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IUJ VIDEO

Use of observed ureteric catheter movement to facilitate laparoscopic identification and dissection of the ureter in complex gynaecological procedures

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Abstract

Introduction and hypothesis Ureteric injury is a serious complication in gynaecological surgery. Identification and dissection of the ureter is important to minimise the risk of injury. However, some pelvic pathologies and previous pelvic surgery can render laparoscopic identification and dissection of the ureter difficult and risky. This video demonstrates the use of observing ureteric catheter movement to facilitate identification and dissection of the ureter in complicated laparoscopic gynaecological procedures.

Materials A 42-year-old woman with previous history of total abdominal hysterectomy underwent laparoscopic removal of her right ovary, which was plastered over the course of the ureter. A 5-F ureteric catheter was inserted, and observing its movement facilitated identification and dissection of the ureter from the ovary.

Results The procedure was completed safely, and the patient was discharged the same day.

Conclusions This video demonstrates that moving the ureteric catheter laparoscopically to facilitate identification and dissection of the ureter in complex gynaecological procedures may be useful for urogynecologists when assisting ureteric dissection in complex cases.

Keywords Ureteric catheter · Ureteric injury · Laparoscopic surgery complications

Introduction

Injury of the ureter is an uncommon but serious complication of gynaecological surgery. The reported incidence in laparoscopic gynaecological surgery varies from 0.12% (12/10,345) to 1.2% [1–3]. The risk increases in patients with previous pelvic surgery, endometriosis, pelvic mases, or fibroids [4]. The use of ureteric catheterisation in laparoscopic hysterectomy is well described [5]. However, in a randomised controlled trial, pre-operative ureteric catheterisation alone failed to show any difference in the incidence of ureteric injury in patients without previous pelvic surgery [3]. While the ability to recognise and dissect the ureter is paramount in preventing injury, the above-mentioned risk factors can render ureteric identification quite difficult.

Observing the movement of a ureteric catheter laparoscopically can facilitate identification of the ureter, allowing dissection of the visualised part of the ureteric course. This video article demonstrates the technique being used, as described below.

Materials and methods

A 42-year-old woman with severe cyclic right iliac fossa pain underwent laparoscopic removal of a residual ovary following previous hysterectomy with ovary conservation. Previous laparoscopy showed the right ovary adhered densely to the pelvic sidewall over the course of the right ureter. At the time of the procedure, cystoscopy was performed using a 30° telescope, and an open-ended 5-F catheter was inserted into the right ureteric orifice without the use of a guide wire, and advanced into the ureter to 20–25 cm from the ureteric orifice. Urine

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flow from the catheter was observed to confirm correct placement. The catheter was fixed by inserting a 14-F indwelling Foley's urethral catheter using tape to fix the ureteric catheter to the indwelling urethral catheter while the balloon of the Foley catheter was at the bladder neck. This prevented the ureteric catheter from being pulled out of the ureter. The ureteric catheter was moved about 3–5 mm up and down the ureter by an assistant, as needed, and the movement was observed laparoscopically to facilitate identification and dissection of the ureter. This process was repeated only if the surgeon required further identification of the ureteric course. As the visualised part of the ureter was dissected, the next part was exposed, and the technique was repeated until full dissection of the ureter from the ovary was achieved. The catheter was removed at the end of the procedure, and cystoscopic examination confirmed a urine jet from the ureteral orifice.

Results and discussion

This simple technique of observing ureteric catheter movement laparoscopically to facilitate safe ureteral dissection was found by the author to be useful. The technique was employed by the author in multiple cases in which ureteric dissection using standard laparoscopic ureterolysis was rendered difficult due to extensive adhesions or sever endometriosis. No complications were recorded. Very mild transient post-operative haematuria was noted, which resolved within 1–2 h.

Ureteric catheter gauge was made pragmatically to balance ease of placement with the ability to visualise its movement laparoscopically. This catheter had an outer diameter of 1.67 mm, while the ureteric diameter is described to be ~3 mm, with some narrowing at the ureterovesical junction and pelvic rim [6]. The range of catheter movement was limited to 3–5 mm to minimise risk of ureteral damage. In addition, the frequency of movement was limited to points of the operation where the part of the ureter to be dissected required identification. Limiting both range and frequency of movement aimed at minimising any minor trauma to the ureteric mucosa. During ureteric catheter advancement, it is important to avoid force, as in certain cases, pelvic pathology may cause ureteric kink or stricture, which may risk ureteric perforation. However, occasionally, minimal resistance can be overcome by moving and rotating the telescope, thus aligning the catheter and telescope with the projected course of the ureter.

The aim of this video article is to demonstrate how to use ureteric catheter movement to facilitate ureteric dissection rather than describe ureteric catheter or stent insertion in detail, which is demonstrated by Linder and Occhino [7].

Conclusion

This video demonstration of using observed ureteric catheter movement laparoscopically to facilitate identification and dissection of the ureter in complex gynaecological procedures may be useful for urogynaecologists when requested to assist in complex cases of ureteric dissection.

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Compliance with ethical standards

Conflicts of interest None.

Consent Written informed consent was obtained from the patient for publication of this video article and any accompanying images.

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