Case 15292

Eurorad

Uretero-uterine fistula

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Section: Genital (female) imaging
Area of Interest: Genital / Reproductive system female
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Fistula Case Type: Clinical Cases
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Patient: 30 years, female

Clinical History:

A 30-year-old female presented with continuous vaginal discharge since 2 days.
The discharge was clear and consistent with urine.
She had undergone emergency caesarean section 3 weeks earlier due to prolonged second stage of labour.

Imaging Findings:

CT urography images (Figs 1a, 1b and 2a - black arrows) show mild dilatation of the left pelvicalyceal system and left ureter. Contrast was seen to enter into the uterine cavity (Figs 1a and 2a - red arrows) and contrast filling of lower uterine cavity and cervix is also noted (Figs 2b - blue arrow). However, the lower most portion of left ureter distal to the leak is not visualised. The urinary bladder appears normal. Above findings were suggestive of uretero-uterine fistula.

Discussion:

Ureteric injuries are rare entities. They are usually iatrogenic, occuring in abdominal and pelvic surgeries [1].Uretero-uterine fistulae are very rare which account to less than 6% of all urinary tract fistulae [2]. Uretero-uterine fistulae are commonly reported following caesarean sections [3].

The incidence of ureteric injury during caesarean section has been reported to be 0.09% [4].
Left ureteric injury is more common than right one. The reason being dextro-rotation of the uterus leaving the left ureter more susceptible to injury as it lies close to the left angle of incision [2]. A low transverse uterine incision; or extension of the incision too far laterally; or due to extensive lateral suturing for haemostasis, may be the cause of ureter's injury [5, 6].

Clinical presentation of uretero-uterine fistulae is constant leaking of urine per vaginum but with normal urinary voiding and usually presenting in the 3rd week after delivery [7]. When continuous leakage of fluid from the vagina develops, a vesicovaginal or ureterovaginal fistula should be suspected. A uterovesical fistula should be suspected when blood tinged urine during menses is present [8].

Clinical evaluation for differentiation between uretero-uterine and vesico-uterine fistulae involves administering phenazopyridine three times over a 24 h period, and then putting methylene blue into the bladder with a Foley catheter. If urine from the vagina is yellow but urine from the catheter is blue; a uretero-uterine fistula is suspected [9].

Imaging modalities like CT guided urography help in establishing the fistulous communication.
CT urography helps in evaluating kidney function, ureteral involvement as well as demonstrating communication

between the ureter and uterus. Hysterography or retrograde ureterography also demonstrate direct communication between ureter and uterine cavity.

Management is directed mainly at conserving and maintaining renal function and re-establishing integrity of the damaged ureter [5].
Surgical options include ureteral end-to-end anastomosis or uretero-neocystostomy or maybe percutaneous nephrostomy to divert urine and ensure adequate drainage. This leads to conservation of renal function and allowing any infection or inflammation to subside. Then the re-anastomosis of the ureter is done after an interval of about three months.

Take home message: Voiding disorders are common post-natally. However, clinical suspicion and imaging modalities help in early diagnosis and adequate treatment.
Differential Diagnosis List: Uretero-uterine fistula post caesarean section, Uretero-uterine fistula, Vesicouterine fistula

Final Diagnosis: Uretero-uterine fistula post caesarean section

References:

