



Introduction

Endometriosis involving the urinary tract accounts for up to 2% of all endometriosis cases. It is estimated that the ureter is involved in up to 30% of these cases, or 0.6% of all endometriosis cases.

In severe cases, endometriosis can potentially result in ureteral stenosis or even compression. Although this is uncommon, but the consequences can be hydronephrosis or even renal failure. The current standard intervention includes the resection of the affected tissues and endometriosis foci combined with adjuvant hormonal therapy. In some situations, ureteral re-implantation is required.

Methods

We describe a case of severe endometriosis that required ureteric re-implantation with multidisciplinary team input. The procedure, indications, post op follow up and complications of ureteric re-implantation are discussed. Alternative surgical approaches to ureteric repair are also considered.

Case Summary

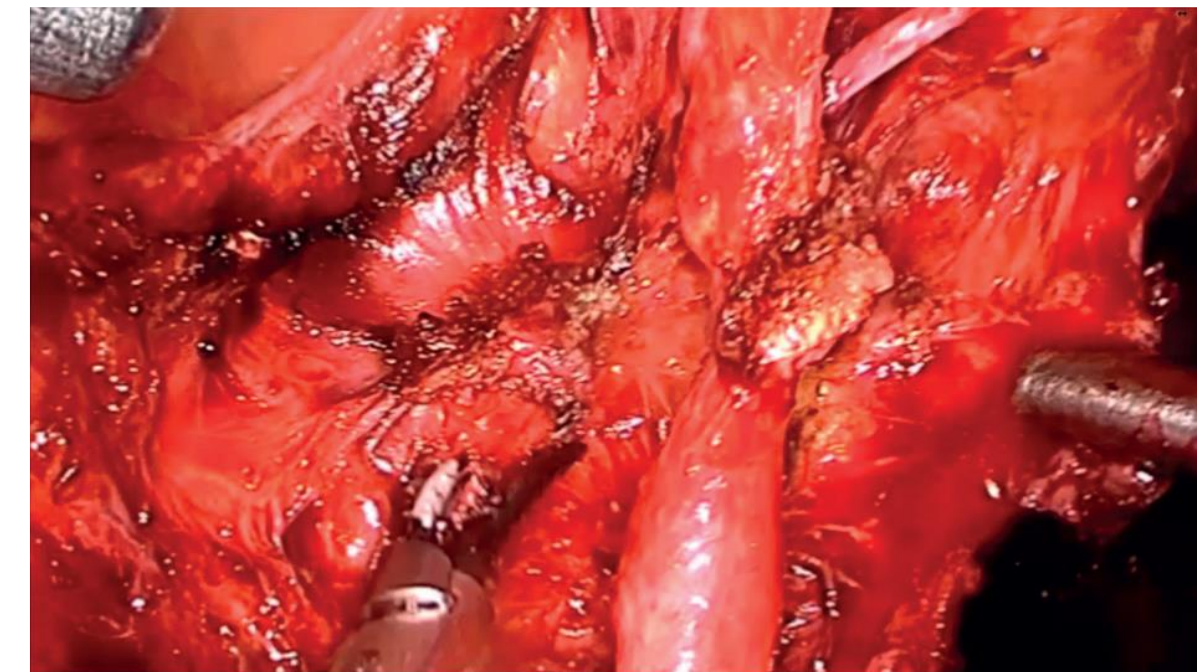
A 38 year old patient with known stage 4 endometriosis with ureteric involvement underwent TLH/BSO.

Intraoperatively a left ureteric endometriotic nodule was seen with significant scarring of overlying tissue, ureteric injury noted during dissection. As >50% avulsion of ureter and stenotic appearance from previous surgery, it was deemed safer to undertake ureteric re-implantation with the urologist.

