

# Obstetrics Ureterouterine and Gynecologic Ureterovaginalis Fistulas: Case Reports

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**Abstract** Ureter fistulas are rare complications of obstetrics and gynecologic surgery. We report two cases of ureter fistulas; the first case is a 28-year-old with an ureterouterine fistula who underwent caesarean section four years ago. The second case is a 54-year-old with an ureterovaginal fistula and a history of an abdominal total hysterectomy 16 months ago. Both patients complained of urine leaks from the vagina. The extravesical ureteroneocystotomy using Lich-Gregoir technique was done on both cases successfully with uneventful post-operative course.

**Keywords:** ureterouterine fistula, ureterovaginal fistula, cesarean section, hysterectomy, Lich-Gregoir technique, ureteroneocystotomy

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## 1. Introduction

Ureteric injuries are most commonly iatrogenic in origin. Other less common causes include pelvic trauma and irradiation of pelvic neoplasms. A study of elective hysterectomies in NHS hospitals in England has revealed the overall rate of lower urinary-genital tract fistulae within 1 year of surgery, of 0.13% or 1 in 788 patients [1]. Ureter injury is a rare, yet serious complication of obstetric and gynecologic surgery, which often not recognized during the operative procedure in which they occur.

## 2. Case Reports

### 2.1. Case I (Ureterouterine Fistula)

A 28 years old female with a history of G2P2O02 was admitted under our service. Her chief complaint was urinary incontinence after cesarean section performed 4 years ago because of breech presentation. Due to financial constriction she did not seek any medical care. Her first Cesarean Section was unremarkable.

On physical examination, her vital signs and general examination were unremarkable. The laboratory results were uneventful. Renal function was within normal range. Local examination with speculum revealed urine leakage from the cervical orifice. A dye test with methylene blue solution injected into the bladder showed no sign of leakage into the vagina. Because a fistula was still suspected, the patient underwent a whole abdomen MSCT. This study revealed a fistula between the left distal ureter and the uterine (Figure 1).



Figure 1. Ureterouterine fistula

We conducted a surgical repair with Gibson's incision technique. Intraoperatively, the ureter attached to the uterus was released and cut. An ureteroneocystostomy using Lich-Gregoir technique was performed. The end of the ureter was tagged with a long through-and-through suture and the bladder was mobilized by releasing its attachments to the pubis (cavum retzii). An extraperitoneal cystostomy was performed on the anterolateral part of the bladder. The tagged distal end of the ureter was brought into the bladder with about 2 cm inside of the bladder on the anterolateral side. Afterwards, the end of the ureter was spatulated bilaterally and the distal flaps sutured to the inside of the bladder with no. 4-0 vicryl. The adventitia of the ureter was anchored to the outside of the bladder using several no. 4-0 vicryl absorbable sutures.

The side of the anastomosis was drained by an extraperitoneal suction drain for 3 days (Figure 2 - Figure 4). The patient was discharged on her 5<sup>th</sup> post operative days. An indwelling Foley catheter was left for two weeks to rest the ureter. The postoperative course, 1-month and 3-months follow-ups were uneventful without signs of urine leakage.



**Figure 2.** The ureter attached to the uterus was released and cut



**Figure 3.** The tagged ureter was brought into the bladder



**Figure 4.** The ureter was re-implanted on the bladder

## 2.2. Case II (Ureterovaginalis Fistula)

A 54 years old female with a history of G4P4004 was referred to our institution due to failed repair of vesicovaginal fistula. She had a total abdominal hysterectomy (TAHBSO) for endometrial hyperplasia 16 months ago. On her 5<sup>th</sup> post-operative day, she noticed leakage of clear watery discharge through the vagina, consistent with urine.

During two-month post-operative follow-up, she was diagnosed with a vesicovaginalis fistula by an urologist and underwent a surgical repair without cessation of urine leakage. A retrograde cystography done afterwards showed normal findings. A repeated cystoscopy one year later showed that the left ureter was deadlocked.

The patient was referred to our hospital for further management. The vital signs and general physical examinations were normal. The laboratory results were uneventful. Gynecological examination using speculum showed urine leakage from the cervical orifice. Dye test revealed negative result. In MSCT of the whole abdomen with contrast, a fistula between the left distal ureteral and the vagina was identified (Figure 5).



**Figure 5.** Ureterovaginalis fistula



**Figure 6.** The left ureter was attached to the top left part of the vagina



**Figure 7.** The left ureter was released and re-implanted on the bladder

We conducted a surgical repair with Gibson incision technique. Intraoperatively the left ureter was seen attached to the top left part of the vagina. The left ureter was then released and re-implanted in the bladder (ureteroneocystostomy) using Lich-Gregoir technique as previously mentioned (Figure 6 and Figure 7). An indwelling Foley catheter was left for two weeks to rest the ureter. Post-operative, there was no further sign of urine leaks from the vagina. The patient was discharged after 5 days. The patient remains asymptomatic at one week and nine month follow-ups.

### 3. Discussion

Ureterouterine and ureterovaginal fistulas are rare complications of obstetrics and gynecology surgery [1,2,3]. Ureterouterine fistulas following caesarean section may be caused by attempts to achieve hemostasis or a low, too lateral, transverse incision of the uterus causing ureteral damage [2]. Ureterovaginal fistulas commonly result as a complication of hysterectomy. In these cases, complications were most likely caused by injury to the ureter during caesarian section and suturing of the upper vagina during hysterectomy.

Urine leakage from the vagina should be examined thoroughly. Besides basic examination such as vaginal speculum and dye test, further examinations such as IVP, cystography, cystoscopy or multi-slice computer tomography scan help to identify the lesion correctly. A precise pre-operative diagnosis is mandatory in deciding the surgical repair needed. Injuries of the terminal ureter is an indication of ureteroneocystostomy. The goals for management of ureter fistula are the conservation of renal function and restoration of ureteral integrity through ureteroneocystostomy or end to end anastomosis [4]. In both cases, although the site of ureter attachment was different, the same Lich-Gregoir surgical technique was performed with satisfactory results. Lich-Gregoir technique has become widely employed due to its advantages using a shorter ureter, minimal bladder dissection, and less complications [5].

### 4. Conclusion

Ureter injury is a rare, yet serious complication of obstetric and gynecologic surgery, which often not recognized during the operative procedure in which they occur. It is commonly iatrogenic in origin. Although urine leakage from the vagina is often a frustrating condition, suitable surgical repair of the lesion, once being diagnosed correctly, brings satisfactory results. For both cases of ureterouterine and ureterovaginal fistulas, the same Lich-Gregoir technique can be performed and work well.

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