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Lanary KA, Hashim H, Iacovou J. (2008) Ureterouterine fistula post caesarean section: a case report. Cases Journal 1:25 (PMID: 18937851)
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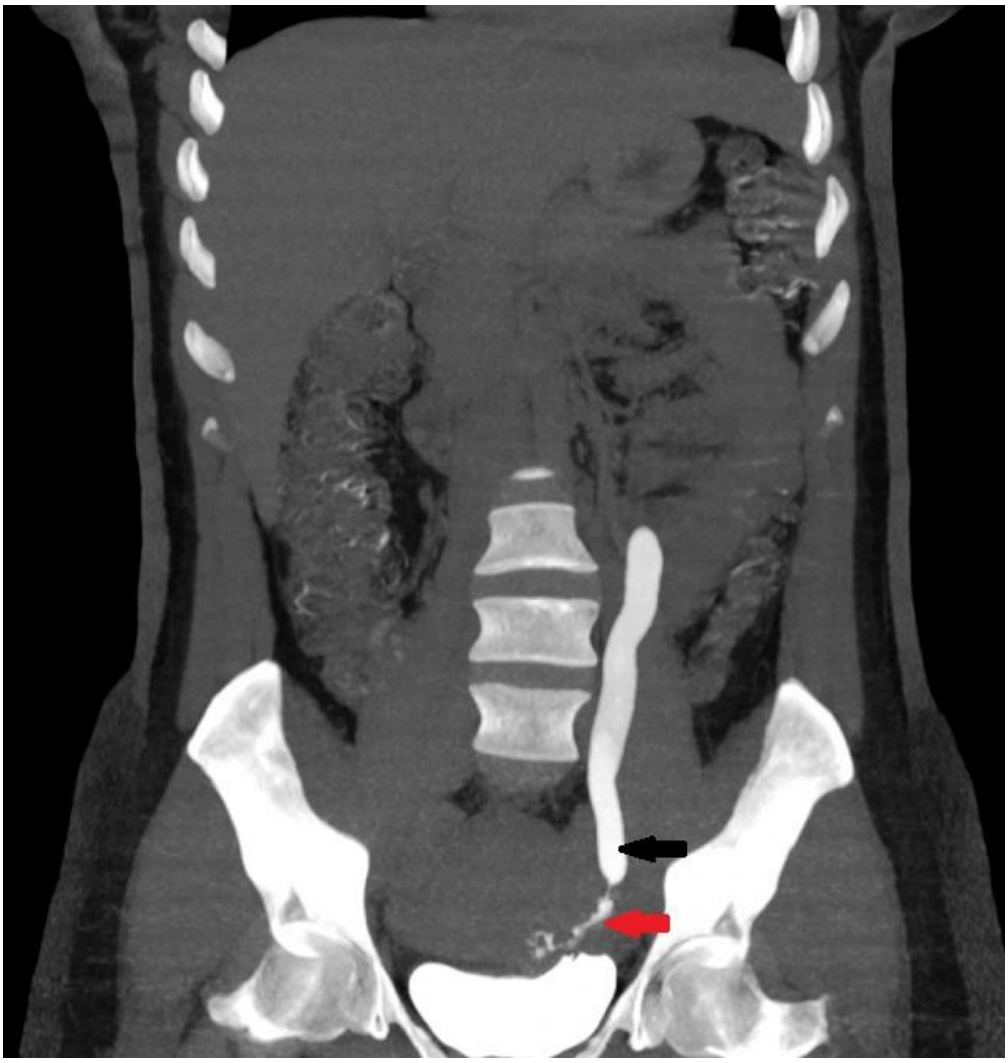
Sheen JH, Lin CT, Jou YC et al (1998) A simple means of making the diagnosis of uretero uterine and vesico uterine fistula. Journal of Urology 160:1420–1421

