The reaction of the urothelium to the foreign body may also contribute to calculogenesis [13].

In some centers, it is routine to recommend periodic shaving of pubic hair when caring for patients with spinal cord injury. Although shaving of pubic hair may not be acceptable to some patients, we should discuss this topic with the patients and their caregivers. To minimize the occurrence of this complication, patients and caregivers should carefully avoid adherence of hairs to the catheter during cystostomy catheter replacement.

**REFERENCES**


**DISCUSSION**

Neurogenic bladder is commonly observed in patients with spinal cord injury. Repetitive cleansing intermittent self-catheterization is required for bladder emptying and


膀胱毛髪結石：病例報告

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神經性膀胱是脊椎損傷常見的後遺症，而膀胱結石是神經性膀胱常見的併發症，本文報告一病例因脊椎損傷導致神經性膀胱，他接受膀胱造瘻並定期更換膀胱造瘻管，後續追蹤發現膀胱結石，而且結石的核心是一根毛髪，此毛髪可能是更換膀胱造瘻管時意外帶入膀胱，提出此病例希望病患及護理人員在更換膀胱造瘻管時能注意勿將毛髪帶入膀胱。

關鍵詞：膀胱結石，毛髪，神經性膀胱，膀胱造瘻

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