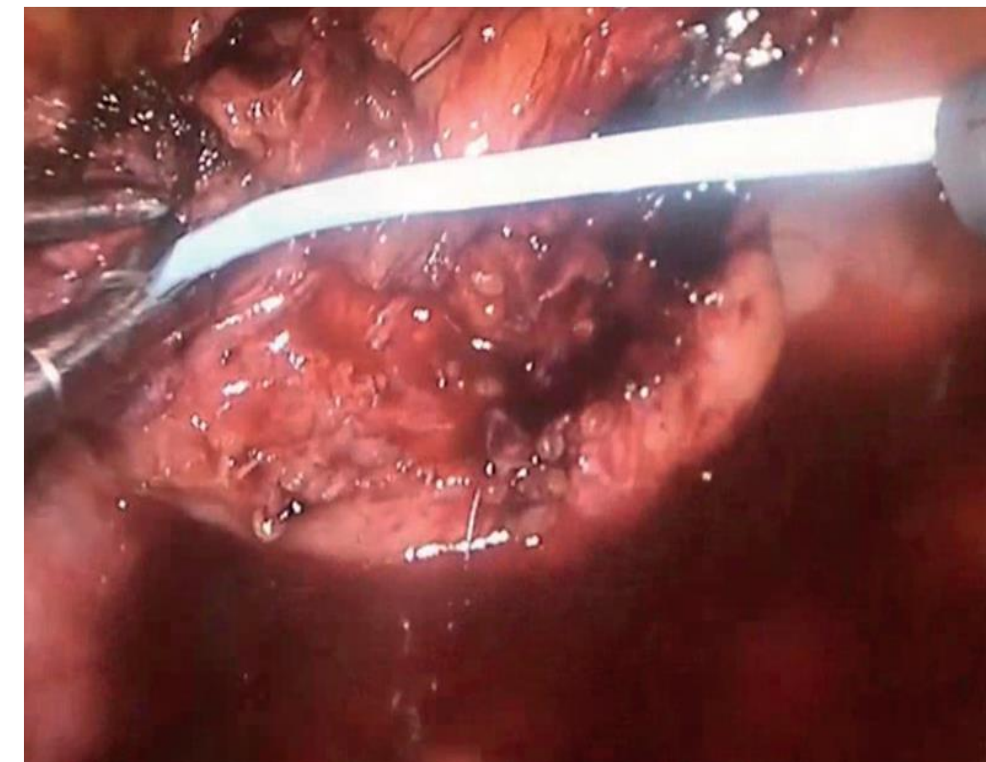
Post-op the patient had a stent and catheter in situ. She had a Cystogram in 2/52 and TWOC as no leak was seen. Stent was removed in 6/52 and she was asked to attend CTU 4/52 after stent removal to ensure complete resolution of symptoms.

