

Case Report

Retrograde Pyelogram during intended Cystogram: A Rare complication of a common procedure

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ABSTRACT

Inadvertent placement of the urinary catheter into the ureter can cause several complications. We describe a rare complication during cystogram due to unrecognized inadvertently placed urinary catheter in ureter, resulting in a life-threatening situation. A 47-year-old multiparous female underwent total laparoscopic hysterectomy for adenomyosis. During early postoperative period, she developed vesicovaginal fistula and transvaginal repair of fistula was done. During filling cystography done at 2 weeks, she developed right loin pain and urosepsis. Contrast extravasation was seen in the right renal subcapsular space with Foley's catheter inside the right ureter. Subsequently, she recovered well.

KEYWORDS: Cystogram, extravasation, sepsis, ureteric catheterization

INTRODUCTION

Inadvertent placement of the catheter into the ureter is rare. It can occur while placing the catheter both by per-urethral and suprapubic route. It can also occur due to inadvertent catheter migration after placement. It results in complications such as ureteric obstruction, ureteric rupture, and sepsis. We report a patient for whom acute extravasation of contrast and urosepsis occurred during cystogram due to inadvertent placement of the urinary catheter into the ureter.

CASE REPORT

A 47-year-old multiparous female presented with menorrhagia secondary to adenomyosis. She underwent total laparoscopic hysterectomy with bilateral salpingo-oophorectomy. On the 2nd postoperative period, she had continuous watery leakage per vaginally. Subsequent cystoscopy confirmed 4 mm size trigonal vesicovaginal fistula (VVF) and patulous right ureteric orifice. Transvaginal VVF repair with Martius flap interposition was done. She was discharged with the catheter, and to ascertain bladder healing, a cystogram was advised at 2 weeks. She had a static cystogram in another peripheral hospital and developed right

loin pain, fever, and chills. With features of urosepsis, she was readmitted and resuscitated. Her blood and urine culture grew *Escherichia Coli*. Retrospective inspection of the plain X-ray of the kidney, ureter, and bladder (KUB) region showed the tip of the Foley's catheter on the right side of the pelvis well above the normal position [Panel a, Figure 1]. The presence of Foley's balloon in the dilated right ureter with contrast extravasation in the subcapsular region of the right kidney was noted [Panel b, Figure 1]. The Foley's catheter was deflated and repositioned under fluoroscopic guidance as the immediate measure. Subsequent plain computed tomography (CT) KUB revealed curvilinear right subcapsular collection of extravasated contrast [Panel a, Figure 2] and perinephric stranding with absence of periureteric extravasation [Panel b, Figure 2]. She was managed with intravenous antibiotics without the need for intervention in the intensive care unit; she

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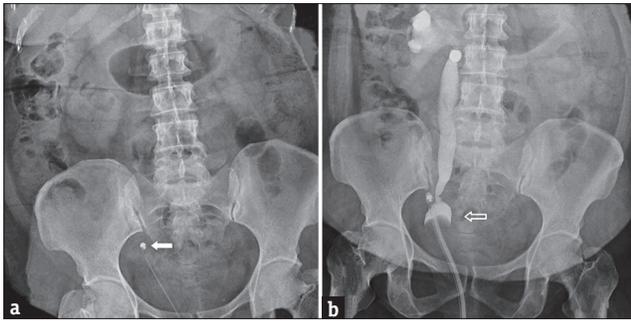


Figure 1: A 47-year-old female underwent transvaginal repair for vesicovaginal fistula acquired after a hysterectomy. (a) Plain X-ray of kidney, ureter, and bladder region shows deviation of the tip of the Foley's catheter toward the right side pelvic wall (white solid arrow). (b) Filling cystogram showing the presence of inflated Foley's catheter (hollow white arrow) inside the lower part of the right ureter with pyelogram and extravasation of the contrast agent around the kidney.

recovered well and was discharged from the hospital. She was voiding well without any leakage of urine.

DISCUSSION

Inadvertent placement of urinary catheters in ureters has been reported and known to cause complications such as obstruction,^[1] ureteric rupture,^[2] sepsis,^[3] and tumefaction.^[4] It often goes unrecognized till complications occurred as in our case. The patient may present with loin pain, lower abdominal pain, abdominal distension, pericatheter leak, and features of pyelonephritis. Usually, diagnosis is made during evaluation for high clinical suspicion of misplaced catheter denoted by symptoms such as obstructed drainage and decreased urine output. Ultrasound examination would be sufficient to assess the position of the catheter and the status of the ipsilateral renal unit. In our case, the daily urine output through the catheter was about 1.5–1.7 l a day. Hence, there was no suspicion of misplaced catheter and it was identified only during the cystogram. Cystograms are often done after reconstructive surgery of lower urinary tract to assess the integrity of the repair and to decide on time of catheter removal. Check cystogram is done in the following occasions: after partial cystectomy, orthotopic neobladder, bladder augmentation, anastomotic urethroplasty, radical prostatectomy, VVF repair, vesicourethral reflux surgery, and as a part of pretransplant evaluation. However, the need for doing routine cystograms has been questioned and is advised in selected cases only.^[5] Patients with neurogenic bladder on long-term catheter change have contracted bladder and altered anatomy while vesicoureteric reflux patients have patulous ureteric orifice and hence more chances of wrong catheter placement.^[1] Short-tip catheters can be used for regular catheter change in neurogenic bladder patients. If resources are available,

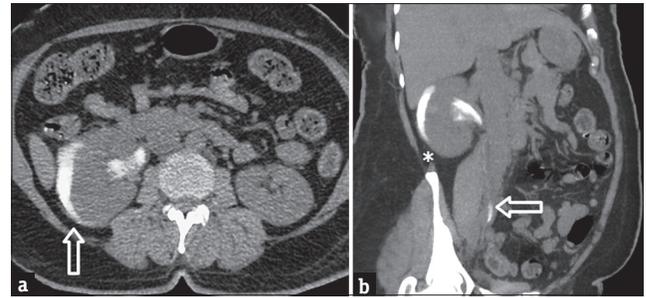


Figure 2: A 47-year-old female underwent transvaginal repair for vesicovaginal fistula acquired after a hysterectomy. (a) Axial section of the plain computed tomography scan of kidney, ureter, and bladder region shows persistent subcapsular curvilinear crescentic contrast extravasation (vertical hollow white arrow) around the right kidney. (b) The coronal section shows right perinephric stranding (asterisk) and intact ureteric continuity (horizontal hollow white arrow).

bedside ultrasound can be used to confirm the catheter tip.^[1] If there is suspicion of ureteric rupture, CT urography may be done to confirm the diagnosis. Partial ureteric injury can be managed with double J (DJ) stenting. Complete ureteric injury may require percutaneous nephrostomy (PCN) in the immediate setting and need for open repair in the future. A patient presenting with sepsis, if not resolving on antibiotics, needs diversion either by DJ stenting or PCN if there is hydronephrosis. This case is reported to reemphasize the importance of doing filling cystogram if needed, only with adopted precautions such as gravity filling of contrast under pulsed fluoroscopy and under vigilant care of a radiologist or urologist. Abnormal position of urethral catheter in scout X-ray film before cystogram might suggest the inadvertent placement of it into ureter as in our case. Careful repositioning of the catheter to its normal location under fluoroscopy is mandatory to avoid serious complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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