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Surgery Illustrated – Focus on Details
Direct extracorporeal ureteric stenting during laparoscopic pyeloplasty: a novel technique

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INTRODUCTION

Laparoscopic pyeloplasty is considered a major reconstructive laparoscopic procedure with significant technical challenges. The common practice is to create an intubated anastomosis, necessitating stent insertion during surgery. The retrograde cystoscopic and the antegrade laparoscopic approaches are currently the two options for stent insertion during laparoscopic pyeloplasty. The regular retrograde approach can identify distal pathologies and carries virtually no risk of misplacement of the distal end of the ureteric stent [1]. However, it is time-consuming as it necessitates repositioning the patient. In addition, early decompression of the renal pelvis could make identifying the PUJ and dissecting the pelvis more difficult.

The antegrade insertion through a laparoscopic port has been advocated as an alternative. Mandhani *et al.* [2] successfully performed laparoscopic pyeloplasty with antegrade stent insertion in 24 patients. This approach obviates the need for patient repositioning but is a cumbersome, time-consuming, gas-leaking manoeuvre that requires training and experience. We describe an alternative technique for stent insertion consisting of percutaneous manipulation of the dismembered ureteric end.

SURGICAL TECHNIQUE

We perform a standard three-port transabdominal laparoscopy. The upper ureter and the renal pelvis are identified and dissected. If an aberrant vessel is identified, it is dissected free from the PUJ/upper ureteric area. The ureter is dismembered proximal to the PUJ, at the level of the renal pelvis. The excess tissue of the renal pelvis is used for grasping and manipulating the ureter (this tissue will be eventually excised).

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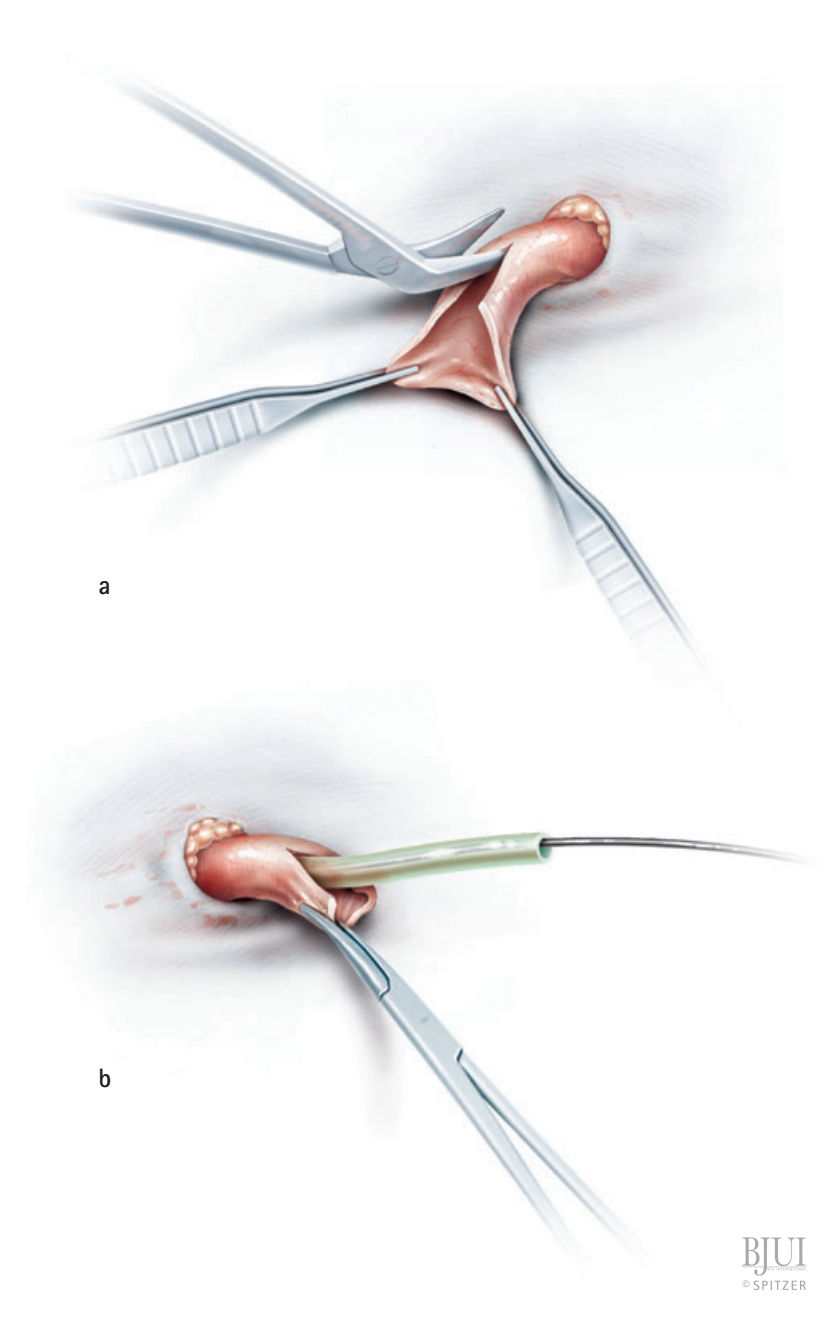
Figure 1

The abdomen is desufflated, the lateral port is removed and the dismembered ureteric end is externalized to skin level, at the port site. As emphasized earlier, excess tissue from the renal pelvis is left attached for manipulation/grasping, to avoid trauma to the ureteric end. This tissue will be eventually excised before starting the anastomosis.

Figure 2(a,b)

The externalized ureter is spatulated (Fig. 2a), the excess tissue is excised and a stent is inserted in an antegrade fashion over a hydrophilic guidewire (Fig. 2b). Insufflation is resumed and the stented, spatulated ureter is returned to the abdomen. The laparoscopic anastomosis is made in the usual way, using two polyglactin 4/0 running sutures.



FROM SURGEON TO SURGEON

Between 2001 and 2007, 52 patients had a laparoscopic pyeloplasty by one surgeon (A.N.). The technique of stent insertion has changed from the retrograde (initial 11 patients) to the standard laparoscopic antegrade (following 21 patients) and currently to the percutaneous approach presented here (the last 20 consecutive patients). In all patients the ureteric end could be easily brought to skin level, with no additional dissection besides standard mobilization of the upper ureter and the PUJ. In one patient (a 57-year-old woman) there was a stent-related complication; she complained of urine leakage around the catheter the day after surgery, and the distal end of the stent was found to be protruding through the urethra, along the Foley catheter, and was pushed back into the bladder. All the other stents were correctly placed and there were no other stent-related complications. The mean (range) time to complete the insertion of the stent and the ureteric spatulation was 4 (2–7) min.

In our opinion, this technique greatly facilitates this operative step and its simplicity makes it easy to learn. In the dessuflated abdomen, the length of ureter needed to externalize the ureteric end is minimal and, in our experience, no additional ureteric dissection was needed after dismembering the PUJ. However, the width of the abdominal wall can be a limiting factor and it is possible that in obese patients this manoeuvre might not be feasible. In no case should the ureteric blood supply be endangered by unnecessary dissection, and in any case when the ureteric end does not easily reach skin level, alternative techniques should be considered.

REFERENCES

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