Steps of Ureteric re-implantation

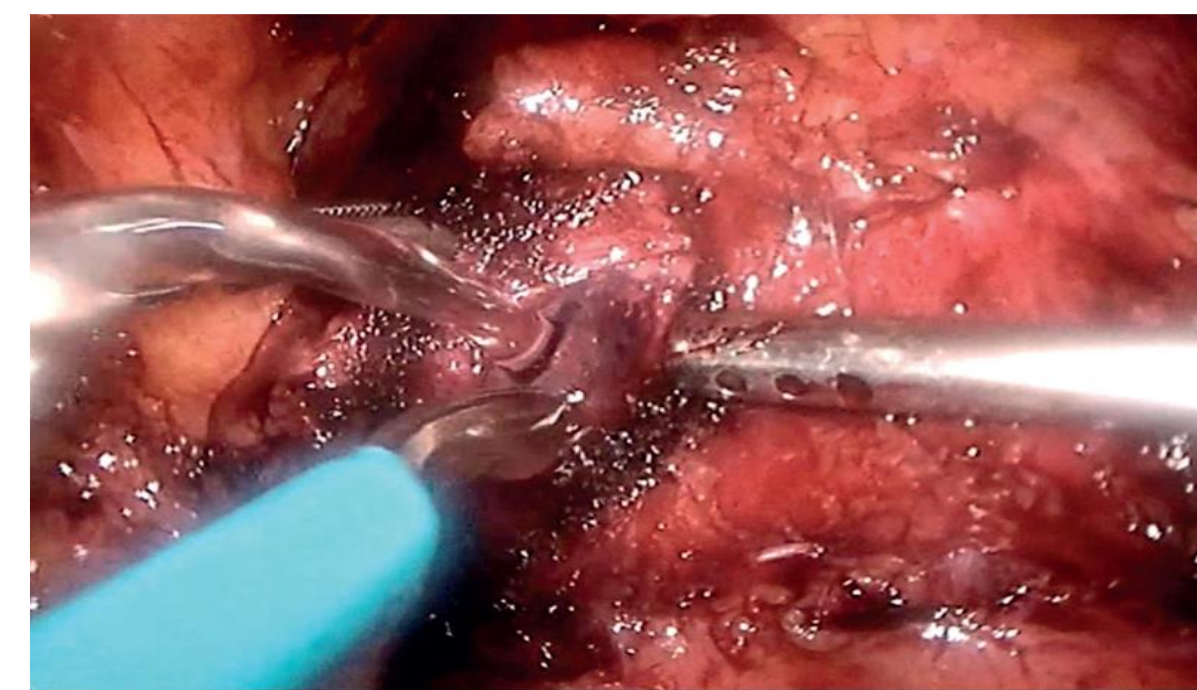
Ureterolysis with view of endometriotic nodule involving ureter



