CASE REPORT

Urethral Catheterization in Men With Artificial Urinary Sphincter

Clinical and Legal Implications

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INTRODUCTION

Since their introduction, an estimated 20 000 artificial urinary sphincters (AUSs) have been implanted for the treatment of urinary incontinence in men, mostly in patients affected by post-prostatectomy incontinence.(1)

Artificial urinary sphincters' complications can be divided into mechanical and erosion/infection complications. The former are due to a physical failure of the device or to intra-operative errors in its placement, and have an incidence of about 3%. The second are more frequent with an erosion rate ranging from 4% to 13%, and may occur also in a late setting.(2,3) The longest time-to-erosion range reported in the literature is of 7 to 10 years after the implantation.(4-6)

We report the case of a scrotal extrusion of the pump occurred 22 years after the placement of an AUS AMS-800 analyzing the physiopathological and causal connections between an amiss urethral catheterization in a patient with a malfunctioning device and the subsequent local complications leading to a major surgical intervention.

CASE REPORT

An 89-year-old man presented to a peripheral department of emergency with acute dyspnea due to an early stage pulmonary edema secondary to a mild heart failure associated to acute kidney failure.

He had undergone open radical prostatectomy 24 years before for a localized prostate cancer without adjuvant pelvic radiation treatment. Two years later, he underwent the implant of an AUS AMS-800™ (Urinary Control System, American Medical System, Minnesota, USA) for urinary stress incontinence. The device consisted of 3 components connected by kink-resistant tubing (Figure 1): a scrotal control-pump, an abdominal pressure-regulating balloon, and an occlusive bulbous-

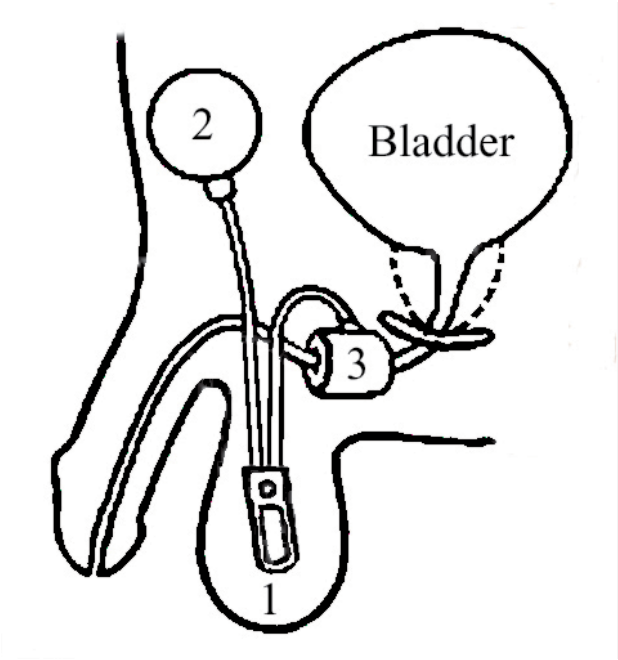


Figure 1. Artificial urinary sphincter AMS-800™ consisting of 3 components connected by kink-resistant tubing: a scrotal control pump, an abdominal pressure-regulating balloon, and an occlusive bulbous urethra cuff. Note the dotted line showing the normal position of the prostate, in this case previously removed by radical prostatectomy.

