CASE REPORT

Iatrogenic direct rectal injury: An unusual complication during suprapubic cystostomy (SPC) insertion and its laparoscopic management

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Summary

Suprapubic cystostomy (SPC) is commonly used, instead of indwelling urethral catheterization, as indicated in many pathological conditions. Although considered to be a safe procedure that can be easily performed in an outpatient basis several complications have been reported in international literature. Bowel injury can be a serious complication with the small intestine affected in the majority of cases. We present a case of an accidental rectal injury by a suprapubic catheter misplacement, in a 76 year old demented patient with prostatic hyperplasia and chronic urinary retention. The injury was confirmed by cystography and injection of contrast meterial through the suprapubic catheter, and successfully treated laparoscopically by an extraperitoneal approach. The patient was discharged after 10 days without any complications. The above method, in experienced hands, can be an effective primary treatment option for such rare but devastating complications. The case and management is unique as, to our knowledge, as no similar cases have been presented.

KEY WORDS: Suprapubic cystostomy (SPC); Ultrasonography (USG); Benign prostatic hyperplasia (BPH).

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INTRODUCTION

The suprapubic cystostomy (SPC) is a common urological procedure to drain the bladder in a wide variety of pathological processes. Suprapubic catheter can be placed either through a punch trocar, after localization of the bladder by palpation, or by using other safer techniques like the application of the Lowsley retractor, Seldinger technique using peel away sheath introducer or image guidance using ultrasonography (USG) guidance. Local anesthesia is usually enough in most cases of SPC insertion except some special circumstances, like in patients with spinal cord injuries, in which general or regional anesthesia is indicated (1). Additionally, in uncooperative or agitated patients, sedation might be necessary along with local anesthesia (2).

Although the SPC is a safe procedure, it is not devoid of complications such as site bleeding, catheter blockade, malpositioning, dislodgment, or bowel injury. Bowel perforation is the most dreaded complication of SPC insertion with an incidence rate of 2.4 to 2.7% in two different series (3, 4), The most commonly affected part is the small bowel and several cases have been reported (5, 6). In contrast, only a single case of rectal injury has been reported in international literature (7).

It is of utmost importance to recognize a bowel injury immediately, since primary repair represents the best therapeutic option (8, 9).

Laproscopic radical prostatectomy is a well established operative therapy for localized prostate cancer in the era of minimally invasive surgery. Rectal injuries during laparoscopic radical prostatectomy can be managed successfully intraoperatively without requiring any conversion to open surgery (10, 11).

We present a case of rectal injury during SPC insertion, as well as its subsequent management by laparoscopy using an extra peritoneal approach. Its presentation and successful management is unique as, to our knowledge, as no similar cases have been presented.

Case report

A 76 year old patient with BPH and chronic urinary retention was under chronic indwelling urethral catheter, since he was unsuitable for definite operative treatment due to co-morbidities like senile dementia, diabetic neuropathy, coxarthrosis, osteoporosis and poor general heath. An insertion of a SPC was decided due to recurrent urinary tract infections and urethral discomfort. An elective SPC insertion, under local anesthesia, using a 12 F catheter through a punch trocar was performed in an outpatient basis. After filling the bladder with 300 cc saline, a 12 Fr catheter was introduced under local anesthesia through a punch trocar. No ultrasound guidance was used. Due to senile dementia the patient was uncooperative and moving during the procedure. The SPC did not function satisfactorily after placement and a feculent catheter discharge was noted. The patient was admitted to our department immediately thereafter.

Cystography was done after reintroducing the urethral catheter, which showed an intact bladder outline with SPC outside the bladder. When contrast was injected through the SPC, it filled the rectal lumen without signs of extravasation (Figure 1).

We decided to perform a primary repair of the rectum using our described five port laparoscopic extraperitoneal approach as in our extraperitoneal laparoscopic radical prostatectomy technique under general anesthesia (14). A preoperative broad-spectrum intravenous antibiotic combination consisting of ceftriaxone and metronidazole was administered. A cautious dissection, initially around the SPC and then downwards, following the catheter towards the rectum, was performed. The cystography findings were confirmed intraoperatively, with the bladder wall being almost intact and the SPC placed directly into rectum (Figure 2).

Two stay sutures were placed on the rectal wall, after an adequate dissection, and the catheter was removed. The rectum was then closed in 3 layers, with interrupted 3/0 vicryl sutures followed by a running 3/0 V-loc suture, and tested for the absence of leakage. Finally, a drain was left in place and a rectal tube was placed.

The patient was kept on intensive care unit for 2 days and the postoperative course was uneventful apart from mild pyrexia during the first two days. The parenteral antibiotic combination was administered for 7 days and the total parenteral nutrition for 5 days. The drain and rectal tube was removed on 3rd and 5th. postoperative day respectively. The patient was discharged on the 10th day.