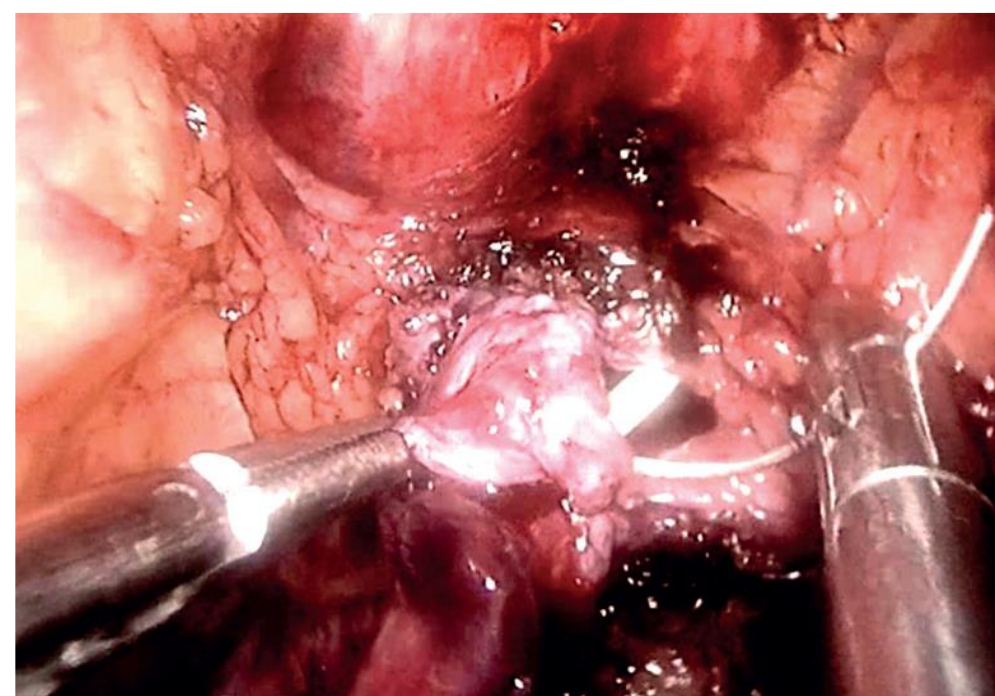
Placement of double J Catheter



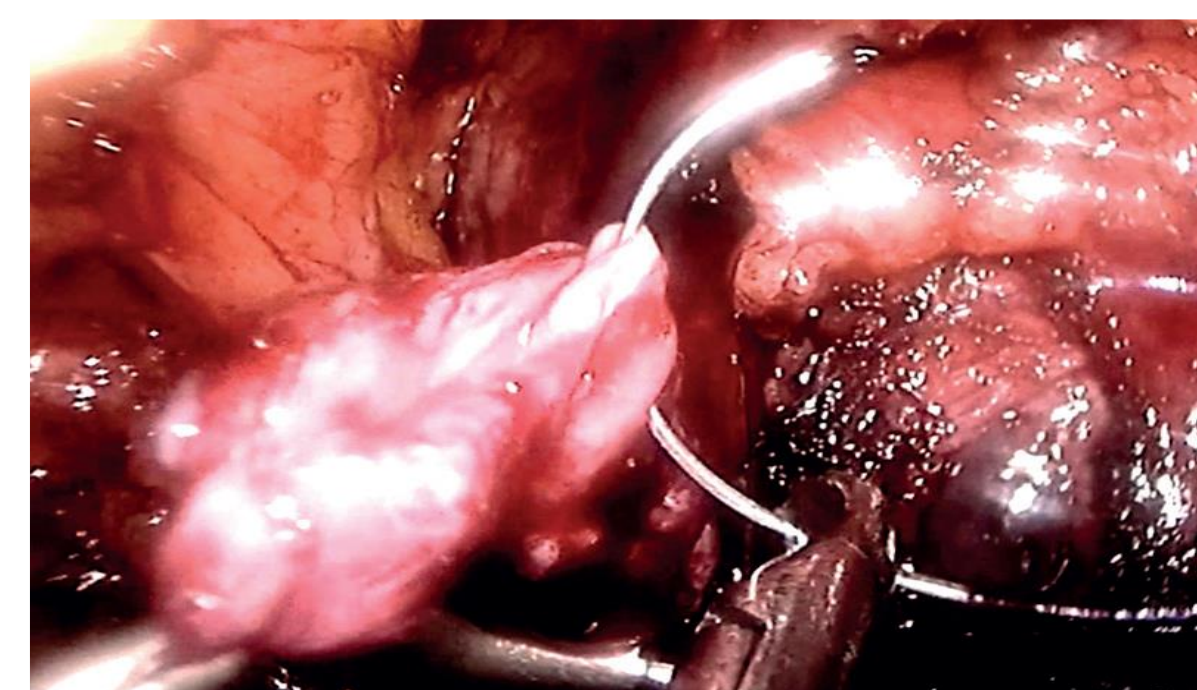
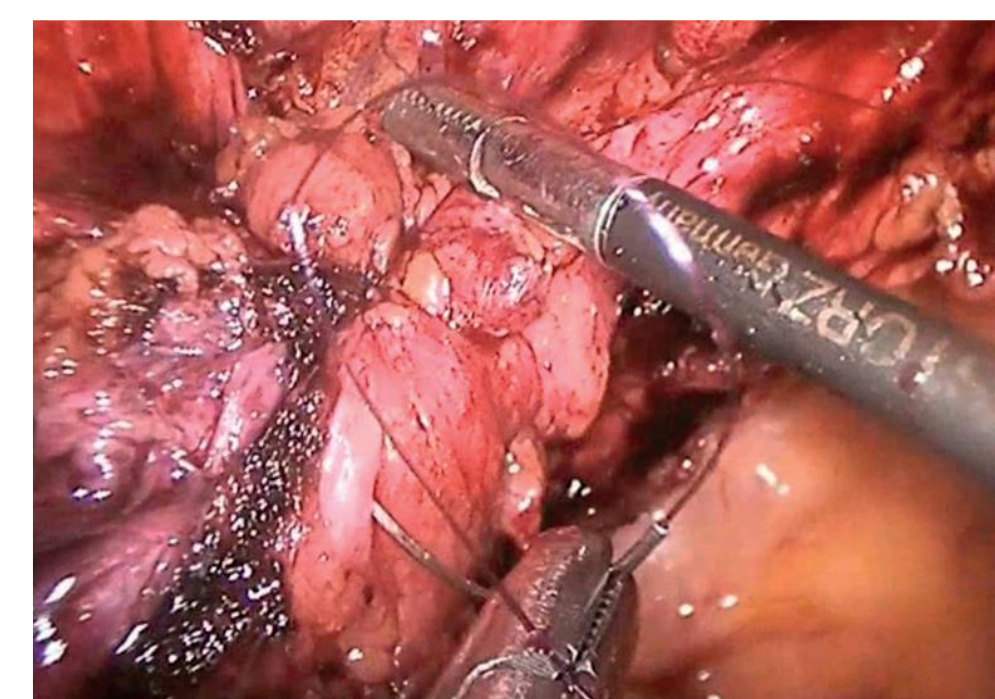
Opening of bladder ready for re-implantation



