

Endourology

Recurrent bladder trichobezoars in a quadriplegic patient

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Introduction

When foreign objects, such as hair, are introduced into the bladder, they act as niduses for stone formation. This represents a rare complication occurring in patients with spinal cord injury (SI) who empty their bladder using either intermittent or chronic indwelling catheters.¹ It has been hypothesized that hair is introduced into the bladder by either adherence to the catheter or by overlying the meatus and being pushed internally.² Trichobezoars are hairballs found more commonly in the human gastrointestinal tract in patients with psychiatric disorders. A trichobezoar in the urinary bladder has been reported once in the literature.³ This case report describes the first case of *recurrent* trichobezoars in the bladder of a quadriplegic patient with a suprapubic catheter (SPC). This case is meant to highlight the importance of educating patients regarding catheter hygiene techniques such as clean shaving of the pubic region in order to prevent future recurrence.

Case presentation

A 50 year old partially quadriplegic male with a neurogenic bladder who lives alone first appeared in our clinic 4 years ago complaining of incontinence. A motor vehicle accident 27 years ago resulted in a C6-C7 spinal cord injury (SI). Following his accident, he had limited upper extremity motor function with complete loss of sensation and motor function below T4 accompanied by episodes of autonomic dysreflexia, frequent urinary tract infections, and incontinence. Urodynamic evaluation showed small bladder capacity with bladder pressures over 100 cm H₂O with leakage at 29 mL of filling and an end filling pressure of 74 cm H₂O. He emptied his bladder through a SPC which was replaced routinely by a nurse once a month. On routine cystoscopy, bladder stones were visualized and a cystolitholapaxy was performed. During the procedure, two large tan-colored masses resembling “spools of hair” encrusted by stone formation were visualized in the bladder. They were fragmented using a 1000 μm holmium laser fiber, removed transurethally, and the specimens were sent for crystallographic analysis which showed a composition of 40% calcium oxalate monohydrate, 30% calcium phosphate, and 30% magnesium ammonium phosphate. A routine cystoscopy was performed a year later that showed no stone

reformation but the patient was subsequently lost to follow-up.

Two years later, the patient returned to our clinic. Following the previous cystolitholapaxy, he attempted to routinely self-shave his pubic hair in order to prevent reintroduction of hair into his bladder. However, due to his physical handicaps, he had difficulty reaching certain anatomical areas. His catheter was sealed using a 2 × 2 Tegaderm but the seal was occasionally broken down due to moisture. Additionally, he had been self-changing his SPC for one year due to health insurance difficulties. A cystoscopy showed the presence of a large trichobezoar in the bladder that resembled his previous two specimens (Fig. 1). A second cystolitholapaxy was performed and the specimen was fragmented with a 500 μm holmium laser fiber (Fig. 2) and removed transurethally. The gross specimen was sent for crystallographic analysis (Fig. 3). He was advised to continue shaving his pubic region and to use tape to remove the loose hairs. We also recommended that he cover the catheter site with a larger-sized Tegaderm and instruct his home health nurse to be more vigilant of loose hairs while changing his catheter.

Discussion

About 10–15% of patients who practice clean intermittent self-catheterization or have long-term urethral catheters develop stones along the urinary tract.³ Foreign body objects, like hair, in the bladder act as a nidus for crystalline precipitation.⁴ A major risk factor for this condition is SI because patients require long term catheter usage as well as lack sensation of the catheter site. In the literature there are a few reported cases of bladder stone formation around a single hair nidus.^{1,2,4,5} Only one case by Cindolo et al. described a large mass of hair that resembled the trichobezoar found in our patient.³ Additionally most bladder stones formed around hair occur in patients who practice intermittent catheterization or have urethral catheters.^{2–4} In our literature search, only one other report from South Korea described a bladder stone with a single hair nidus in a male with a SPC.¹ To our knowledge, this case is the first reported presentation of recurrent bladder trichobezoars in a SI patient who had been self-changing his SPCs over time.