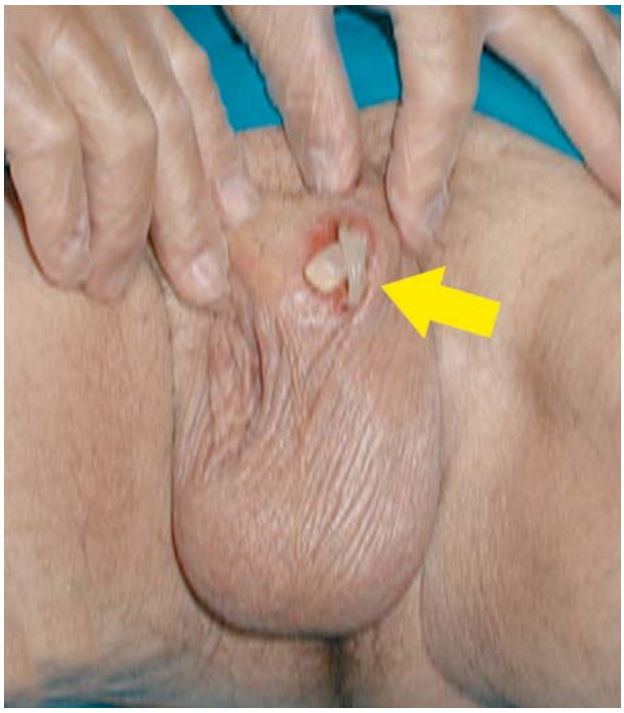


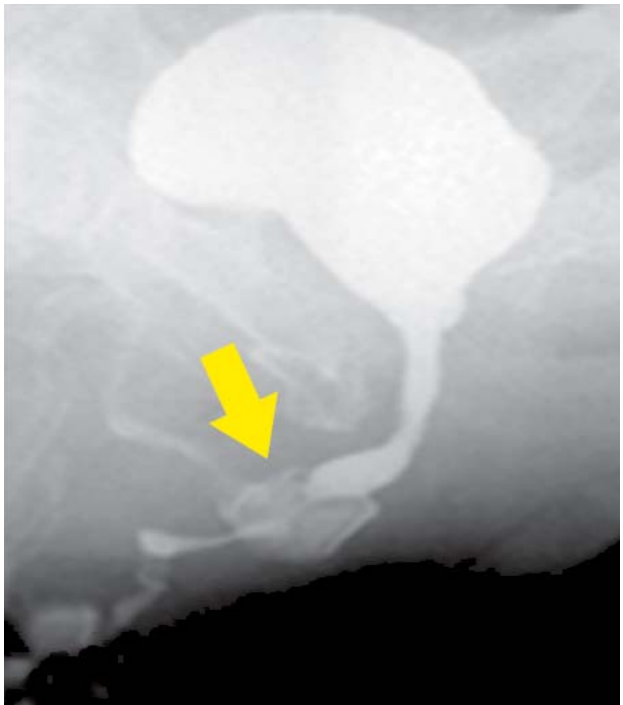
Figure 2. Evidence of a partially extruded scrotal pump at the physical examination (arrow).

urethra cuff. The AUS device was placed via a transverse scrotal approach. The postoperative course was uneventful and oncological follow-up was regular.

At the department of emergency, an abdominal ultrasonography revealed a severe bilateral hydroureteronephrosis with urinary retention, associated with acute renal failure. The picture attributed to a mechanical defect of the occlusive cuff/control pump. Hence, by deactivation of the AUS, some stressful attempts of urethral catheterization were performed that were finally successful. The cardiac failure and renal insufficiency were then resolved and the patient was discharged with a regimen of periodical substitution of the indwelling catheter maintained closed on intermittence.

After 3 months, the patient complained from the scrotal extrusion of the pump with a urinary leakage through the wound (Figure 2). A cystourethrography showed a urethral lesion in its bulbar part, with a urinary leakage reaching the extruded scrotal pump and the scrotal skin (Figure 3).

Surgical removal of the entire device and a perineal urethrostomy were arranged. The intra-operative physical examination confirmed the presence of a urinary fistula, with an internal orifice of about 1.5 cm involving the ventral urethral surface immediately caudal to the distal margin of the bulbar



occlusive cuff and an external orifice on the scrotal skin.

DISCUSSION

In spite of some recent conflicting data, peri-operative pelvic radiation therapy is commonly considered as a risk factor for urethral erosion.[7,8] Otherwise than diabetes, vascular disease, or pre-operative urodynamics, traumas intended as catheterization or endoscopic manipulations in patients with an activated or malfunctioning device are considered as potential causes of urethral lesions, facilitated by the tissutal devascularization due to urethral atrophy.[5,7,9,10]

In our patient, we have identified the urethral catheterization, described in the literature as a potential determinant of urethral erosion, as the cause of the damage localized in the bulbar portion of the urethra. We conceive that the amiss catheterization was performed with an uncompleted deactivated sphincter due to its malfunctioning and that the scrotal extrusion of the pump, caused by a subsequent urinary fistula, developed between the damaged urethra and the pump allocation within the subdartos pouch. The tear was intra-operatively described as a breach with abraded margins opened onto the ventral surface of bulbar urethra, the easiest part to be injured by stressful catheterizations, allowing the urine to follow AUS components. This imposed the removal of the malfunctioning AUS with a consequent arrangement of a perineal urethrostomy.

To the best of our knowledge, this is the first report of such a complication presented as a consequence of an improper invasive maneuver occurred 22 years after the implantation of the AMS-800 device.

CONCLUSION

We have demonstrated a clear causal connection between the amiss urethral catheterization in a patient with a malfunctioning AUS and the consequent local complications that finally led to a major surgical intervention. We do believe that in a similar clinical setting even if the AUS is likely inactivated, because of its possible malfunction or the presence of urethral atrophy associated to tissutal devascularization, a temporary suprapubic cystostomy by ultrasound guidance avoiding damage to the AMS components may be advised in place of a urethral stressful catheterization to avoid further complications, such as urinary fistula appearance. This cautious approach is subtended to a clinical rational, and may avoid malpractice litigations accounting for a medical liability.

CONFLICT OF INTEREST

None declared.

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