International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
Indexing: Embase
Impact Factor (RJIF): 6.71
© Gynaecology Journal
www.gynaecologyjournal.com
2025; 9(6): 1630-1632
Received: 24-09-2025
Accepted: 28-10-2025

Dr. Sangeeta Shah
Professor & HOD, Department of Obstetrics and Gynaecology, GMC, Mahabubnagar, Telangana, India

Dr. Roja J
PG Resident, Government Medical College, Mahabubnagar, Telangana, India

Dr. Asha Jyothi
Associate Professor, Department of Obstetrics and Gynaecology, GMC, Mahabubnagar, Telangana, India

Dr. Laxmi Padma Priya
Associate Professor, Department of Obstetrics and Gynaecology, GMC, Mahabubnagar, Telangana, India

Corresponding Author:
Dr. Sangeeta Shah
Professor & HOD, Department of Obstetrics and Gynaecology, GMC, Mahabubnagar, Telangana, India

Duplex collecting system diagnosed following misplaced foley catheter post-cesarean: A unique obstetric complication

Sangeeta Shah, Roja J, Asha Jyothi and Laxmi Padma Priya

DOI: https://www.doi.org/10.33545/gynae.2025.v9.i6l.1838

Abstract
Apparent Anuria along with urinary bypassing i.e., patient may appear anuric, but urine is actually leaking around the catheter instead of draining through it. This case illustrates how an otherwise uneventful post-caesarean course complicated by apparent anuria and urinary bypassing with a retained Foley's catheter which was secondary to inadvertent ureteric catheterization, ultimately led to the diagnosis of a previously unrecognized duplex collecting system. Although rare, misdirection of a urinary catheter in obstetric practice can lead to serious complications. Proper catheter sizing, attention to insertion length, and recognition of anatomical variations can help prevent such events.

Keywords: Inadvertent ureteric catheterization, duplex collecting system, apparent anuria, urinary bypassing

Introduction
Bladder catheterization is routinely employed in obstetrics and gynaecology as a prophylactic measure to decrease the risk of bladder injury during surgical procedures, including caesarean sections. Although generally considered safe, complications related to Foley's catheterization can occasionally occur. One such rare complication is Misdirection of Foley's Catheter into Ureter. A duplex collecting system is a congenital anomaly involving partial or complete duplication of the renal pelvis and ureter, often detected incidentally on imaging. Its reported incidence ranges from 0.3-6% in the general population, with a higher prevalence in females. The condition is usually unilateral; bilateral involvement occurs in 20-40% of cases, and partial duplication is more common than complete duplication. While many individuals remain asymptomatic, some may develop recurrent urinary tract infections, vesicoureteral reflux, or obstructive uropathy depending on the anatomical configuration. Such variations may predispose to rare but clinically significant complications, including catheter misplacement, urinary bypassing, and retained catheters.

Case Report
A 36-year-old Primi gravida with 40 weeks 2 days was admitted for safe institutional delivery. She underwent an emergency C section in view of failed induction with fetal distress which was uneventful. Postoperatively, her vitals were stable with urine output measuring approximately 50 mL of clear urine immediately after surgery. Subsequently, no further urine was draining into the Foley's bag. On examination, per abdomen was soft, non tender, bladder was not palpable. Her RFT values were within normal range. Interestingly, the patient was able to pass urine despite the catheter being in situ. Multiple methods were tried to remove the catheter i.e., by aspirating the balloon port, cutting the inflation channel at Y junction and passing a guide wire. Ultrasound-guided puncture of the balloon bulb was also tried in an effort to facilitate removal. Despite these measures, the catheter could not be retrieved.
Ultrasound Imaging revealed that the Foley's catheter bulb was positioned outside the urinary bladder with exact position being uncertain. The procedure was therefore halted, and alternative management strategies were considered for further evaluation. Subsequent CT KUB revealed that the tip of the Foley's catheter was positioned within the right distal ureter along with moderate dilatation of lower moiety of right kidney and upper moiety being normal. Findings suggested possibility of duplex collecting system, which required further evaluation.

