Native-valve endocarditis due to *Candida parapsilosis*

Chung-Dann Kan*a,b*, Chwan-Yau Luo*a, Pao-Yen Lin*a, Yu-Jen Yang*a,*

*a*Department of Surgery, Division of Cardiovascular Surgery, National Cheng Kung University Hospital, 138 Sheng-Li Road, Tainan 704, Taiwan  
*b*Institute of Clinical Medicine, Medical College, National Cheng Kung University, Tainan, Taiwan

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Abstract

*Candida parapsilosis* endocarditis is associated with a high mortality rate. Usually occurring in intravenous-drug abusers and prosthetic valve recipients, native-valve endocarditis is rarely reported. We describe a case of *Candida parapsilosis* endocarditis involving the aortic and mitral valves, with the patient surviving prompt double-valve replacement with amphotericin B and fluconazole treatment. Five years after the surgery, the patient was still free of recurrent symptoms. Although the results suggests that prompt surgery combined with pre- and postoperative intravenous amphotericin B and 6 months of oral antifungal antibiotic is adequate for such cases, life-long regular follow-up with echocardiography is still required. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

*Candida parapsilosis* fungal endocarditis is a rare but serious disease, with a high mortality rate [1]. Usually diagnosed in heroin abusers, prosthetic valve implant patients, or where intravenous catheter use has been prolonged [2], *Candida parapsilosis* native-valve endocarditis has rarely been reported. Traditional therapy for this disease includes intravenous amphotericin B, with or without fluconazole, and fungal endocarditis is considered an absolute indication for valve replacement [1,3]. Even with aggressive treatment, however, diagnosis of *Candida* endocarditis is associated with a high mortality rate [2]. This report presents a case involving the native aortic and mitral valves, the patient surviving after prompt double-valve replacement with amphotericin B and fluconazole treatment.

2. Case report

A 73-year-old male patient was admitted to our hospital in September 1995, after 2 weeks of evening fever of around 38–39°C. Six months previously, vagotomy and pyloroplasty had been performed at a local hospital for gastric bleeding. Initially, the patient had visited a local clinic, with upper-airway infection suspected. The fever persisted after 20 days despite aggressive first-generation cephalosporin treatment, however, and the patient was then transferred to our hospital. General malaise and severe vomiting conditions were presented, and the cardiovascular examination revealed a grade III/VI systolic murmur at the left lower border of the sternum, radiating to the axillary region. Echocardiography revealed vegetations on the aortic and mitral valves, with *Candida parapsilosis* cultured from all six blood samples. Treatment with intravenous amphotericin B (0.6 mg/kg per day) was subsequently initiated, with the patient undergoing double-valve-replacement surgery 10 days later. Intraoperatively, perforations were noted in the aortic (Fig. 1) and mitral valves, with large, attached vegetations. After aggressive tissue debridement and valve excision, replacement with bileaflet mechanical valves (#21 and #29, St. Jude Medical Inc., USA for aortic and mitral valve, respectively) was performed. After a total of 1670 mg of amphotericin B had been administered, the antibiotic therapy was changed to the oral form of fluconazole on the 50th day after the operation, with the patient eventually discharged on day 62. The patient was readmitted 1 month later because of the unhealed infected sternal wound, and muscle-flap transposition was performed. The patient was discharged after the wound condition had improved, receiving regular follow-up at the outpatient clinic with fluconazole treatment. After 6 months of medication, he stopped taking the antibiotics because of his intense dislike of the number of drugs required, taking...
only 2.5 mg of coumadin daily. No recurrence was noted from a series of blood cultures and follow-up transthoracic and transesophageal echocardiography (TEE) examination during a 5-year period, however.

3. Discussion

Fungal endocarditis was rarely seen before the introduction of antibiotics, steroids, and cardiac surgery [1]. *Candida parapsilosis*, an important nosocomial pathogen that is found on the hands of health-care workers (26%), is a rare cause of infectious endocarditis [4]. It occurs mainly in intravenous drug abusers, patients receiving prolonged intravenous hydration, or following cardiovascular surgery [1]. Other risk factors include malignancy, malnutrition, and the use of multiple antibiotics, corticosteroids, or central venous catheters [2]. *Candida parapsilosis* endocarditis involving native valves without an obvious predisposing cause has rarely been reported, however. Although most cases of *Candida* endocarditis occur in the first 2 months after surgery, the only possible factors for our patient were the gastric surgery and the intravenous nutritional support which had been provided 6 months previously. As *C. parapsilosis* generally colonizes human skin (especially the fingernails) [4], the mode of transmission for our patient may have involved invasive-contact procedures. Thus, it seems reasonable to suggest that, with respect to avoidance of infection, cleanliness of the hands is the most important concern, both for medical staff and patients.

Fungal endocarditis generally results in larger vegetation than bacterial endocarditis, and tends to be more invasive to the valves, destroys adjacent tissue, and promoting embolism formation [1]. Most commonly, *Candida* endocarditis involves the aortic and mitral valves [1]. Most of the symptoms and signs are nonspecific, however, resembling the common cold. Although diagnosis can be difficult, it is important to arrive at an accurate assessment as soon as possible and for the treatment to then be initiated immediately [3]. Although some reports point out that medical treatment alone may be sufficient for treatment of *Candida* endocarditis [5], most of the literature still supports the notion that a diagnosis of fungal endocarditis is an absolute indication for surgery, with complementary prolonged medication required [2]. The presented case supports this argument. The appropriate valve substitute for this severe infection is difficult to determine. Although a homograft is recommended in an infectious situation [1], homografts are difficult to obtain in most hospitals in Taiwan. Therefore,
only simple mechanical valves are used at our institution. Based on the outcome of this fungal endocarditis case, it seems reasonable to suggest that, with aggressive debridement, mechanical valves may be an alternative choice for this infectious condition.

In vitro sensitivity to amphotericin B, 5-fluorocytosine, fluconazole, ketoconazole, and itraconazole has been demonstrated for *Candida parapsilosis* [6]. Although fluconazole is less effective than amphotericin B, it has fewer adverse effects in terms of nephrotoxicity, and it is well-absorbed orally so it can be used for longer periods. Lifelong antifungal suppression and follow-up are needed for this type of patient; however, this is difficult to achieve due to poor drug compliance [1]. Thus, the optimal duration for antibiotic therapy remains undetermined. As great advances are made in image resolution techniques, TEE is becoming more important for disease detection. Patients at our institution are regularly followed up using TEE and repeat blood cultures to determine recurrence; however, no obvious signs have been detected during long follow-up periods. Based on analysis of this case, it seems reasonable to suggest that initial treatment with intravenous amphotericin B, combined with aggressive vegetation debridement and mechanical valve replacement, and 6 months of oral antifungal antibiotic may be an alternative protocol for the treatment of *Candida parapsilosis* endocarditis.

**References**


