CASE REPORT
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Intraperitoneally Placed Foley Catheter via Verumontanum Initially Presenting as a Bladder Rupture

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Since urethral Foley catheterization is usually easy and safe, serious complications related to this procedure have been rarely reported. Herein, we describe a case of intraperitoneally placed urethral catheter via verumontanum presenting as intraperitoneal bladder perforation in a chronically debilitated elderly patient. A 82-yr-old male patient was admitted with symptoms of hematuria, lower abdominal pain after traumatic Foley catheterization. The retrograde cystography showed findings of intraperitoneal bladder perforation, but emergency laparotomy with intraoperative urethrocystoscopy revealed a tunnel-like false passage extending from the verumontanum into the rectovesical pouch between the posterior wall of the bladder and the anterior wall of the rectum with no bladder injury. The patient was treated with simple closure of the perforated rectovesical pouch and a placement of suprapubic cystostomy tube.

Key Words: Urethral Catheter; Complication; Bladder Perforation; Intraperitoneal

INTRODUCTION

Urethral catheterization is one of the most commonly performed procedures in healthcare settings worldwide, with more than 5 million urinary catheterization in the United States in the year 2000 alone (1). Adding to this, it is usually safe and relatively easy if performed by well-trained healthcare personnel. Although it is considered as simple and safe procedure, however, clinicians including urologists can encounter significant difficulties and traumatic catheterization is sometimes possible. Catheter related complications, such as infection, bleeding, injury to the urethra or bladder, or catheter malfunction can ensue (2). Moreover, insertion of the urethral catheter can be exceedingly difficult particularly in patients with underlying problems such as existing urethral strictures and elevated bladder neck due to severely enlarged prostate. Likewise, placement of the urethral catheter in neuropathic bladder patients can also be challenging due to periodic catheterization leading to more traumatized urethra. Herein, we report a first case of intraperitoneally placed urethral catheter via verumontanum, which was presented as intraperitoneal bladder perforation, in a chronically malnourished bed-ridden elderly man.

CASE DESCRIPTION

A 82-yr old male was admitted to our department for sudden onset acute abdominal pain. This patient clinically appeared chronically ill with bed-ridden status. He also has a significant history of urinary incontinence which became progressively worse and an insertion of Foley catheter was recommended at a private healthcare institute. Briefly following this, a 14 Fr Foley catheter was placed after a second attempt by a non-trained orderly at the private healthcare institute. Two days later, slightly blood tinged urine was observed on his urinary drainage bag. He had a past medical history of hypertension for 10 yr, brain surgery for intracranial hemorrhage 5 yr ago and total left hip arthroplasty 10 yr ago.

Clinical examination revealed direct and mild rebound tenderness on his lower abdomen. His body temperature was 36.7°C. There was mildly left-shifted leukocytosis (WBC: 9,300/μL) on complete blood count but it was within upper normal limit. Although the bladder integrity was checked with bladder irrigation and aspiration, we observed a significant discrepancy between input and output fluid volumes. Hence, bladder rupture was suspected and retrograde cystography was immediately performed. The retrograde cystography showed extravasation of the contrast material into the peritoneal cavity and the Foley catheter balloon which was placed in peritoneal cavity (Fig. 1A). Subsequently, emergency laparatomy was performed. However, there was no bladder perforation noted and the tip of the Foley catheter was noticed at the rectovesical pouch. There was no evidence of pathologic lesions like cancer or inflammatory mass. Given the location of the Foley catheter, we considered the possibility of false passage of the urethral catheter and subsequently removed

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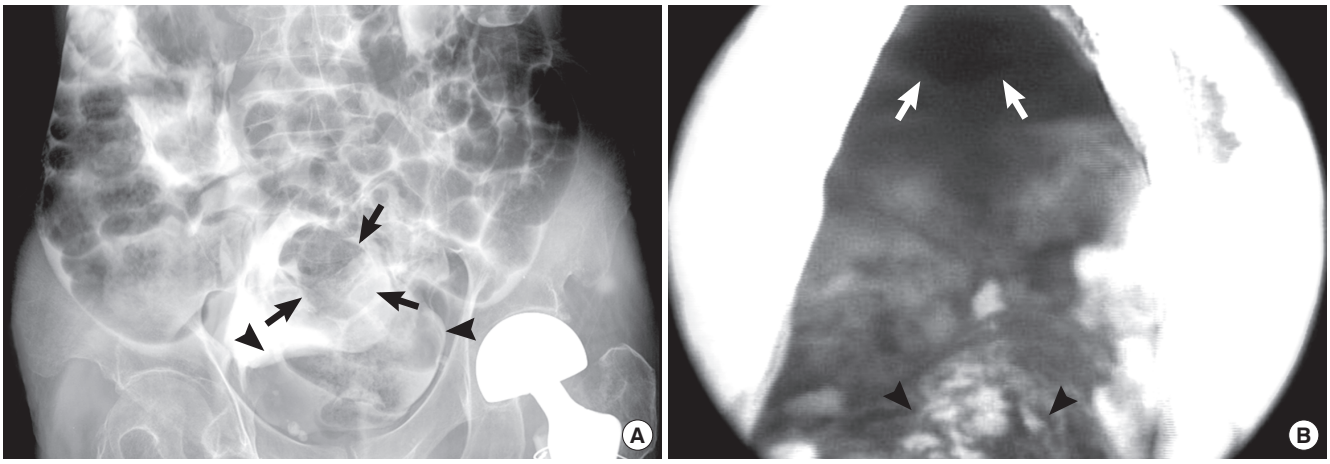

