Trauma and reconstruction

Acquired post cesarean uretero-uterine fistula - a rare entity

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ARTICLE INFO

Keywords:
Uterine fistula
Boari
Ureteroneocystostomy

ABSTRACT

In this contemporary era, ureteric injuries are not uncommon. They are inadvertent and overwhelming complication following pelvic surgeries. We describe a case of Uretero-uterine fistula (UUF) in a 36 year old woman, who underwent repeat lower cesarean section two months earlier, admitted with complaints of paradoxical incontinence of urine and copious watery vaginal discharge. After extensive clinical and radiological evaluations, she underwent robotic bilateral ovary preserving hysterectomy with ureteroneocystostomy (Boari flap and psoas hitch with Double J stenting).

Introduction

Ureteric injury is not uncommon, and constitutes less than 1% of genitourinary trauma, probably because of ureter’s anatomical factors such as protected location, small size and mobility. 1 Iatrogenic ureteral injuries occurring during caesarean section is often low and accounts for 0.09%. Uretero-uterine fistula is a rare entity and is difficult to eliminate it completely in major retroperitoneal surgeries and pelvic surgeries.

Case presentation

A 36-year-old diabetic, multiparous lady, was admitted with complaints of paradoxical incontinence of urine and profuse vaginal discharge, after an emergency cesarean section performed two months earlier. Although she had constant dribbling of urine, she also had normal micturition. The cesarean section was done for an obstructed labor resulting from a cephalopelvic disproportion and it was performed in the department of obstetrics and gynecology, resulting in the birth of a full term mature boy child of 3100 gm. The procedure was uneventful. However, two months later, she became aware of urine smell from the vaginal discharge necessitating frequent pad changes and paradoxical incontinence.

Extensive general, genitourinary and vaginal speculum examination revealed healthy cervix and the discharge which was clear and consistent with urine. Radiological evaluation and a basic hematological and renal function analysis was done. Her laboratory parameters were normal (Fig. 1). CT Urogram showed communication between distal right ureter and uterus.

She was offered a trial of stenting in her home town, but she wanted a definitive procedure and came to our hospital for further management. She was counseled in out-patient department about the management options available. However, she chose to undergo a definitive procedure. After obtaining clearance from anesthetist, gynecologist and nephrologist she was taken up for surgery and underwent diagnostic cystoscopy (CS), retrograde pyelogram (RGP) and robotic assisted bilateral ovary preserving hysterectomy with right ureteric re-implantation with Boari flap & Psoas Hitch of the bladder with DJ stenting (Fig. 2). After ensuring a water tight anastomosis, a drain was placed. Patient had an uneventful peri-operative period. She was discharged and DJ stent was removed after 10 weeks. Follow up ultrasound was performed after 3 months which showed no hydronephrosis and she is on regular follow-up.

Discussion

UUF is a rare entity, contributes less than 6% of all urogenital tract fistulas. The left ureter is more frequently injured than right ureter, because dextro-rotation of the uterus making the left ureter more vulnerable to injury as it is near to the left angle of incision. 2 On contrary, our patient had a right sided ureteric injury. The clinical presentation of UUF fistula is usually in the form of vaginal watery discharge and paradoxical incontinence, that is incontinence of urine in the...
The clinical differentiation between UUF and vesico-uterine fistula can be done by administering phenazopyridine three times over 24 hr period, and then injecting methylene blue into bladder with a foley. UUF is confirmed, if urine from the vagina is orange but urine from the catheter is blue. However, ultrasound has limited role in diagnosing UUF. In our case, we performed CT Urography which showed no evidence of local sepsis and also demonstrated the fistulous communication between ureter and uterus.

The objective of surgical correction is prevention of sepsis, renal function conservation and establishing ureteral continuity. Kostakopoulos A et al. and Selzman AA et al., reported that early endourological intervention of ureteric injuries before definitive surgery, have considerable advantages than delayed intervention. Gorrea MA et al., stated that conservative treatment resulted in spontaneous healing of urogenital fistula.

In the presence of sepsis, few authors have recommended the use of PCN to divert the urine and delaying the definitive surgery to 3 months.
Nevertheless, in the absence of systemic sepsis, ureteroneocystostomy will be recommended to reduce the morbidity. Table 1 depicts information about the post cesarean section UUF till date.

**Conclusion**

Voiding disorders are the most common urological problem in postpartum period. However, one should always have high degree of clinical suspicion of this morbid and rare entity, UUF. The goal of therapy is preservation of renal function and ureteral continuity reestablishment. To minimize the psychological issues, we recommend an early definite correction to minimize the psychological issues.

**Consent from patient**

Obtained.

**Funding**

No funding was obtained for this case report study.

**Declaration of competing interest**

None.

**Abbreviations**

- **UUF**: Uretero-uterine fistula
- **CE**: Clinical examination
- **IVU**: Intravenous Urography
- **RGP**: Retrograde pyelogram
- **UNC**: Ureteroneocystostomy
- **PCN**: Percutaneous Nephrostomy
- **URS**: Ureterorenoscopy
- **CS**: Cystoscopy

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**Table 1**

| Authors          | Investigation | Management      |
|------------------|---------------|-----------------|
| Moussu et al.    | CE, IVU       | UNC             |
| Alonso Gorrea    | IVU, RGP      | Spontaneous healing |
| Saltutti         | IVU, CT       | PCN, UNC        |
| Lazarevski       | IVU           | PCN > UCN       |
| Kajbafzadeh      | IVU, RGP      | URS stenting    |
| Nabi et al.      | CS, IVU       | UNC             |
| Iqbal Singh et al.| CS, IVU      | URS stenting    |
| Kozak A et al.   | IVU, CE       | PCN > UNC       |
| Lanary K et al.  | IVU, CT nephrogram | Lap UNC     |
| Kumar S et al.   | IVU           | PCN, Lap UNC    |
| Levy L et al.    | IVU           | PCN, Lap UNC    |
| Elias Sharma et al.| IVU, RGP    | UNC             |
| Present case     | CS, CT Urogram | UNC           |

Table 1: Post Cesarean section Uretero-uterine fistula in literature.