Novel management approach to connecting tube erosion of artificial urinary sphincter

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Artificial urinary sphincter (AUS) erosion often involve the urethral cuff and is managed by complete or partial device removal. Abdominal wall erosion of AUS tubing has not been previously reported and its management is unknown. We report tube erosion (TE) of AUS successfully managed without device explant. An 81-year-old male with AUS for post-prostatectomy incontinence presented with TE at the site of inguinal incision without signs or symptoms of infection. The exposed tube was reduced and wound was closed after copious antibiotic solution irrigation. No complications were noted at 2 month follow up. AUS-TE can be successfully managed conservatively with antiseptic wound site irrigation and reinsertion in absence of infection.

Key Words: artificial urinary sphincter, AUS, erosion, incontinence surgery, post-prostatectomy incontinence

Introduction

Artificial urinary sphincter (AUS) is widely used and considered the gold standard for management of post-prostatectomy incontinence following Scott's report in the mid-1970s.[1,2] Complications include urethral atrophy, urinary retention, infection and urethral cuff erosion. Cuff erosion occurs at a rate of about 5% however isolated tube erosion (TE) is rare.[3,4] Management of cuff erosion involves removal of all the components,[5] however it has been recognized that in the absence of infection, several components may be preserved and retained.[6,7] To our knowledge, there are no reports of isolated TE of an AUS and its management. We hereby report a first case of AUS-TE managed successfully with repositioning after irrigation of the eroded site.

Case presentation

An 81-year old white male with a 1 year history of AUS implant for post-prostatectomy incontinence, presented with gaped inguinal wound and exposed reservoir tube. The AUS was implanted a year earlier for post-prostatectomy incontinence (PPI). The patient developed PPI after salvage radical prostatectomy and external beam radiation for prostate cancer. Further history noted no fevers, chills, malaise or pain at the site. Exam revealed evidence of eroded connecting tube in the left inguinal scar, without evidence of erythema, tenderness or infection, Figures 1a and 1b. The device was tested, noted to function appropriately but deactivated pending surgical planning. The patient was counseled on the options of complete device explantation, limited explantation of the involved eroded component followed by subsequent replacement, or deeper repositioning of the exposed tube after wound irrigation. The former two options would assure complete removal of any potential source of infection from the exposed tube but would involve more aggressive surgery, tissue trauma and the need for subsequent procedure if replacement is considered. The latter option was favored by the patient as it would involve limited dissection and morbidity given his history of pelvic irradiation as well as the high potential for success given the lack of infection at presentation.

Intraoperatively, skin preparation was performed with 5% povidone-iodine solution thoroughly for 10 minutes. After 1 gm vancomycin and 240 mg gentamicin were given intravenously, a skin incision was made over the scar adjacent to the exposed tube.

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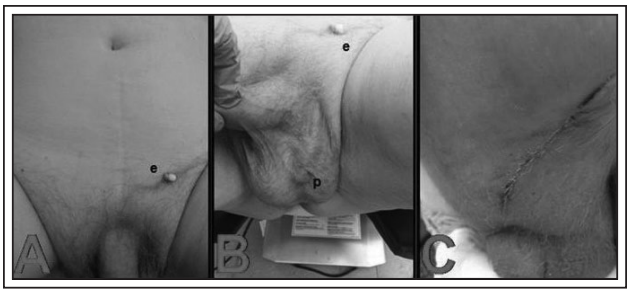

Figure 1. a) Preoperative image showing site of eroded AUS tube (e) in left inguinal region without signs of infection. **b)** Fully functional AUS device, illustrating pump (p) in scrotal pouch. **c)** Postoperative image at 3 weeks showing healing inguinal incision.

The subcutaneous tissues were inspected, noted to be viable, lacked infection or significant inflammation and sample sent for culture. Reassured by these findings, copious irrigation of the wound and exposed tube was performed with bacitracin and 80 mg of gentamicin in 500 mL of normal saline. The tube was relocated in a subcutaneous pocket created above the fascia. This space was closed in two layers with interrupted 2-0 Vicryl sutures. The skin edges adjacent to the erosion were trimmed and closed primarily with running 4-0 Monocryl suture and Dermabond. No drain was left as we did not find it necessary. Postoperatively, the patient was prescribed 500 mg of Keflex orally every 6 hours for 5 days. Intraoperative culture returned 48 hours later as 'scant growth of Pseudomonas aeruginosa', sensitive to all tested antibiotics including penicillins.

The patient had no complaints and no signs of wound infection at 2 month follow up, Figure 1c. The device was tested and functioned well.

Discussion

AUS is widely used for PPI in men. Isolated TE has not been previously reported however cuff erosion is common.[4] We reported TE in a man who presented without signs of infection. Potential causes of TE include thin body habitus, superficial tube placement and tight fitting clothing such as belts. Because erosion is equated to infection, the traditional management has been complete or partial removal of the eroded portion of the AUS. Mulcahy advocated for immediate replacement of infected penile prostheses after device removal and antiseptic wound irrigation.[8] This concept has been successfully applied to infected AUS in appropriately selected patients with good long term results.[9]

Our patient underwent antiseptic wound irrigation followed by immediate repositioning of exposed tube. This approach was favored given the lack of infection on exam and history of irradiation which increases morbidity with complete device explantation. The successful management of AUS-TE with antiseptic irrigation and immediate tube repositioning has not been previously reported. With short follow up period of only 2 months, this option cannot be considered standard, however it may be offered to appropriately selected patients with TE and increased morbidity risk of complete AUS explantation. Further studies are warranted to establish the role of this approach.

Conclusion

We report the first case of TE of an AUS device managed by antiseptic irrigation of the wound and involved tube, followed by immediate repositioning. This management option may be considered for patients with low risk of infection and high morbidity risk of complete device removal. □

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