

## CASE REPORT

# Two Fungal Infections of Inflatable Penile Prosthesis in Diabetics

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### ABSTRACT

**Introduction.** Penile prosthesis infections have decreased since the introduction of antibiotic-coated implants. Infections that do occur can be from more rare and virulent organisms than the traditional skin flora historically implicated.

**Aim.** In this report, we present two cases of inflatable penile prosthesis (IPP) infection from *Candida* organisms in insulin-dependent diabetic patients.

**Methods.** Case report with literature review.

**Main Outcome Measures.** Resolution of the two cases.

**Results.** Both patients were found to have insulin-dependent diabetes. Both patients also presented with infection of the device with *Candida* species, with the implant pump adherent to their scrotal skin.

**Conclusions.** This report supports the emerging literature that the flora of IPP infections is changing. We suggest considering adding antifungal agents to antibiotic coatings, dips, or washout solutions at the time of penile prosthesis surgery in diabetic patients. **Cotta BH, Butcher M, Welliver C, McVary K, and Köhler T. Two fungal infections of inflatable penile prostheses in diabetics. Sex Med 2015;3:339–342.**

**Key Words.** Penile Prosthesis; *Candida*; Erectile Dysfunction; Diabetes

### Introduction

Significant progress has been made in inflatable penile prosthesis (IPP) operations over the years, with infections occurring in as little as 1% of novel cases with the use of antibiotic-impregnated implants in the hands of frequent implanters [1]. However, revision operations still have a higher rate of infection, with studies citing 7–18% [2]. As intravenous (IV) antibiotics are inadequate at clearing the infection due to presence of a biofilm, any attempt at preventing infection is significant. Here we present two cases of IPP infections with *Candida*, a common medical device pathogen but

one that is still very rarely encountered in penile prosthesis operations.

### Case Presentations

#### TW

TW was a 60-year-old male with insulin-dependent type 2 diabetes (HbA1c 14.4%), obesity, and sleep apnea presenting 6 months following implantation of an AMS 700 3-piece inflatable prosthesis complaining of difficulty inflating and deflating the scrotal pump.

Because of extreme difficulty inflating the device, the decision was made to exchange the AMS

pump with a Coloplast Touch pump, leaving the remainder of the functional AMS implant in place. Despite the potential increased risk of infection by not exchanging the entire device, the patient opted for pump component exchange only. Perioperative antibiotics vancomycin and gentamicin were given and a Mulcahy salvage procedure was performed with a washout solution containing iodine, hydrogen peroxide, and antibiotics [3]. The original pump and capsule was entirely removed. A rifampin and gentamicin Coloplast dip was utilized for the newly implanted pump.

Postoperatively, the patient was able to cycle his device successfully for intercourse. However, 4 months after the pump exchange operation, the patient returned to the clinic complaining of isolated pain in the area of pump placement and on examination the pump was found to be fixed to the scrotum with localized erythema. A 10-day course of TMP-SMX was attempted with no improvement in symptoms. It was decided to remove the entire device and replace it, with the patient choosing to have a Coloplast Genesis malleable implant. Perioperative gentamicin and vancomycin were given within 1 hour of incision. The surgical site was prepped with a combination of chlorhexidine and alcohol [4] in addition to an iodine-based skin cover to avoid skin contamination. When dissecting down into the area of the pump within the scrotum, a purulent drainage was noted and sent for culture. After complete device removal, a Mulcahy washout procedure was performed in the implant space containing iodine, hydrogen peroxide, and antibiotic solutions [3]. Results of the culture of the purulent drainage and previous implant capsule obtained from surgery grew *Candida glabrata*. The patient experienced no complications postoperatively and the device was functional with no signs of infection at any follow-up appointments, up to 1 year at the time of publication.

#### MW

MW was a 52-year-old male with insulin-dependent type 2 diabetes (HbA1c unknown), hypertension, and dyslipidemia presenting for consultation 2 years after implantation with a Coloplast Titan 3-piece IPP. He complained of scrotal pain and examination revealed localized erythema and pump fixation to the skin. Despite a 6-week course of TMP-SMX, the patient's symptoms persisted and the area developed a draining sinus tract in the anterior scrotum. A wound culture grew *Candida albicans*. He then underwent

revision surgery and complete device replacement with a Coloplast Genesis malleable device. Perioperative vancomycin, ceftriaxone, and fluconazole were given. Upon entry into the pump capsule, purulent drainage was noted. The washout solution irrigated into the previous implant spaces included iodine, hydrogen peroxide, vancomycin, gentamicin, and the addition of fluconazole to cover for the *Candida* grown from the wound drainage cultured preoperatively. The dip utilized for the malleable implant was a combination of fluconazole, rifampin, and gentamicin. Culture of the drainage and capsule also grew *C. albicans*. His postoperative course was uneventful and he was doing well with no signs of infection at any of his follow-up appointments, his most recent visit being 1 year postoperatively.

#### Discussion

Here we present two cases of IPP component infections with *Candida* species. Both patients had a long history of type 2 diabetes requiring insulin. Each presentation was delayed, with TW experiencing infectious complications 4 months after a pump exchange and MW presenting 2 years after original device placement. Both patients presented with scrotal pain and displayed similar physical exam findings of an implant component adhered to their scrotal skin with erythema and no systemic signs of infection. Not surprisingly, neither infection responded to antibiotics despite recent literature supporting success with this technique in nonsystemic localized implant infections [5]. Of note, these cases were the only two implant infections with "non-aggressive organisms" with classic, historically described pump fixation seen at our institution over the last 7 years.

#### Fungal Device Infections

*Candida* infections are a common cause of medical device infections, likely due to their ability to form a biofilm. As all humans are colonized with yeast as a commensal organism, their virulence is related to impairment of host defenses. The most common conditions leading to overgrowth of *Candida* include immunocompromised states, diabetes mellitus, antibiotic use, indwelling devices, and IV drug use [6]. *Candida* is responsible for less than 1% of joint prosthesis infections, 2.6–7% of peritoneal dialysis infections, 2–10% of prosthetic heart valve infections, 4.5% of pacemaker infections, and 21% of catheter-associated urinary tract infections [6].

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