CATHETER INTRODUCER AIDED PERCUTANEOUS SUPRAPUBIC CYSTOSTOMY: DESCRIPTION, AND PRECAUTIONS.

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ABSTRACT

INTRODUCTION

Acute urinary retention is a urological emergency that requires immediate urinary bladder decompression through the most expedient route. We have identified catheter introducer aided percutaneous suprapubic cystostomy (SPC) to be a procedure of choice when there is a failed urethral catheterization.

METHODOLOGY

Step by step approach to the procedure of catheter introducer aided percutaneous SPC including important precautions and illustrative pictures are presented.

CONCLUSION

Speed, safety and reduced cost are the major benefits of catheter introducer aided percutaneous SPC in a developing region of the world. Patients and materials selection are keys to reducing complications.

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INTRODUCTION

Acute urinary retention (AUR) is a urological emergency that requires emergency bladder decompression through the most expedient route. Urgent bladder decompression may also be indicated in chronic urinary retention. Urethral catheterization is the first resort for AUR, but where this fails; emergency suprapubic cystostomy (SPC) becomes the procedure of choice.[1-4]. Causes of failed urethral catheterization include urethral stricture, urethral injury, bladder neck contracture/stenosis, prostatic disease especially those with prominent median lobe and gangrene of the external genitalia .Other indications for SPC include needs for prolonged urinary catheterization such as in a patient with neurogenic bladder.[1-4] Various methods of suprapubic cystostomies have been described which include open method, and several percutaneous techniques. The methods of percutaneous cystostomy depend on economic and technological development of the region which indirectly affect the availability of the necessary devices needed for the percutaneous SPC.[1-6]

Suprapubic catheterization is associated with various complications such as bowel injuries, haematuria, clot retention and spontaneous extubation. These complications are however worse when percutaneous approaches are used.[1-3] There is thus the need for caution while perfoming percuteneous SPC. Percutaneous suprapubic cystostomy is contraindicated in a patient with previous suprapubic scar, bladder tumor, neobladder, previous pelvic irradiation and non-palpable bladder.[1-2]

In developing countries, many patients with bladder outlet obstruction (BOO) present with AUR for the first time necessitating urgent bladder decompression.[2,3,7-12] With failed urethral catheterization or where it is contraindicated, the choice of SPC may be determined by several factors which include speed, safety, cost, available materials and expertise, ease of post procedure management and patient's convalescence.[2,3] Different types of suprapubic cystostomies have been described in literature,[1-4] but we have found catheter introducer aided percutaneous SPC technique to be fast, safe, cheap, easy to learn with short convalescent period and negligible scaring if another surgery is anticipated at the site. In our search of the literature, previous description of this procedure is scarce. We therefore describe this technique and the necessary precautions to be taken.

DESCRIPTION

Patients and materials selection are the most important factors for the successful catheter introducer aided percutaneous SPC. Failed or contraindicated urethral catheterization in a patient with urinary retention with visible and palpable urinary bladder is an ideal candidate for the procedure. Patient with any contraindication for percutaneous SPC must be excluded.

Exclusion criteria include previous suprapubic scar and previous pelvic irradiation because of the increased risk of visceral injury. Suspected bladder tumor is also contraindicated because of possible tumor upstaging. A patient with multiple suprapubic punctures / tapping is also not ideal for this procedure because this increases suprapubic edema

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making delineation of distended urinary bladder difficult. Obesity however is not a contraindication if the full extent of urinary bladder distention can be appreciated.

The materials needed include a pair of surgical gloves, gauze and solutions for skin preparation, 10ml syringe, plain xylocaine injection, water for injection, size 20, 22 or 24Fr 2way catheter for AUR and size 20, 22 or 24Fr 3 way catheter for chronic urinary retention, catheter introducer, size 11 or 23 surgical blade and urine bag (figure 1a). Intravenous fluoroquinolones or 3rd generation cephalosporin is usually given as antibiotic prophylaxis.

