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CASE REPORT

Urine leakage in persons with spinal cord injury and using long-term Foley catheters: a simple solution

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Study design: To visualize residual urine in a bladder using a regular Foley catheter and then using a modified Foley catheter.
Objectives: To determine whether a modified Foley catheter eliminates or reduces a catheter-associated deposition of residual urine around the balloon and whether this reduction eliminates catheter leakage.
Settings: A patient with chronic spinal cord injury using a Foley catheter and experiencing significant refractory urine leakage around the catheter.
Methods: The design of a Foley catheter and the way it drains lead to the constant presence of small amounts of residual urine at the base, surrounding the balloon. The Foley catheter was modified using a cook catheter punch to make two extra holes just below the balloon.
Results: A cystogram of an unmodified Foley catheter showed the presence of residual urine around the Foley balloon. A cystogram of a modified Foley catheter eliminated this residual urine around the balloon. After the modification there was no more leakage around the Foley catheter.
Conclusion: Modification of the catheter, as described, eliminated the residual urine around the catheter balloon and eliminated clinical urine leakage around the Foley catheter.
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Keywords: Foley modification; urine residual volume; chronic Foley use; catheter-associated urinary leakage; spinal cord injury

Introduction

A large number of patients with spinal cord injury with a neurogenic bladder and long-term use of a Foley catheter have leakage around the Foley catheter, despite catheter size and medication use. Leakage may lead to malodor, yeast infections, skin maceration and ulcerations. I have developed a simple technique that can be applied readily and is clinically effective. The method is described in this report, along with a case report.

Case report

A 60-year-old male veteran with chronic tetraplegia, as per the Classification on American Spinal Cord Injury, and long-term Foley catheter use was admitted for perineal ulceration associated with persistent urine leakage. Increase in Foley catheter size from 16 to 20 F and oxybutynin use had failed to improve his condition. With time there was a distortion of the vesico-urethral junction, preventing a seal around the Foley catheter. A small amount of urine persisted at the base of the bladder, which could leak out by a slight increase in intra-abdominal pressure. I hypothesized the bladder to be almost empty; however, a small amount of urine persisted at the base of the bladder, which could leak out with slight movements or with an increase in intra-abdominal pressure.

Modifying the Foley catheter using a cook catheter punch helped to reduce the deposition of residual urine around the balloon by placing extra holes below the balloon, at the same time ensuring that neither the balloon nor the inflating channel was damaged in the process. Figure 1 shows a cystogram using a radio-opaque dye, which reveals a small amount of residual urine below the balloon. Figure 2 shows a repeat cystogram after inserting the modified Foley catheter. Note that there is now no residual urine below the balloon, as the extra small holes allow the residual urine below the balloon to drain out through the catheter (Figures 1 and 2).

Results

The patient had immediate resolution of his leakage problem, allowing effective skin management to proceed.

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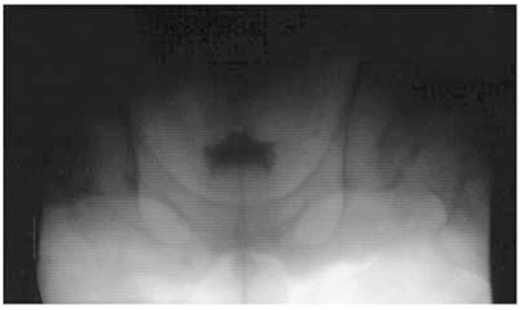

Figure 1 Cystogram using a radio-opaque dye, showing a small amount of residual urine below the balloon. This results in leakage around the catheter.

Figure 2 Repeat cystogram with the modified Foley catheter. There is now no residual urine below the balloon. Small holes below the balloon allow any residual urine to drain out through the catheter.

Discussion

Leakage of urine from around a Foley catheter can be the result of a number of diagnoses, which are most often obstruction, trauma, catheter failure, infection, increased detrusor activity, to name a few. However, even after investigating and managing these problems, the leakage often continues, and is refractory to catheter changes and pharmacological interventions. This case report highlights a common, but not often considered, cause of chronic leakage, and a simple effective solution. The persistence of small volumes of residual urine around the Foley balloon should be recognized as a possible source of persistent urine leakage around the catheter. If recognized, this case report offers a possible effective solution that may eliminate the often refractory leakage problem.[1–3]

Conflict of interest

The author declares no conflict of interest.

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