Bladder Herniation through a Suprapubic Wound Tract: A Case Report

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Authors' Contributions
All authors contributed to this case report.

Ethical Statement
The authors affirm that the patient provided informed written consent for the publication of this case report, including all associated images and clinical data. All procedures described in this case were conducted in accordance with the ethical standards set forth in the Declaration of Helsinki and relevant institutional guidelines. The manuscript does not disclose any information that could compromise patient confidentiality.

Disclosures
All the authors have indicated they have no financial relationships relevant to this article to disclose.

Consent
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Human And Animal Rights
The authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

Conflict Of Interest Statement
The authors declare that they have no conflicts of interest related to this case report. No financial or personal relationships exist that could have influenced the outcomes or reporting of this case.

ABSTRACT

Bladder herniation through a suprapubic wound tract is a rare complication after the surgical creation of a suprapubic cystostomy. Here, we report a case of bladder herniation through a suprapubic wound tract in an 87-year-old female. Herniated tissue was confirmed as bladder by Computed-Tomography (CT) and outpatient cystoscopy. Bladder herniation through a suprapubic wound tract is an unusual finding and it must be reduced surgically to mitigate the risk of bladder injury or sepsis.

CASE REPORT

BACKGROUND

Bladder herniation through a suprapubic wound tract is an exceedingly rare complication associated with the use of suprapubic catheters. While complications like infections, leakage, and blockages are well-documented in patients with long-term catheter use, the literature lacks extensive documentation on bladder herniation through suprapubic tracts, particularly regarding its clinical presentation, diagnostic modalities, and surgical management. This case highlights an atypical manifestation of bladder herniation, contributes to the limited data available and provides insights into effective diagnostic approaches using CT imaging and cystoscopic confirmation.

Moreover, this case emphasizes the critical need for awareness among healthcare providers managing patients with suprapubic catheters, as timely recognition and surgical intervention can significantly mitigate the risk of severe complications such as bladder injury or sepsis. By documenting this case, we aim to expand the understanding of bladder herniation mechanisms, improve diagnostic accuracy, and offer guidance on surgical techniques for similar future cases.

CASE REPORT

An 87-year-old female with a history of urinary retention and neurogenic bladder with a suprapubic catheter in place

presented to our emergency department for evaluation of a large, erythematous mass protruding from her suprapubic tract and abdominal wall. The patient was referred to our clinic after completion of a computed tomography (CT) scan. The scan revealed that the mass was her bladder which had herniated through the suprapubic site. Cystoscopy in the office through the urethra and suprapubic tube site confirmed that the protruding mass was indeed bladder tissue.

DISCUSSION

Etiology and Demographics

Suprapubic catheters are the most invasive urinary catheters and require a surgical procedure in which a catheter is placed through the abdominal wall and into the bladder [1]. Common complications associated with suprapubic catheters are blockages, recurrent symptomatic and asymptomatic urinary tract infections (UTI's), and leakage [2]. Though uncommon, herniations of the bladder through the suprapubic catheter tract have been noted previously [3,4]. We report an unusual complication of the long-term use of a suprapubic catheter which caused bladder herniation through the abdominal wall.

The risks of the long-term use of a suprapubic catheter have been well documented. Bladder herniation through a suprapubic tract is a risk not commonly found and its management has limited documentation. Management is critical as prior cases have shown the risk of urinary tract infections due to bladder herniation [5].

Though bladder herniation through suprapubic wound tracts is rarely described in the literature, instances of bladder herniation through the inguinal canal have been documented previously. Inguinal hernias contain the urinary bladder in approximately 1–4% of all cases with the incidence increasing to 10% in patients over the age of 50 [6].

Clinical and Imaging Findings

After presenting to the emergency department of our hospital, a CT chest and abdomen with and without contrast was carried out. CT findings indicated that the erythematous mass of herniated tissue was likely bladder.

This was further verified during an outpatient cystoscopy in which we visualized and confirmed that this was bladder tissue via suprapubic wound tract and urethral investigation.

Treatment and Prognosis

After both the outpatient cystoscopy and CT findings revealed that the protruding herniated tissue was indeed bladder, it was decided the patient would best benefit from bladder closure and reduction of the bladder hernia in the operating room. At this time, we placed an indwelling urethral catheter and patient was transferred to the operating room.

