

## Letter to the Editor

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### Complications of changing suprapubic catheters in spinal cord injury patients

Hamid *et al*<sup>1</sup> present a very interesting article on misplaced suprapubic catheter in a spinal cord injury patient. These authors state that the insertion of a suprapubic catheter can be challenge even for an experienced urologist. We observed complications while changing suprapubic catheters in a few patients with neuropathic bladder.

#### Cuffing of the balloon of all-silicone Foley catheter

There was difficulty in removing an all-silicone Bard Foley catheter (16Fr) in a patient with traumatic paraplegia with suprapubic cystostomy. The problem was because of cuffing of the balloon following deflation of the balloon prior to removal. This patient had sensory level of T-6. Therefore, forcible removal of the suprapubic tube did not cause any discomfort to the patient; but there was minor bleeding, which subsided within 30 min. This patient did not wish to use another brand of Foley catheter, as he liked the translucent all-silicone Foley catheter.

Another patient, who had sensory incomplete tetraplegia, experienced pain when an all-silicone Foley catheter (Argyle, Sherwood) with a cuffed balloon was removed prior to insertion of a new suprapubic catheter. We learn from Tyco Healthcare, the manufacturers of Argyle catheters, that they are currently working to improve the material and design so that cuffing of Foley balloon, which tends to occur in all-silicone Foley catheters (Figure 1), will be eliminated in the new generation of catheters.

The Medical Devices Agency, an Executive Agency of the Department of Health, United Kingdom is aware of the problems associated with the suprapubic use of silicone catheters and issued a safety warning in 2001 on this subject.<sup>2</sup>

#### Accidental insertion of suprapubic catheter into the prostatic urethra and inflating the balloon of Foley catheter in prostatic urethra

A 47-year-old male with multiple sclerosis had suprapubic catheter drainage of the urinary bladder. After a routine change of suprapubic catheter by his carer, the catheter did not drain urine. It was noticed that too much length of the catheter was inside the abdomen. The plan was to remove the catheter and insert a new catheter. When the balloon was deflated, there was

profuse bleeding per urethra. The catheter had slipped accidentally into the prostatic urethra and the balloon had been inflated in the urethra. Accidental insertion of a suprapubic catheter into prostatic urethra and subsequent inflation of Foley balloon in the prostatic urethra is likely to happen in spinal cord injury patients, who have wide open bladder neck, for example, patients who had undergone bladder neck resection.

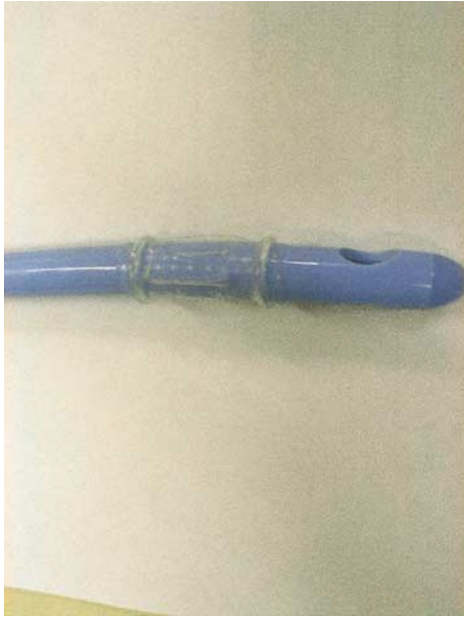
#### Insertion of suprapubic catheter into ileal segment attached to the bladder

A 27-year-old female patient with spina bifida underwent continent vesicostomy with Benckroun hydraulic valve in 1993. Later, this patient developed bladder stones. The stoma had retracted to the level of abdominal wall; from there to the skin was a fibrous track. The track was dilated and open vesicolithotomy was performed in 1995. Bladder stones recurred and suprapubic cystolithotomy was performed in 1999. In 2000, the patient could not perform catheterisations through the stoma because the stoma had closed completely. Emergency suprapubic cystostomy was done. About 12 months later, following a routine change of suprapubic catheter, the catheter did not drain urine. It was noticed that too much length of the catheter was inside the abdomen. The patient experienced discomfort in the lower part of abdomen. During the next 2 h, the urinary bladder became palpable. After the Foley balloon was deflated, the catheter started draining large amount of urine.