After obtaining informed consent, routine abdominal cleaning and draping are done. Suprapubic tap is done with 10ml syringe at the midline, 4cm above the pubic symphysis to establish the content of the full urinary bladder. The proposed site (4cm above the pubic symphysis at the midline) is infiltrated with 10ml of 1% plain xylocaine and 5 minutes is allowed for the anaesthesia to take effect. Catheter introducer is passed into the catheter and then locked on the catheter 'y' junction. Caution should be taken to ensure that the tip of the catheter introducer is well lodged into the tip of the catheter to avoid dislodgement of the tip of the introducer through the 'eye'of the catheter when pressure is applied to catheter tip during insertion.

A suprapubic stab incision adequate enough to accommodate the selected catheter is made at the proposed site (figure 1b). We usually use size 11 or size 23 blade because of their pointed tip which creates a little hole in the bladder and reduces the risk of peri-catheter urine leakage and haematuria from bladder mucosal wound. A single stab incision with size 23 blade can accommodate many available wide bore catheters while that of size 11 blade will require extension of the stab wound to accommodate the catheter. The blade is then pushed to incise the rectus sheath and the incision is halted when a 'give' is felt immediately after piercing through the anterior bladder wall. The created stab incision is occluded with the thumb of non dominant hand to prevent urine leakage and bladder decompression. The catheter containing the catheter introducer is pushed with the dominant hand through the incision until a 'give' is felt (figure 2a).

Figure 1a: Materials Needed: Scapel on Bard-Parker handle, catheter introducer, 3 way foley's catheter, 10ml syringe, xylocaine injection

Figure 1b: Stab incision made 4cm above the pubic symphysis

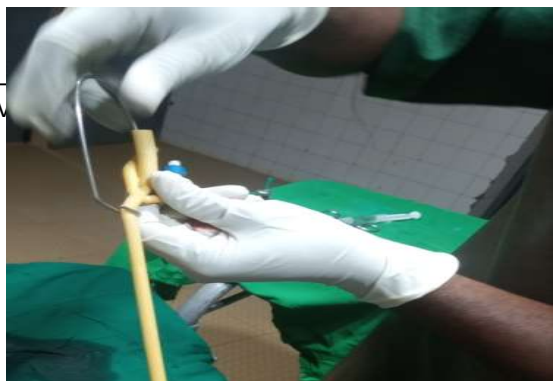

Figure 2a: Pushed catheter into the urinary bladder with catheter introducer locked.

Figure 2b: Unlocked catheter introducer with catheter balloon being inflated.

Figure 3: Completed Percutaneous SPC with light wound dressing.

The catheter introducer is **unlocked** before 10mls of water is used to inflate the balloon (figure 2b). The catheter introducer is then removed. Inflation of catheter balloon with ease and egress of urine from the catheter establish proper citing of catheter tip in the urinary bladder. Care should be taken to **unlock** the catheter introducer before the catheter balloon is inflated because the lock blocks the channel for the catheter balloon. The catheter should also be stabilized with non dominant hand while the catheter introducer is being pulled out to avoid inadvertent extrusion of the catheter. Immediate haematuria in a patient with clear aspirate sometimes occur and this is usually from bladder mucosal wound. This can easily be managed by traction on the catheter so that the catheter balloon tamponades on the anterior bladder wall.

Light wound dressing is applied (figure 3) and this can be removed after three days and wound subsequently nursed open. Patient with AUR are usually discharged 2 hours after the procedure while those with chronic urinary retention are observed for 24 hours for post obstructive haematuria and post obstructive diuresis before they are discharged. Their post operative evaluation and treatment is continued on outpatient basis.

CONCLUSION

It is our hope that the above procedure will be useful to medical practitioners and patients with urinary retention requiring SPC in our environment. However, necessary precautions must be observed to avert possible complications.

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