After being given appropriate anesthesia and antibiotics, the patient was prepped in usual sterile fashion. An incision was made along the lower midline of the abdomen just inferior to the previous suprapubic tube site where the bladder was herniating. Dissection was carried down into the space of Retzius and the bladder was able to be separated from the anterior abdomen wall and fascial layers circumferentially. Once the bladder was mobilized and freed from its intra-abdominal wall and peritoneal attachments, the bladder was reduced down back into the space of Retzius. The mucosa appeared healthy and viable and no cystectomy or resection of the bladder wall had to be carried out.

The bladder wall was closed in a running fashion using 2-0 Vicryl suture to the mucosal layer and in a similar fashion using 2-0 Vicryl suture for the detrusor and fatty tissue layer. A repeat suprapubic tube was not placed. The fascial layer was closed in a running fashion using 3-0 Vicryl suture. The Scarpa's layer was closed in a running fashion using 3-0 Vicryl suture. The skin was reapproximated using staples.

The urethral catheter that was placed prior to surgery remained in place for 2 weeks after the procedure to allow for optimal bladder healing. Prompt surgical intervention successfully reduced the herniation, and the patient's recovery was favorable without the need for further invasive procedures.

TEACHING POINT

Though bladder herniation through a suprapubic wound tract is a rare complication, it is of utmost importance to recognize it and surgically reduce it to prevent bladder injury or infection. This case highlights the necessity for identification in a multifaceted approach via both CT findings and cystoscopic confirmation before surgical intervention.

QUESTIONS

Question 1: Which of the following statements is true regarding long-term use of suprapubic catheters?

A) They are less invasive than urethral catheters

B) They never cause infections

C) Bladder herniation through the catheter tract is a common complication

D) They are associated with complications like blockages and infections

E) Bladder herniation always requires a cystectomy

Explanation for Question 1: Long-term use of suprapubic catheters can result in blockages and infections, which are noted as common complication

Question 2: Which imaging modality is most useful to initially identify a bladder herniation?

A) X-ray

B) MRI

C) Ultrasound

D) Computed Tomography (CT)

E) Fluoroscopy

Explanation for Question 2: A CT scan is most useful in helping to distinguish what type of tissue has herniated.

Question 3: What was the role of cystoscopy in the management of this patient's bladder herniation?

A) To surgically repair the bladder hernia
B) To confirm the bladder herniation diagnosis
C) To replace the suprapubic catheter
D) To drain the bladder prior to surgery
E) To assess for bladder stones

Explanation for Question 3: Cystoscopy was used to confirm the diagnosis of bladder herniation by visualizing the bladder tissue through the suprapubic wound tract and urethra.

Question 4: What is the space into which the bladder was reduced during surgery?

A) Pleural space
B) Space of Retzius
C) Inguinal canal
D) Peritoneal cavity
E) Retroperitoneal space

Explanation for Question 4: The bladder was reduced into the space of Retzius, which is located between the bladder and the pubic symphysis

Question 5: Which type of suture material was used to close the bladder wall after the reduction of the herniated bladder?

A) 3-0 Prolene
B) 2-0 Vicryl
C) 1-0 Silk
D) 4-0 Chromic Gut
E) 5-0 PDS

Explanation for Question 5: 2-0 Vicryl, an absorbable suture, was used to close the mucosal layer and the detrusor muscle after the bladder hernia was reduced.

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FIGURES

Figure 1: Urinary bladder herniation through patient's suprapubic tract

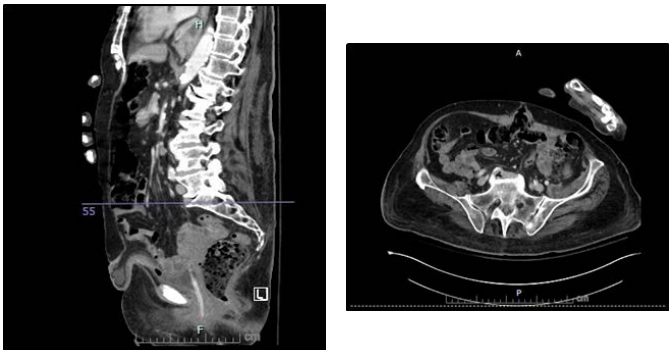

Figure 2: Sagittal view (top image) and axial view (bottom image) of Computed-Tomography (CT) of the patient's abdomen

Figure 3: After reduction and repair of herniated urinary bladder and abdominal wall 12 weeks post-operation

KEYWORDS

Bladder Herniation, Suprapubic Catheter, Bladder Closure, Bladder Reduction

ABBREVIATIONS

CT = COMPUTED TOMOGRAPHY
UTI = URINARY TRACT INFECTION