Patient was further evaluated by the Urology team. Ureteroscopy was performed to evaluate ureter and renal pelvis. This confirmed misdirection of the Foley's catheter into the right distal ureter secondary to a duplex collecting system. Here in this case the right kidney's lower moiety ureter and its ureteric orifice were markedly dilated, resulting in misdirection of the Foley's catheter into the ureter. The bulb was then punctured as required to facilitate access. A double-J (DJ) stent was successfully placed to ensure ureteral patency. The impacted Foley's catheter was removed by endoscopic procedure without complications.

Discussion

Inadvertent ureteral catheterisation is a rare but clinically significant complication of routine urethral catheterisation. Its true incidence remains unknown, as the available evidence is largely limited to isolated case reports and small case series. The earliest description of this complication was reported in the early 1990s by Villanueva and Hemstreet [7]. Since then, only a limited number of cases have been documented worldwide, highlighting the exceptional rarity of this entity [1, 2, 5, 6, 9].

With specific regard to obstetric practice, inadvertent ureteric catheterisation following caesarean section appears to be even more uncommon. Only sporadic cases have been reported, including those by Singh *et al*. and Hariz *et al*. [3, 4]. Considering the high global volume of caesarean deliveries, the scarcity of reported obstetric cases suggests that the incidence in this subgroup is exceedingly low, likely far below 1%, although precise estimates cannot be determined due to underreporting and publication bias [3-6]. Despite its rarity, this complication carries the potential for significant morbidity, particularly when diagnosis is delayed, including ureteric obstruction, hydroureteronephrosis, and obstructive uropathy [4-6].

Although uncommon, inadvertent ureteric placement of Foley's catheter has been reported more frequently in female patients, particularly in perioperative and obstetric settings. Anatomical and physiological factors such as a short urethra, wider bladder neck, and pregnancy-related changes in the lower urinary tract contribute to this predisposition [1, 3-6, 7]. Pregnancy and the postpartum state are associated with ureteric dilatation, bladder hypotonia, and reduced sensory feedback, all of which may facilitate inadvertent cannulation of the ureteric orifice during catheter insertion [3-5].

Congenital anomalies of the urinary tract further increase susceptibility, with duplex collecting systems playing a particularly important role. Papacharalabous *et al*. and Danaie *et al*. described cases in which a patulous or ectopic ureteric orifice associated with a duplex system allowed passage of the Foley's catheter into the ureter [1, 2]. Li and Au, in their literature review, similarly emphasized that abnormal ureteric anatomy significantly increases the risk of catheter misplacement [6]. In the present case, the presence of a duplex collecting system with a markedly dilated lower-moiety ureteric orifice likely facilitated inadvertent catheter entry and subsequent balloon inflation within the distal ureter.

Iatrogenic factors also contribute substantially to this complication. Excessive advancement of the catheter, inflation of the balloon without confirming free urine flow, use of small-calibre catheters, and catheterisation performed under regional or general anaesthesia-where bladder tone and patient feedback are reduced-have all been implicated [6, 8, 10]. These factors are particularly relevant in emergency and perioperative settings, including caesarean sections.

The clinical presentation of inadvertent ureteric catheterisation is often subtle and nonspecific, frequently leading to delayed diagnosis. Poor or absent urine output despite catheterisation, difficulty in catheter removal, hematuria, flank pain, or the paradoxical ability to void urine with a catheter in situ should raise suspicion of ureteric cannulation [3-6, 7, 9]. In post-caesarean patients, this presentation may mimic postoperative oliguria or acute kidney injury, further complicating early recognition [3, 4]. In the present case, the patient's ability to pass urine despite an indwelling catheter was a key diagnostic clue suggestive of catheter malposition.

Renal function tests may remain within normal limits in cases of unilateral obstruction, particularly in the early postoperative period, potentially masking the severity of the condition [3-6]. Imaging therefore plays a pivotal role in diagnosis. While ultrasonography may demonstrate hydroureteronephrosis, it often fails to accurately localise the catheter tip. CT KUB has been shown to be the most reliable modality for confirming ureteric catheter placement, assessing the extent of obstruction, and identifying underlying anatomical anomalies [4-6].