Fig. 1. Images of the bladder and catheter. (**A**) Retrograde cystography showed extravasation of the contrast media into the peritonem (arrow heads) and a Foley catheter balloon which was placed in peritoneal cavity (arrows). (**B**) Cystoscopic view showed a false pathway like a tunnel between bladder and rectum (arrow heads) from verumontanum to the rectovesical pouch (arrows).

the entire catheter. To further examine the extent of urethral injury, on-table, intraoperative urethrocystoscopy was performed. The urethrocystoscopical examination revealed a tunnel-like false passage extending from the verumontanum into the rectovesical pouch between the posterior wall of the bladder and the anterior wall of the rectum. Furthermore, a small hole into the peritoneum was also identified during cystoscopy (Fig. 1B). Following the identification of the extent of the urethral injury, a 16 Fr open ended nephrostomy tube was indwelled and safely secured into the bladder under guidance of Amplatz guide wire after full cystoscopic examination. In addition, a 16 Fr cystostomy tube was placed into the bladder suprapubically to ensure adequate urinary drainage. Then, the perforated rectovesical pouch was repaired transperitoneally with simple continuous suture and a closed suction drain was left into the peritoneum. The patient was discharged to the private care institution with only suprapubic cystostomy tube 7 days after the surgery.

DISCUSSION

The two most common complications related to Foley catheters, particularly in males, are anterior urethral injuries which can lead to long-term sequelae, such as urethral stricture, and retention of the catheter balloon in the urethra (3). Serious complications, indeed such as bladder perforation and/or peritonitis and rectovesical fistula have been previously reported (4-6). However, to date, urethral Foley catheter misplacement into the peritoneum without bladder injury has not been yet reported in the literature.

This present patient was a chronically debilitated, malnourished and bed-ridden state for a relatively long period of time of 5 yr following brain surgery. Therefore, we can suggest that his body connective tissues could be loosened and weakened as a result. At the time of surgery, cystoscopic findings revealed highly elevated bladder neck and destructed verumontanum area with a tunneling to the peritoneal cavity. However, there was no structural abnormality with exception of moderate trabeculation on the bladder.

Although it is difficult to fully understand the mechanism of this injury, we can hypothesize that the sheer force of the Foley catheter allowed penetration into ejaculatory duct and peritoneum. Structurally, the existence of the highly elevated bladder neck as well as the widely opened verumontanum can partly be contributing to such an injury. Another challenging aspect in this patient's presentation was the partial drainage of urine via the Foley catheter, but we presumed that this was possible because the leaked urine was back flowed around the catheter.

This case illustrates that misplacement of Foley catheter via verumontanum through peritoneal cavity without bladder perforation in a chronically debilitated man might be possible. It also shows that Foley catheterization, though it is simple and usually safe procedure, it can potentially cause serious problem like this present case, if performed by non- or less-trained healthcare providers. Therefore, we would like to emphasize that the best way to avoid traumatic catheterization would be adherence to the basic principles of catheterization. Firstly, the procedure has to be performed by physician or very well-trained healthcare provider. Secondly, one must abandon the procedure and an urgent urological consultation should be immediately sought whenever any urethral resistance or bleeding during urethral catheterization encountered. Finally, we should pay particular attention to confirm the location of the Foley catheter and/or balloon before inflation by the aspiration of urine. Adding to this, clinicians, particularly urologist should increase awareness of the potential catheter related complications among other healthcare providers and perhaps encourage to adopting a proper technique of catheterization as well as provide adequate training and supervision of those healthcare and/or non-healthcare per-

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sonnel who intent to perform this procedure in the future.

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