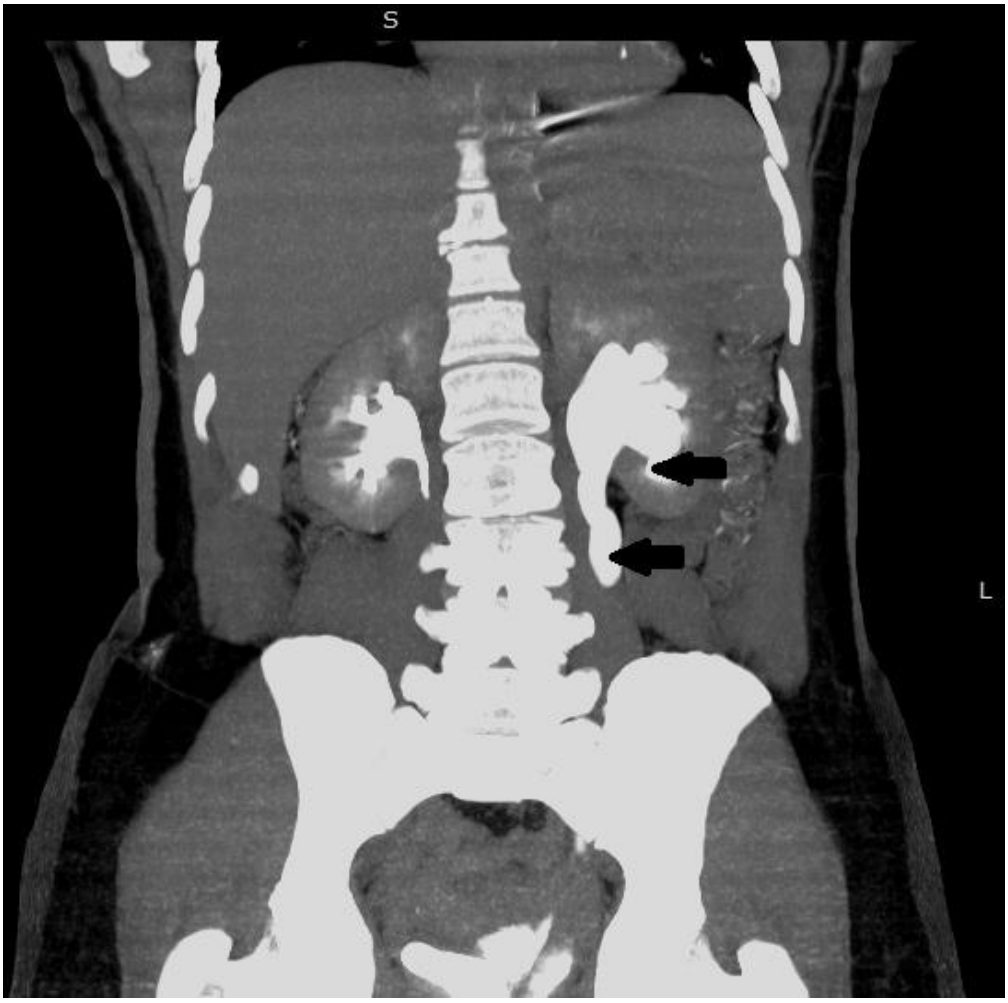
Figure 1

a



Description: MPR coronal image of an 1 hour delayed scan shows mild dilatation of the left distal ureter (black arrow).
Contrast was seen to enter the uterus at the site of the caesarean section scar (red arrow).**Origin:** Department of radiodiagnosis, Shri M.P. Shah Medical college, G.G.Hospital, Jamnagar, Gujarat