End of re-implantation



Suturing the ureter



Discussion

In severe and recurrent cases of endometriosis with affected ureter and impaired renal function, a surgical intervention is required. However, when this treatment does not provide permanent success, there is a risk for loss of renal function, and pain and degree of discomfort are high, a laparoscopic ureteral re-implantation can be a promising therapeutic approach.

The decision and choice of the best technique will be guided by the diagnosis (intrinsic or extrinsic), the location of the lesions, the length of the involved segment (greater or less than 3 cm), vitality of the ureter stumps, and anastomosis without tension.

The main alternatives are ureterolysis and dilatation with balloon catheter which is performed for extrinsic endometriosis more than 85% of the time and ureterectomy for intrinsic endometriosis. To perform the reconstruction, the techniques with end-to-end anastomosis with the distal ureter stump or uretero-vesical reimplantation are used.

Assessment using imaging studies is indispensable for surgical planning. Not all anatomical sites are accessible to ultrasound. Magnetic resonance imaging can identify and assess hemorrhagic components of endometriomas throughout the pelvis, and thus is the preferred imaging method to assess ureteral involvement. In cases in which impaired renal function is known or suspected, static and dynamic renal scintigraphy should be ordered, and endoscopic investigation (ureteroscopy) contemplated to inform surgical planning.

In this case, the pre-op MRI did not show any ureteric involvement however she had had previous resection of endometriosis from the same side. Her MRI was also >1year old. It is possible that the endometriosis had worsened while awaiting surgery. A repeat MRI should be performed to pick up these cases and plan ahead.

As the problem is situated in the pelvic ureter, the primary therapeutic choice is ureteral re-implantation.

A ureteral resection with end-to-end anastomosis could be unsuccessful owing to a lack of blood supply in that region. If the distance to be bypassed is less than 15 cm, the psoas hitch procedure is the optimal choice, when longer, then one should consider the Boari flap ureteroneocystostomy.

In cases of ureteral resection and anastomoses (uretero-ureteral anastomosis or ureteral re-implantation) anastomotic dehiscence may occur with formation of urinary fistulas. However, double J catheter placement dramatically reduces such complications. Another common complication is stenosis at the anastomosis site.

Conclusion

Urologic injury is a known complication of all gynaecologic procedures. By identifying the injury intraoperatively, we can reduce postoperative complications and long-term sequelae.

In cases of severe endometriosis involving the ureter, laparoscopic ureteric re-implantation can be a promising therapeutic approach.

Knowledge and understanding of ureteric anatomy, principles of ureteric repair, and indications for each option are important skills for a gynaecologist.

References

1. Tchatchian G, Fabricius PG, Bojahr B, De Wilde RL. Laparoscopic Ureteral Reimplantation in Endometriosis: A Severe Case. *Surg J (N Y)*. 2017;3(4):e167-e173. Published 2017 Nov 27. doi:10.1055/s-0037-1607296
2. Ferrara M, Kann BR. Urological Injuries during Colorectal Surgery. *Clin Colon Rectal Surg*. 2019;32(3):196-203. doi:10.1055/s-0038-1677026