Figure 1.

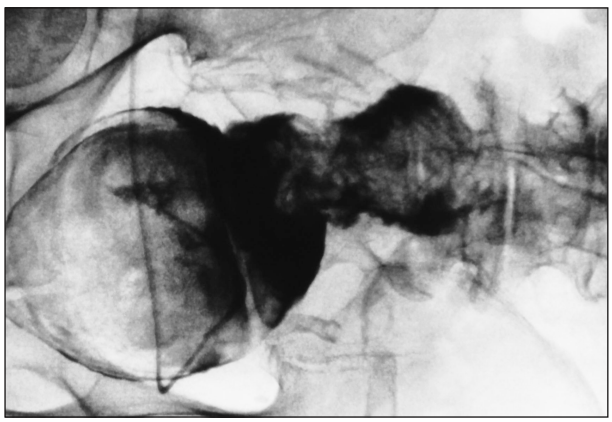

Figure 2.

Discussion

Supra pubic cystostomy using a punch trocar, with localization of the bladder by palpation, is a well established interventional procedure for urinary drainage. The technique is usually safe when done in a well distended bladder.

It is never a safe method to do, in a non distended bladder, or when bladder cannot be distended adequately, to a minimum of 300 ml of urine (12). It may not be feasible to fill the bladder adequately in some cases of neurogenic bladder due to low capcity or incontinence. There are safer techniques described for complicated cases, like using the Lowsley retractor (13), *Seldinger* technique with a peel away sheath introducer (14) or image guidance using USG (15) or Fluroscopy (16). Abdominal wall adhesions can be found in up to 59% of patients with previous midline laparotomy scars (17). In such cases with history of previous abdominal surgery open SPC insertion is a safer option (1). USG guidance is advisable for safety, even in cases with adequate bladder distention, since there is always a risk of deep peritoneal fold or adhesions, as seen in patients with previous abdominal surgery. In one study by *Levrant et al.*, it was noted that when the distance between the upper border of the pubic symphysis and the umbilicus is less than 19 cm, there is a high risk for bowel inter positioning at SPC trocar site due to deep peritoneal folding (18).

The Seldinger technique using a peel away trocar under local anesthesia is a safe method when a minimal bladder distention of 300 ml is achieved and none of the aforementioned risk factors are present (19). Another key factor for a safe SPC insertion is an adequate anesthesia, so that the patient should be comfortable and stable during the procedure. Although different methods like general anesthesia and regional anesthesia have been used for SPC insertion, the most preferred choice is local anesthesia. A sedo-analgesia, a technique combining adequate local anaesthesia with sedation, is recommended, espe-

cially in case of uncooperative or agitated patients to ensure patient safety during the procedure (2).
When the patient is restless during a punch trocar SPC insertion without image guidance and adequate sedation, the procedure is always complicated. In this case the patient moved during the trocar insertion which, most probably, resulted in an accidental placement of the SPC to the rectum. It may have been avoidable if he was adequately sedated and stabilized.
Murphy's Law "*If anything can go wrong, it will*", explains that complications like these can occur even in ideal conditions. Those who are doing these procedures should be vigilant and aware of these potential complications.
If any misplacement or iatrogenic injury is suspected, imaging modalities like USG, cystogram, catheterogram, or flexible cystoscopy may be useful. In doubtful cases computer tomography or MRI can be performed (19). We have performed USG, cystogram, catheterogram to localize the SPC.
In case of an iatrogenic rectal injury, a primary repair with or without diversion is the treatment of choice. In extraperitoneal injuries a diversion colostomy is not usually necessary. Open surgery has been the treatment of choice in such cases, presenting good results (8, 9). Laparoscopic repair has proven to be effective in intraoperative rectal injuries during laparoscopic radical prostatectomy (LRP) (10, 11). Since our department is a high volume laparoscopic center, where the extraperitoneal approach for LRP is routinely performed, we could manage this case laparoscopically. The extraperitoneal approach allowed an adequate primary repair of the rectal injury without intraperitoneal contamination. Previous papers present good results using a double-layered closure of the rectal wall. In this case we have performed a 3 layer closure reinforced by a 3rd layer with a V-loc barbed suture, which resulted in an uneventful recovery.

Conclusion

Image guidance; adequate anesthesia and stabilization of the patient are key factors for a safe SPC placement in complicated cases. In case of an iatrogenic rectal injury, early recognition is of utmost importance and primary repair without diversion is the treatment of choice. Laparoscopic extraperitoneal surgery, in experienced hands, is an effective minimal invasive treatment option.

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