An audit of suprapubic catheter insertion performed by a urological nurse specialist

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ABSTRACT

Aims: To introduce the concept that a urological Nurse Specialist can perform Suprapubic Catheter (SPC) insertions independently without significant complications, if systematic training is given.

Settings and Design: Retrospective study.

Materials and Methods: A retrospective audit of Suprapubic Catheter insertions performed by a Urological Nurse Specialist was conducted between April 2009 and April 2011.

Results: Of the total 53 patients, in 49 (92.45%) the procedure was successful. Out of the remaining four, two (3.77%) were done by a urologist. One patient’s (1.89 %) SPC did not drain after placement and ultrasonography reported that the Foley balloon was lying within the abdominal wall. The other patient’s SPC drained well for a month and failed to drain after the first scheduled change in a month. Since the ultrasonography showed the Foley balloon to be anterior to the distended bladder, an exploration was performed and this revealed that the SPC tract had gone through a fold of peritoneum before reaching the bladder. None had bowel injury.

Conclusions: If systematic training is given, a urological Nurse Specialist can perform SPC insertions independently without significant complications.

Key words: Nurse specialist, suprapubic catheter insertion, trocar cystostomy

INTRODUCTION

The concept of a urological Nurse Specialist (NS) is yet to take wings in India. The National Health Service (NHS) of the UK allows nurses to specialize under the auspices of the ’Scope of professional practice’.11 One area where a well-trained nurse could shoulder responsibility is in performing suprapubic catheter (SPC) insertions. Dependence on a urology resident doctor for SPC insertion is not practical. Over a period of time the NS may actually become as proficient as a trainee urology resident in performing SPC insertions.

At our Hospital, all SPC insertions after April 2009 have been done by a trained nurse. This paper presents an audit of this practice.

MATERIALS AND METHODS

First, a strict written protocol for suprapubic catheter insertion was introduced thereby standardizing the procedure. The protocol stipulated that all patients could be taken up for SPC insertion only after a recent ultrasonography confirmed the absence of a bladder tumor. Obesity and previous pelvic surgery precluded the NS from performing the procedure. All patients were covered with a single dose of antibiotic. A well-distended bladder was a prerequisite for performing the procedure. The site of trocar puncture was marked approximately four finger breadths above the upper border of the symphysis pubis. Local anesthetic was instilled up to the rectus abdominis. Urine was aspirated with a 22G needle. During aspiration, depth and direction were measured and noted. After confirming the free aspiration of urine, trocar cystostomy was performed. An 18F Foley with its tip cut, to facilitate later guide wire exchange if required, was placed.

One of our nurses was selected for this procedure based on aptitude and proficiency. The parameters assessed were the ability to palpate a distended urinary bladder, ability to
predict difficulties, operative steps, asepsis and the adherence to the protocol. Training was imparted by the team of consultant urologists. The formal training included theory classes about anatomy of the urinary system and a log book in which the target number of procedures to be observed, assisted and performed under supervision were documented. Once the target numbers were reached and the NS was performing the procedure to the satisfaction of the senior consultant, independent SPC insertions were permitted.

The results of SPC insertions performed between April 2009 and April 2011 were audited retrospectively. All these were done as daycare procedures.

RESULTS

As stipulated in the log book the NS observed and assisted in 12 cases each. Following this he performed 12 cases assisted by a consultant. The NS was then allowed to place suprapubic catheters independently. A urologist, however, was always present for the procedure. During the audit period the NS independently performed 53 suprapubic catheter insertions. The patient’s age ranged from 17 to 95 years. There were 50 males and three females. The various indications are listed in Table 1. All these were done only after an ultrasound study of the bladder. Patient’s mean weight was 62.28 ± 14.24 kg. Of the 53 procedures, 49 (92.45%) were successful. In two of these patients the NS was unable to reach the bladder after two attempts. A urology consultant was then asked to take over. In one blind trocar was successful. The second patient was shifted to the Operation Theatre and SPC was done under fluoroscopic guidance after contrast instillation. The third patient had severe vulvovaginal and lower abdominal wall edema. The SPC did not drain after placement. Ultrasonography reported the Foley balloon to be lying in the abdominal wall. It was repositioned under sonographic guidance. The fourth patient had undergone a previous appendectomy via a standard grid-iron incision. As this did not strictly fall under the category of pelvic surgery the NS performed the procedure. The SPC drained well for a month. At the first scheduled change of SPC the new catheter failed to drain urine. Ultrasonography showed a Foley bulb lying anterior to the distended bladder. Exploration revealed that the SPC tract had gone through a fold of peritoneum before reaching the bladder.

