

# Necrotizing Fungal Infection Following Penile Prosthesis Implantation: A Case Report

## Penil Protez İmplantasyonu Sonrası Nekrotizan Mantar Enfeksiyonu: Olgu Sunumu

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### Abstract

Infection is one of the most devastating complications of penile prosthesis implantation. Although the infection prevalence have decreased owing to new technologies and growing surgical experience, it is still a troublesome situation. We present a 50-year-old male patient who had necrotizing fungal infection after penile prosthesis implantation caused by *Trichosporon asahii*.

**Keywords:** Fungi, infection, necrosis, penile prosthesis, *Trichosporon asahii*

### Öz

Enfeksiyon, penil protez implantasyonunun en tahrip edici komplikasyonudur. Cerrahi deneyimin gelişmesi ve yeni teknolojiler sayesinde enfeksiyon prevalansı düşmekte olmasına rağmen, halen sıkıntılı bir durum olmaya devam etmektedir. Penil protez implantasyonu sonrası "*Trichosporon asahii*"nin sebep olduğu nekrotizan mantar enfeksiyonu gelişen 50 yaşında erkek olguyu sunmaktayız.

**Anahtar Kelimeler:** Mantar, enfeksiyon, nekroz, penil protez, *Trichosporon asahii*

### Introduction

Penile prosthesis implantation is an important treatment option for severe erectile dysfunction (1). In spite of increased experience of surgeons and advances in implant technology, prosthesis-derived infection remains as a serious adverse event (2). We present a case of necrotizing fungal penile infection after penile prosthesis implantation that resulted in total penectomy.

### Case Presentation

Written informed consent was obtained from the patient. A 50-years-old male patient was admitted with the complaint of erectile dysfunction for 4 years. He had type 2 diabetes mellitus for 10 years and had been under insulin treatment for the last three years. International Index of Erectile Function score was 0. He reported that previous treatments with phosphodiesterase type 5 inhibitors had been unsuccessful. His physical examination was normal.

The patient underwent malleable penile prosthesis implantation (Coloplast®, Minneapolis, USA) via penoscrotal approach under perioperative vancomycin and gentamycin prophylaxis. The patient was discharged on postoperative 1<sup>st</sup> day uneventfully.

At the postoperative 10<sup>th</sup> day, the patient applied to our outpatient clinic with severe penile pain and hyperaemia in the incision line. Oral cefuroxime axetil 500 mg twice daily and dexamethasone 50 mg once a day were initiated. However, ecchymosis and severe oedema occurred in the next 48 hours even after the oral treatment (Figure 1). Considering prosthesis-related infection, the patient was hospitalized and the prosthesis was removed same day. Tissue and drainage samples were obtained for antimicrobial culture study. As a "*Trichosporon asahii*" fungus was isolated in the culture, systemic antifungal (fluconazole 100 mg, twice a day) treatment was added. As patchy necrotic areas were observed at the glans penis, hyperbaric oxygen therapy was administered, however, necrosis spread despite antimicrobial and hyperbaric oxygen

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treatment. In 72 hours, the ischemia and necrosis increased till the base dominantly on the dorsal skin of the penis. The patient underwent penile amputation surgery.



Figure 1. Necrotizing infection of the penis

## Discussion

Penile prosthesis implantation is an effective and acceptable method for the management of organic erectile dysfunction (3). Infection is the most important complication of this procedure. Although the rates of infection have decreased in the past years; still, 1-3% of cases suffer from this complication (4). The cost of a penile prosthesis infection has been shown to be six fold the original operation (5). Mulcahy and Carson (6) evaluated the rate of infection associated with penile prosthesis implantation in diabetic and non-diabetic patients. They demonstrated a significantly higher rate of infection in diabetic patients (1.88% in diabetics vs. 1.53% in non-diabetics) (6).

Pathogens may contaminate implant via atmospheric exposure, unknown urinary tract infection or urethral injury during surgery, or via haematogenous or lymphogenous spread (7). The most common cause of infections is direct contact of the prosthesis with the skin flora during surgery. Coagulase-negative staphylococci are the most frequently isolated organisms from infected prostheses (5). The second most common infecting microorganism is *Enterobacter aerogenes*. Fungal infections have been described in approximately 5 percent of cases (5).

All humans are colonized as a commensal interaction with yeast and their virulence is related to the deterioration of host defense. The most common conditions for *Candida* proliferation include immunocompromised states, diabetes mellitus, antibiotic overuse, indwelling devices, and intravenous drug use (8,9).

*Trichosporon asahii* and other members of the genus *Trichosporon* are basidiomycetous yeasts defined by the structure of true hyphae and pseudohyphae, arthroconidia, and blastoconidia (10). They have been isolated from soil and other environmental sources and from enclosed surfaces. In addition, they may be a part of the normal flora of the human skin, gastrointestinal tract and respiratory system (11).

An ideal treatment for *Trichosporonosis* has not yet been clearly defined (12). It has been recommended that antifungal drug resistance and high mortality rates seen in severe *Trichosporonosis* may be accomplished by the combination of two classes of antifungals (amphotericin B and fluconazole) (10). However, even after prompt and forceful antimicrobial treatment, it may not be sufficient to avoid catastrophic situations like local tissue necrosis leading to amputation.

Although a significant decrease in infectious complications has been accomplished in penile prosthesis surgery, these complications may still cause catastrophic outcomes. Although fungal infections are rarely seen after penile prosthesis implantations, surgeons must consider antifungal therapy if post-surgical infection does not ameliorate with antibiotic treatments, especially in patients with the poor host defense mechanisms.

## Ethics

**Informed Consent:** Written informed consent was obtained from the presented case.

**Peer-review:** Externally peer-reviewed.

## Authorship Contributions

Concept: M.G.Ç., Design: M.G.Ç., E.E., Data Collection or Processing: E.E., Analysis or Interpretation: M.K., E.E., Literature Search: U.Y., M.G.T., Writing: M.G.T., M.G.Ç.

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