Prompt urological intervention is essential to prevent long-term complications. Endoscopic management, including cystoscopy or ureteroscopy-guided balloon puncture, catheter removal under direct vision, and placement of a ureteric stent, has been successfully employed in reported cases [1, 4-6, 10]. In the present case, ureteroscopy confirmed misdirection of the Foley's catheter into the distal ureter secondary to a duplex collecting system, and endoscopic removal with double-J stenting resulted in a favourable outcome without complications.

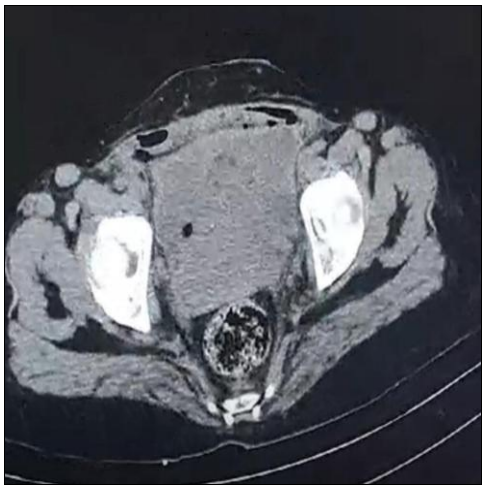

Fig 1: Showing Foleys entering vesico ureteral junction

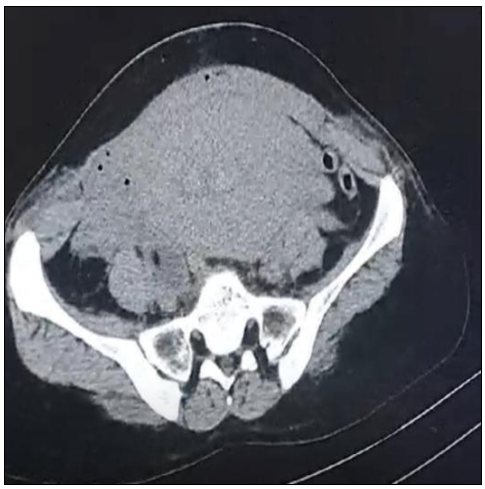

Fig 2: Showing Right side Duplicated ureter with dilated lower moiety

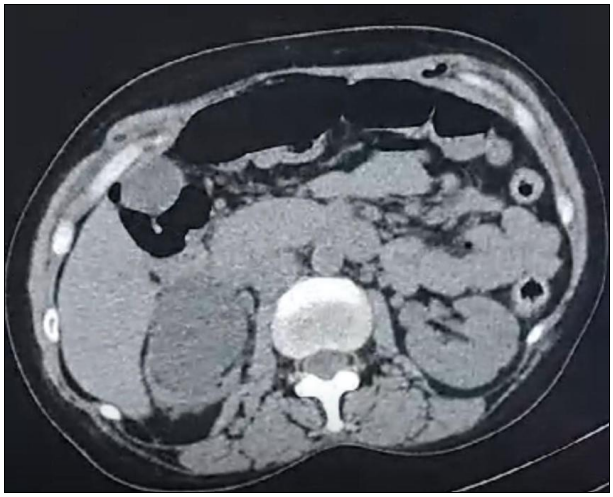

Fig 3: Showing Axial CT section demonstrating bilateral duplex ureters, with moderate dilatation of the lower moiety of the right kidney, while the upper moiety appears normal

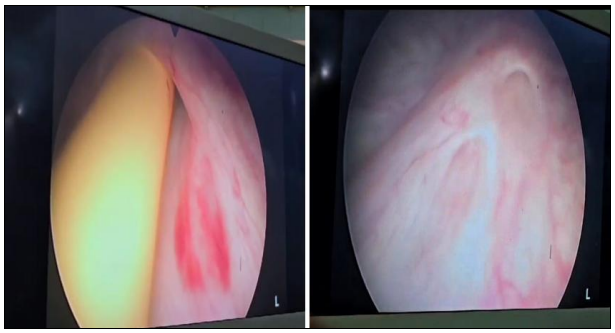

Fig 4: Image showing 2 ureteric orifices on right side Image showing 2 ureteric orifices on left side

