



Arab Journal of Urology
(Official Journal of the Arab Association of Urology)

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Laparoscopic and cystoscopic-assisted suprapubic catheter insertion: A case study and technical note



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Received 9 June 2015; Received in revised form 18 July 2015; Accepted 3 August 2015

Available online 23 October 2015

KEYWORDS

Suprapubic catheter;
Long-term catheterisation;
Bowel adhesions

Abstract Objective: To describe a new technique for suprapubic urinary catheterisation that can be used in selected patients with high anaesthetic risk, and previous lower abdominal surgery and bowel adhesions.

Patient and methods: In a 33-year-old woman, laparoscopic guidance with cystoscopic vision was used to ensure the safe passage of a suprapubic catheter.

Results: The suprapubic catheter was successfully inserted in this challenging patient; release of adhesions allowed for the passage of the catheter without bowel injury.

Conclusion: Laparoscopic and cystoscopic-assisted suprapubic catheter insertion is a novel technique to avoid significant morbidity and mortality in selected patients with high anaesthetic risk, and previous lower abdominal surgery and bowel adhesions.

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Introduction

Long-term urinary catheterisation is usually employed for difficulty in storage with incontinence or difficulty in voiding with retention of urine. Urinary catheterisation is indicated to maintain a continuous outflow of urine for patients with voiding difficulties, as a result of neurological disorders that cause paralysis or loss of sensation affecting urination [1–4]. Intermittent catheterisation or an indwelling catheter can be used for long-term urinary catheterisation. The most

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Peer review under responsibility of Arab Association of Urology.



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commonly used indwelling catheters are urethral and suprapubic catheters.

Different techniques for suprapubic catheter insertion are described; including cystoscopic-guided, ultrasound-guided, open technique, and 'blind' technique for emergency suprapubic catheter insertion. However, suprapubic catheterisation can be technically challenging and simply contraindicated in certain cases.

In the present case report, we describe a new technique for suprapubic catheter insertion in a complicated case with previous abdominal surgeries and known abdominal adhesions associated with multiple co-morbidities.

Background

The patient was a 33-year-old woman with multiple comorbidities. She was wheelchair bound after an emergency L5 laminectomy for cauda equina syndrome and had also had multiple cerebrovascular accidents. The patient had a permanent colostomy following a rectosigmoid perforation 2 years before. She had bowel adhesions that were managed conservatively. Also, she was on long-term anticoagulant therapy for antiphospholipid syndrome.

Presentation

The patient had a long-term urethral catheter for 3 years secondary to cauda equina syndrome and multiple cerebrovascular accidents with poor bladder emptying. She decided to have suprapubic catheter after detailed consultation and considering alternative options.

Technical difficulty

A CT scan showed loops of the small bowel sitting on the dome of the bladder and impinging on the anterior bladder wall (Figs. 1 and 2). The patient had multiple abdominal adhesions following her previous abdominal surgery and this was managed conservatively. After discussion with her gastrointestinal surgeon, a laparoscopic-assisted procedure was suggested as an alternative to open surgery to avoid significant morbidity and possible mortality associated with open surgery in such a high-risk patient.

Technical note

The procedure consisted of laparoscopic adhesiolysis and insertion of the suprapubic catheter under direct laparoscopic and cystoscopic vision.

With the patient in lithotomy position, a preliminary cystoscopy was performed to exclude bladder tumours.

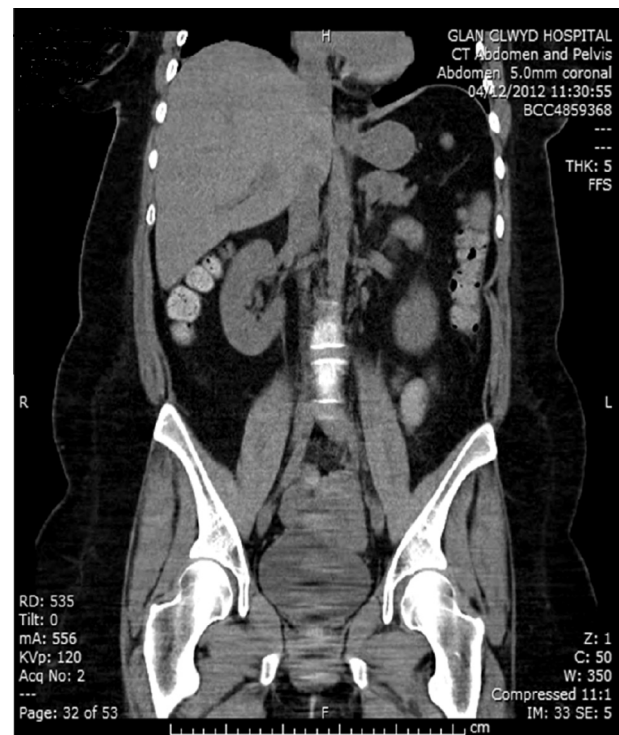


Figure 1 CT showing small bowel on the dome and anterior bladder wall.



Figure 2 CT showing small bowel on the dome and anterior bladder wall.

The open technique was used for insertion of the first laparoscopic port in the infra-umbilical region as access difficulty was encountered with bowel adhesions to the peritoneum. Pneumoperitoneum was established and the second port introduced under direct vision in the right iliac fossa.

There were severe adhesions between the bowels and peritoneum, and loops of bowel related to the anterior bladder wall. The surgeon managed to divide the adhesions on the anterior wall of the bladder allowing the bowel to move away. The suprapubic needle was inserted under direct vision, both on laparoscopy and cystoscopy, to avoid injury to the bowel and the position was confirmed in the bladder on cystoscopy. The Seldinger technique was used to insert the suprapubic catheter.

Discussion

'Long-term' use of a urinary catheter is defined by the National Institute for Health and Care Excellence (NICE) guidelines published in 2012 [5], as a catheter being in situ for ≥ 4 weeks. Long-term catheterisation may be necessary in cases of chronic retention, often as a result of neurological injury or disease, where intermittent catheterisation is not possible [6]. It has beneficial effects for selected patients, which include patient comfort, family satisfaction, and nursing efficiency and effectiveness [7].

In appropriate patients, the use of a suprapubic catheter, male external, or intermittent catheter is preferable to an indwelling urethral catheter [8]. Suprapubic catheterisation is indicated for complications of long-term urethral catheterisation [9] and also for patient's preference due to patient needs e.g. wheelchair user [1,10]. There is a lower rate of infection in those with a suprapubic compared with those with urethral catheters [11].

Suprapubic catheterisation is absolutely contraindicated in the absence of an easily palpable or ultrasonographically localised distended urinary bladder [9,10,12]. It is also contraindicated in patients with previous lower abdominal surgery [10] or patients with coagulopathy (until the abnormality is corrected) [10,12].

The most feared complication with suprapubic catheterisation is bowel perforation. Perforation of the abdominal viscera is well documented as a rare but important major complication of suprapubic cystostomy [13]. The risk of bowel injury is significantly increased with previous lower abdominal surgery. Open cystostomy has been traditionally used for technically challenging suprapubic catheterisation in relation to previous abdominal surgery and bowel adhesions.

Laparoscopic and cystoscopic-assisted suprapubic catheter insertion is a novel technique to avoid significant morbidity and mortality in selected patients with high anaesthetic risk, and previous lower abdominal surgery and bowel adhesions.

Conflicts of interest

None declared.

Source of Funding

None.

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