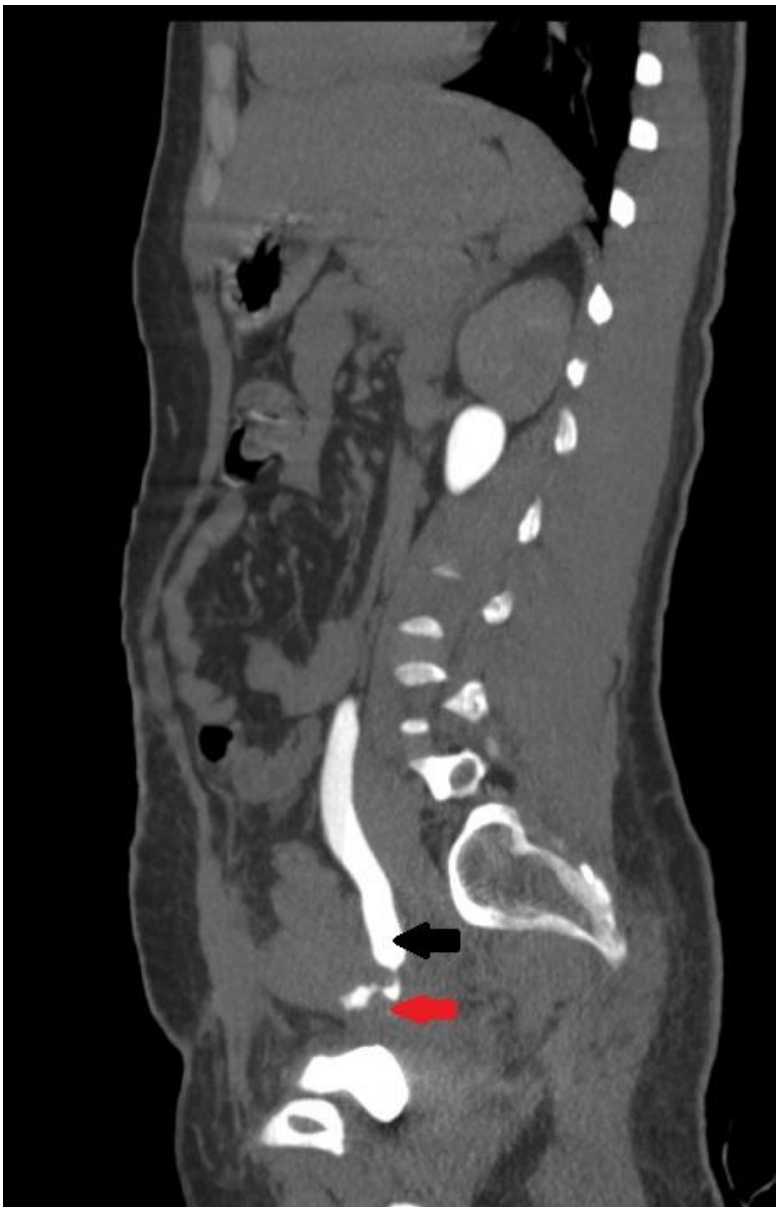
b



Description: MPR coronal image of an 1 hour delayed scan shows mild dilatation of left pelvicalyceal system and upper ureter (black arrows). **Origin:** Department of radiodiagnosis, Shri M.P. Shah Medical college, G.G.Hospital, Jamnagar, Gujarat

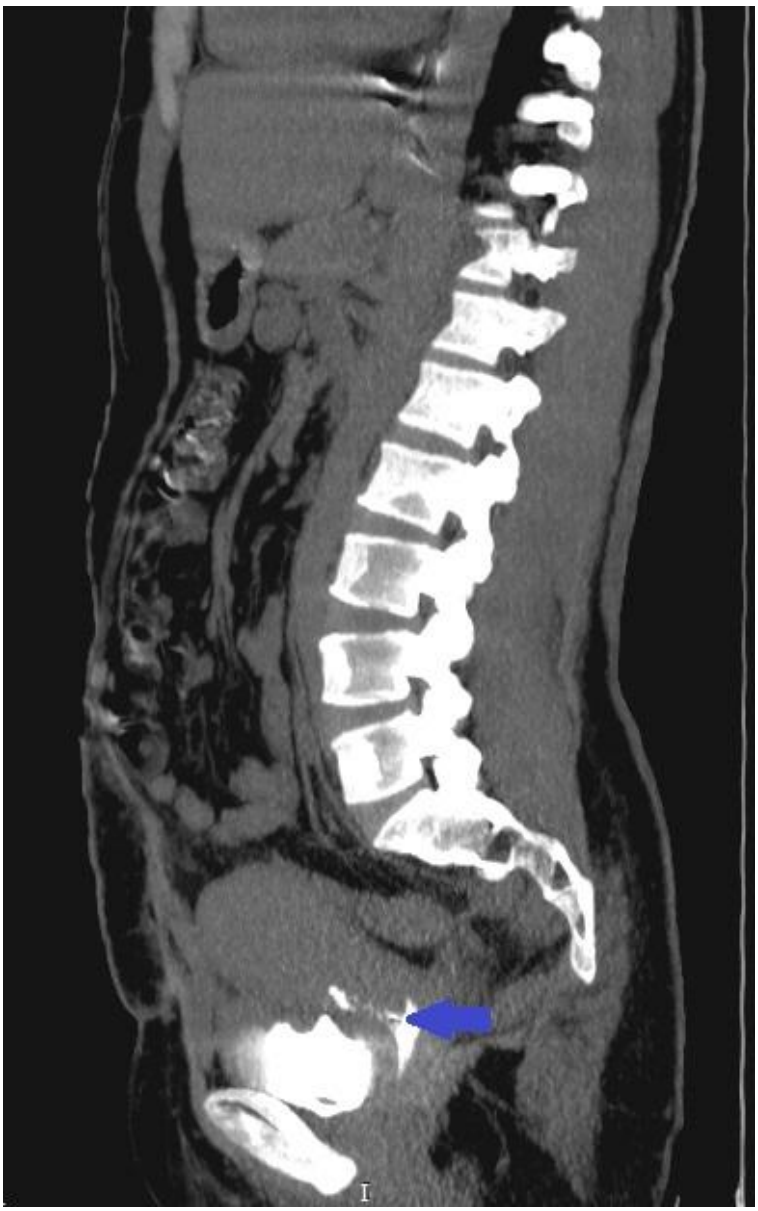
Figure 2

a



Description: MPR sagittal image of an 1 hour delayed scan shows mild dilatation of the left distal ureter (black arrow). Contrast was seen to enter the uterine cavity (red arrow). The bladder appears normal. **Origin:** Department of radiodiagnosis, Shri M.P. Shah Medical college, G.G.Hospital, Jamnagar, Gujarat

b



Description: MPR sagittal image of an 1 hour delayed scan shows contrast filling is noted in uterine cavity and cervix (blue arrow). **Origin:** Department of radiodiagnosis, Shri M.P. Shah Medical college, G.G.Hospital, Jamnagar, Gujarat