

## The Artificial Urinary Sphincter Infection that Occurred 10 Years Later from Implantation

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### Abstract

An 82-year-old diabetic man with AMS 800™ in the bulbar urethra was referred to our hospital with lower abdominal pain and swelling. He underwent open sigmoidectomy with indwelling of urethral catheter a month ago. Abdominal and pelvic CT showed the inflammatory change around the device. Urethroscopy revealed urethral erosion and bulge of cuff into the lumen of urethra. Immediately, he was treated with a course of antibiotics administration, however, the device tube became exposed on the outside of scrotum skin 6 months later. We have removed the device except cuff and a part of tube because it was thought to be difficult to separate it from the urethra.

The infection rate of AMS800™ is known to be 3.3~27.8%, mostly infection has occurred in 2 years. It was a rare case of infection that occurred 10 years later from implantation in association with abdominal surgery.

**Keywords:** Artificial urinary sphincter; Infection

### Introduction

The artificial urinary sphincter (AUS) is widely regarded as the gold standard for the treatment of post prostatectomy urinary incontinence with a patient satisfaction rate of 75% to 90% [1-3]. Prior studies demonstrated the efficacy and complications of the AUS [4]. While some patients still need minor protection with urinary pad, most are initially universally happy with their result, an outcome that persists in the long term [5]. On the other hand, some complications including infection, erosion, mechanical failure, and urethral atrophy have been reported [6]. Infection/erosion generally occurs within 2 years after implant placement, which rate is 3.3-27.8% at pooled analysis of 12 studies [4]. We herein report a rare case of AUS infection occurred 10 years later from implantation in association with abdominal surgery.

### Case Report

An 82-year-old diabetic man with post-prostatectomy stress incontinence has been placed of AMS800™ in the bulbar urethra in 2002. He underwent open sigmoidectomy due to sigmoid colon cancer with incision of lower abdominal wall in 2012. A 16 Fr. urethral catheter was indwelled with the cuff of AUS deflated in the perioperative period. A month later he was referred to our hospital because of right lower abdominal pain, right scrotal pain, and swelling of the same part. Redness of lower abdominal and scrotal skin was observed. Abdominal and pelvis CT scan showed the inflammatory change around the device (Figure 1). Urethroscopy revealed urethral erosion and bulge of cuff into the lumen of urethra (Figure 2). The urine contained large number of white and red blood cells which culture was *Proteus mirabilis*. Immediately, he was treated with a course of antibiotics Tazobactam/Piperacillin administration for 2 weeks and placed cystostomy. These treatments provided symptomatic improvement; he was discharged from the hospital with cystostomy. However, the device tube became exposed on the outside of scrotum skin with pus discharge of which culture was methicillin-resistant *Staphylococcus aureus* 6 months later (Figure 3). We have removed the device except cuff and a part of tube because it was thought to be difficult to separate the cuff from the urethra (Figure 4). There were no complications in the perioperative period. Though, the infection of the surgical wound was occurred within a week, it has been needed to be lavaged the cavity of the subcutaneous abscess for a few weeks. He did get over the infection, and not suffer any complications in association with the residual device.

### Discussion

AUS have been widely used for treating incontinence of various etiologies, especially for post-radical prostatectomy incontinence. When the device works properly, an outflow resistance of 60 to 70 cm water pressure provides good urinary incontinence [4,7]. Durability of outcomes following primary AUS implantation is excellent with a 5-year 80% durability rate [4,8]. There have been known some complications of AUS as cuff erosion, infection, mechanical failure, and urethral atrophy. Infection occurring without cuff erosion is not common [5]. Some papers did not report erosion and infection separately, because most cuff erosion will lead to infection [5,6,9]. Cuff erosion occurring within 2 years following implantation mostly, late erosion usually occurs after a catheter has been inserted for a prolonged period without proper deactivation of the AUS [7,9,10].



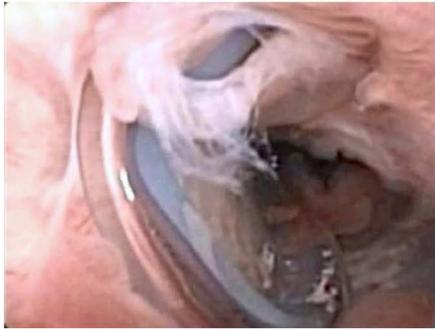
**Figure 1:** Computed tomography image. Inflammatory change around the tube of AUS were shown.

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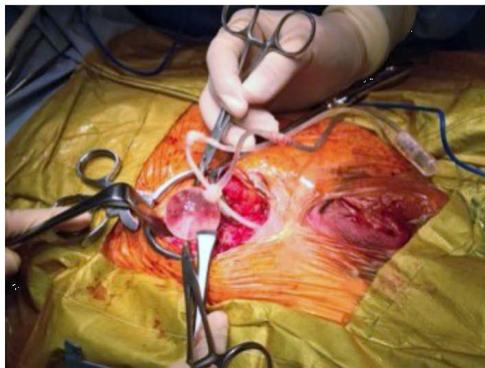
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**Figure 2:** Bulbar urethra observed by urethroscopy. Urethral cuff erosion on the surface and bulge of the cuff into the lumen of urethra were seen.



**Figure 3:** The tube of AUS exposed on the outside of right scrotum skin.



**Figure 4:** Removal of AUS unit except the cuff.

In this case, Cuff erosion was observed after urethral catheter indwelling for abdominal surgery. Late erosion will occur at any time after insertion. So, the cause of infection is thought to be inserting urethral catheter. It is difficult to be thought that infection was introduced by surgical incision. The reason why the cause of infection is not surgery because there was no report about infection of AUS in association with abdominal incision so far, and if the infection were

caused by surgical incision, it may occur in a short while. And there are two risk factors of infection in this patient as diabetic mellitus and advanced age.

Treatment for infection is recommended to remove the device [6]. We have planned to conduct removal of the device, however, the patient was treated effectively with only administration of antibiotics and recurrence of infection has not been observed for 6 months with cystostomy. Cystostomy was placed to cope with urinary incontinence due to malfunction of AUS, and to prevent reinfection. We finally took out the device except the cuff to treat the infections when the device tube became exposed with pus discharge. We did not remove the cuff that dent into the lumen of urethra, because urethrectomy would be needed, but it thought to be invasive procedure for the aged patient. If reinfection of the cuff will occur, urethrectomy may be taken into consideration.

What is critical is to prevent occurring of urethral erosion and infection of AUS. While indwelling urethral catheter, adequate procedure to deflate the cuff is needed with meticulous attention in particular.

### Conflict of Interest

None declared.

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