In retrospect, we realised that the catheter had been inserted accidentally into the ileal segment and the balloon had been inflated inside the ileal segment. The drainage holes of the catheter were located in the ileal segment distal to the inflated Foley balloon, which prevented flow of urine from the bladder into the ileal segment. The Foley catheter was repositioned within the urinary bladder and satisfactory drainage of urine ensued.

#### Autonomic dysreflexia

A male patient with T-6 paraplegia developed pounding headache and hypertension (systolic blood pressure >200 mmHg) while changing a suprapubic catheter. He was given nifedipine 10 mg sublingually and dysreflexia was controlled promptly. He was then prescribed modified-release alfuzosin 10 mg once a day on a long-term basis. Subsequent changes of suprapubic catheters have been uneventful.



**Figure 1** Photograph of an all-silicone Foley catheter, removed from a 29-year-old male who had sustained paraplegia at L-2 level (ASIA scale – C) from a gun shot injury and had suprapubic cystostomy draining: cuffing in the Foley balloon is clearly visible. There was difficulty in removing this catheter after the balloon was deflated. When the suprapubic catheter was forcibly pulled out, the patient experienced severe pain and intense bladder spasms lasting for 10 min. We decided to use in future, latex Foley catheter instead of all-silicone Foley catheter, for suprapubic drainage in this patient.

#### Stone wedged in the eyes of a Foley catheter

A 45-year-old male patient with C-1 tetraplegia with implantation of phrenic pacer for diaphragmatic breathing was doing well until recently when he started getting frequent blockages of suprapubic catheter. Flexible cystoscopy revealed calculi in the bladder. While this patient was awaiting admission for removal of bladder stones, his carer tried to change the size 20 Fr. suprapubic catheter. Even after deflating the balloon completely, the catheter would not come out easily. A nurse forcibly pulled out the catheter. Inspection of the catheter revealed a stone wedged in the eyes of the catheter.

#### Acute urine infection following change of suprapubic catheter

A few patients develop acute urinary infection after change of an indwelling urinary catheter, be it urethral or suprapubic catheter. Spinal cord injury patients, who had distended bladder because of blockage of indwelling catheter, are at high risk for developing urinary infection. We administer gentamicin 80 mg intramuscularly to patients with blocked catheters before changing a suprapubic catheter. We prescribe antibacterial, for example, Trimethoprim 200 mg every 12 h for 7 days to

patients with blocked catheters and those with smelly or cloudy urine. A prospective study will help to find out the incidence of acute urinary infection following change of indwelling urinary catheters in spinal cord injury patients.<sup>3</sup>

#### Difficulties in changing suprapubic catheter because of anatomical reasons

Some spinal cord injury patients may have a hypertrophic, relatively nondistensible bladder, or the anatomic variant of a deep peritoneovesical fold. In these patients, there is an increased risk of a transperitoneal bladder puncture while inserting a suprapubic catheter.<sup>4</sup> Subsequent change of suprapubic catheters may be difficult until such a time a firm track is formed.

In obese individuals with a small bladder, the distance between the abdominal wall and the bladder may be considerable. A 40-year-old male with paraplegia at T-6 level developed catheter-induced hypospadias. Suprapubic cystostomy was performed. There was difficulty in changing a suprapubic catheter in this obese individual because of pendulous belly and a small bladder. The suprapubic track was long and tortuous for safe change of catheter in a routine manner. A hole was made in the tip of Foley catheter with a Foley punch. An exchange of these catheters over a 0.032 guide wire ensured a reliable method of changing suprapubic catheters in this patient.

These cases illustrate that complications can occur while changing suprapubic catheters in the patients with neuropathic bladder. Health professionals caring for spinal cord injury patients should be aware of these potential complications and take preventive measures tailored to the needs of individual patients. For example, alpha-adrenergic blocker (alfuzosin or terazosin) may be prescribed to selected patients for prevention of autonomic dysreflexia.<sup>5</sup>

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