Three patients (5.88%) had transient hematuria lasting a few hours. Five (9.8%) patients reported bladder spasms. None had bowel injury.

DISCUSSION

The urological nurse specialist is an underutilized resource in India. While many technicians are performing urological procedures under the supervision of their urologists, this remains a largely unregulated area. It is only now that universities have started courses for urology technicians. In our centre, the NS who doubles up as the continence nurse takes a considerable load off the urologists. While the NHS has institutionalized the concept of NS, it is yet to gain a wide foothold in India. This paper audits our attempt at training and utilizing the resources of a urological NS for inserting suprapubic catheters.

Over ten years ago Gujral et al.,[1] had reported the successful practice of trained nurse specialists performing suprapubic catheterizations in hospitals as well as in community settings. As is the practice at our centre they emphasized the use of an unequivocal protocol and rigid selection criteria. In their study 164 suprapubic catheterizations were performed by nurse specialists. Eight were selected for placement by urologists under general anesthesia and cystoscopic control. In our audit a urologist intervened in two cases. In one a blind trocar SPC insertion was successful whereas the second patient required transfer to the operating room and placement under fluoroscopic control.

The true incidence of SPC insertion-related complications is difficult to estimate. The most dreaded, of course, is bowel perforation. In 2009 the National Patient Safety agency reported a national survey conducted by the British Association of Urological Surgeons (BAUS),[2] Thirty-two percent of the urologists could recall a total of 65 bowel perforations over the previous ten years. Fourteen percent recalled deaths associated with the procedure. This procedure estimated the risks of bowel perforation and death resulting from the procedure to be 0.15% and 0.05% respectively.[2] In our review we did not have any bowel perforations.

Peritoneal perforations may occur without bowel injury.[3] The patient who had a peritoneal transgression had undergone an appendectomy in the past. This has prompted us to include all incisions below the umbilicus in the exclusion list for trocar SPC done by the nurse specialist.

In a study comparing 52 suprapubic and 50 urethral catheterizations in males for urinary retention, Abrams

| Indications for SPC                                      | Number | (%) |
|---------------------------------------------------------|--------|-----|
| Acute retention of urine                               | 17     | 32.08 |
| Stricture urethra                                       | 15     | 28.30 |
| Epididymo-orchitis with bladder outlet obstruction      | 11     | 20.75 |
| Prostatic abscess                                       | 03     | 05.66 |
| Prostatitis                                             | 02     | 03.77 |
| Testicular abscess                                      | 01     | 01.89 |
| Meatal stenosis                                          | 01     | 01.89 |
| Balanitis xerotica obliterans (BXO)                      | 01     | 01.89 |
| Neuropathic disorder                                    | 02     | 03.77 |

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had reported exclusion of four patients from the SPC group due to failure of the procedure. After analyzing 219 consultants, middle grades and station house officers, Ahluwalia reported malposition/expulsion in six of 219 cases and bowel injury in five. Success rates of the procedure done by our NS compare well with these rates.

Standard surgical practice is to place suprapubic catheters two finger breadths above the symphysis pubis. The recent BAUS recommendation reinforces this. Our protocol stipulates a point four finger breadths above the symphysis pubis. Higher insertion facilitates access to the prostatic urethra during rigid cystoscopy. This is the reason that we continue to use a higher point for insertion. It is borne out by our data that this has not resulted in any increase in the complication rate.

CONCLUSION

A strict protocol and rigid selection criteria have resulted in a successful program of suprapublic catheterizations being performed by the urology nurse specialist. Complication rates compare well with procedures done by surgeons. With our training protocol the NHS model in the UK can be safely replicated in India. However, there are no existing guidelines in our country. This can be eventually conceptualized so that the urological NS can perform these procedures at the residences of those patients who are too morbid or too old to be transported to the hospital. This will be a boon for them.

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