Despite our patient reportedly self-shaving to prevent recurrence, his physical handicaps, history of catheter self-replacement, and

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Abbreviations

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| SI | Spinal Cord Injury |
| SPC | Suprapubic Catheter |

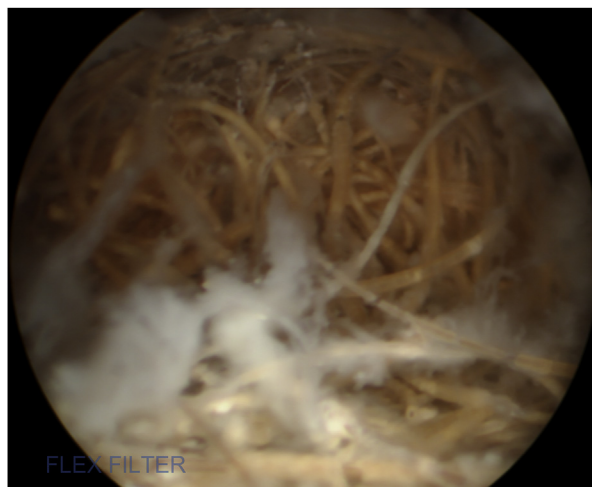


Fig. 1. Cystoscopy - View of the trichobezoar seen within the bladder of the patient.

chronic bladder stasis likely contributed to the reintroduction of hair into his bladder without the ability to expel them.^{4,5} Our case highlights the importance of providers being aware that SI patients using catheters are at risk of chronically introducing foreign objects into their bladders. Although pubic hair shaving has been recommended to prevent the development of trichobezoars,⁴ our patient attempted this without success, likely due to difficulty with manipulating the razor blade. As a result, for future similar cases, we recommend instructing both patients and their caretakers to remove all loose hairs with tape after shaving and apply clean adhesives to cover the catheter site even between catheter changes. Additionally, the importance of hygiene when handling catheters cannot be emphasized enough, especially to SI patients who cannot sense foreign bodies stuck on their catheters. Although indwelling urethral catheters have been implicated more often in bladder trichobezoars, our case shows that this risk also extends to SPCs, especially when improperly handled. As an additional measure for SI patients, we recommend annual cystoscopies to screen for both recurrence of bladder calculi including trichobezoars as well long term complications of chronic bladder irritation such as squamous cell carcinoma.

Conclusion

This is the first known case of recurrent trichobezoars in the bladder, hypothesized to be the result of improper hair removal and catheter hygiene techniques. Due to the recurrent nature of the condition, we recommend close follow up with similar patients. Decision making on preventative treatment options should include education of both patients and their caretakers on proper catheter hygiene in combination with annual cystoscopies for screening of future patients who may present in a similar fashion.

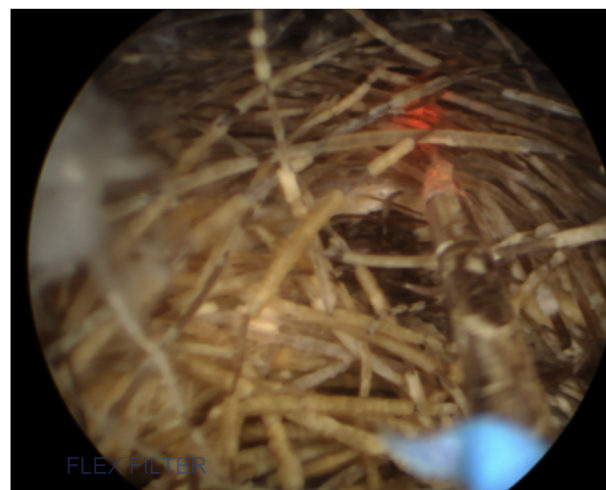


Fig. 2. Laser lithotripsy - The process of fragmenting the large trichobezoar with a holmium laser.



Fig. 3. Gross specimen - Largest fragment of the trichobezoar removed from the patient's bladder positioned on a 4 × 4 Tegaderm.

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Conflicts of interest

There are no conflicts of interest.

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