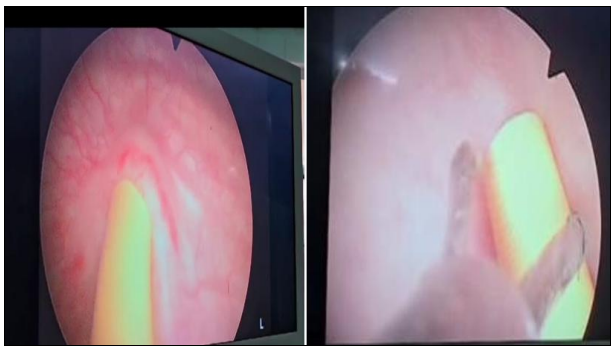

Fig 5: Image showing Foley's catheter in right ureter Image showing removal of Foley's catheter

Conclusion

Accidental ureteric placement of a Foley's catheter is extremely rare but may result in serious complications. Awareness, early recognition, appropriate imaging, and timely urological intervention are crucial to prevent ureteric injury and long-term morbidity. Early imaging helps in confirming the diagnosis and timely management. Hence Proper catheter sizing, attention to insertion length, confirming adequate urine return and recognition of anatomical variations can help prevent such events. This case adds to the growing body of literature highlighting ureteric cannulation as a rare but significant complication of routine catheterization, particularly in obstetric patients with previously undiagnosed congenital anomalies such as duplex collecting systems. A high index of suspicion, early imaging, and prompt multidisciplinary management are essential to prevent long-term morbidity.

Conflict of Interest
Not available.

Financial Support
Not available.

References

1. Papacharalabous E, Ford M, Butler-Manuel S, Tailor A. Inadvertent insertion of a Foley's catheter through the orifice of a duplex ureter during catheterisation for laparotomy. Gynecological Surgery. 2009;8(1):99-101.
2. Danaie M, Nezameslami A, Mishan M, Mehdikhani B, Mansouri Z. Misplaced Urinary Catheter in the Ectopic Ureter in a Female With Previously Undiagnosed Duplex Ureter: A Rare Case. Cureus. 2022;14(11):e31139.
3. Singh R, Singh A, Pratts R, Jain A, Singh M. A Rare Cause of Apparent Anuria After Caesarean Section: A Case Report. Cureus. 2021;13(4):e14413.
4. Hariz SE, Pradhan P. Obstructive Uropathy Secondary to Accidental Ureteric Placement of an Indwelling Urinary Catheter at the Time of Caesarean Section: A Case Report. Cureus. 2025;17(3):e76542.
5. Al-zubi M, Alheyassat MMF, Alhasan M, Al-Qudah MHM, Bani-Hani M. Unintended Foley's catheter placement into the ureter: A case report. International Journal of Surgery Case Reports. 2022;100:107750.
6. Li JJ, Au CF. Inappropriate placement of urinary catheters into the ureter: A case report and literature review. Medicine. 2024;103(15):e37623.
7. Villanueva C, Hemstreet GP. Inadvertent ureteral catheterization: a rare complication of Foley catheter placement. Urology. 1993;41(2):168-170.
8. Maheshwari PN, Oswal AT. Iatrogenic ureteric injuries following catheterization. Indian J Urol. 2009;25(1):123-126.
9. George J, Tharion G, Thomas S. Unintended ureteric catheterization following urethral catheterization. Int Urogynecol J. 2011;22(5):635-637.
10. Al-Hunayan A, Abdulhalim H. Endoscopic management of ureteric Foley catheter misplacement. Urol Ann. 2012;4(3):197-199.

How to Cite This Article
Shah S, Roja J Jyothi A, Priya LP. Duplex collecting system diagnosed following misplaced foley catheter post-cesarean: A unique obstetric complication. International Journal of Clinical Obstetrics and Gynaecology. 2025;9(6):1630-1632.

Creative Commons (CC) License
This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.