CASE REPORT

Successful medical treatment of infective endocarditis caused by *Candida parapsilosis* in an immunocompromised patient

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SUMMARY

Candida spp is a common pathogen of nosocomial infections that has increased in recent decades, with mortality rates close to 40% in cases of systemic candidiasis. One type of presentation is infective endocarditis, which, by its prolonged need for treatment, represents a constant challenge for clinicians. We describe a 36-year-old woman, recently diagnosed with ovarian cancer, who developed aortic valve infective endocarditis caused by *Candida parapsilosis* and who was treated with oral antifungal medication, with no surgical intervention required.

BACKGROUND

Fungal disseminated infections are getting progressively more common, with *Candida* spp remaining the main causative organism. Different studies have showed that nosocomial infections caused by fungi have increased recently with a mortality rate close to 40% in cases of systemic candidiasis.^{1 2} Infective endocarditis (IE) is present in 5–25% of patients with candidaemia, mainly in individuals with prosthetic valves. Current treatment for fungal left-sided IE is surgical replacement of the involved valve.^{3 4}

We describe a patient who developed fungal IE, which was successfully treated with medical therapy alone; surgery was not possible due to the patient's poor clinical condition at the time. Moreover, to the best of our knowledge, there are very few case reports in the current literature describing successful medical treatment against fungal IE.

CASE PRESENTATION

A 36-year-old Peruvian woman with a recent diagnosis of ovarian cancer stage IIIB presented 5 days after receiving her first course of chemotherapy with carboplatin, paclitaxel and bevacizumab, reporting diffuse abdominal pain and loose watery stools. Her initial vital signs were blood pressure 120/70 mm Hg, heart rate 82 bpm and respiratory rate 20 breaths/min. Physical examination was remarkable for left lower quadrant abdominal tenderness and increased bowel sounds. Initial white cell count was 26 100 cells/mm³, with 90% neutrophils. The patient was subsequently admitted to the hospital, with a diagnosis of gastrointestinal sepsis. Intravenous metronidazole and ciprofloxacin were started.

On the third day, the patient's fever spiked and the antibiotics were switched to intravenous meropenem. On the seventh day, a transthoracic echocardiogram did not show vegetations, but since the fever persisted, 100 mg intravenous anidulafungin, daily, was started after a loading dose. The following day, the patient presented acute abdominal pain with peritoneal signs. Exploratory laparotomy revealed bowel perforation secondary to ovarian neoplasm; a re-intervention was performed 2 days later and colostomy was carried out. *Escherichia coli* extended-spectrum β -lactamase and *Pseudomonas aeruginosa* were isolated from intra-abdominal abscesses. A central line was placed in the operating room. The patient continued to experience low-grade fever after the surgeries; intravenous tigecycline was added and parenteral nutrition was started since she was unable to tolerate food per mouth and continued to deteriorate. She showed improvement after some days; the fever subsided and meropenem was discontinued. After 1 month of hospital stay, the fever recurred and a new transthoracic echocardiogram revealed a 5×8 mm vegetation in the aortic valve (figure 1).

TREATMENT

C. parapsilosis was isolated on five serial sets of peripheral blood cultures and also from the tip of the central catheter. Anidulafungin was continued at the same dose of 100 mg daily and voriconazole 200 mg intravenously, two times per a day, was added.

Figure 1 A two-dimensional transthoracic echocardiogram showing a mobile, pediculated echodense 5×8 mm image adjacent to the aortic valve.

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Figure 2 Repeat transthoracic echocardiogram showing no vegetation in the aortic valve.

OUTCOME AND FOLLOW-UP

After 1 month of slow but gradual improvement, the patient was discharged, continuing oral anidulafungin and voriconazole for 60 days in total. After this regimen, repeated transthoracic echocardiogram showed no vegetations (figure 2) and blood cultures remained negative. Subsequently, the patient began chronic suppression therapy with fluconazole 300 mg, daily, which was continued for 1 year, without signs of recurrence.

DISCUSSION

The in-hospital mortality rate for IE is high, 15–20%, with 1-year mortality approaching 40%.⁴ Fungal IE may be the result of medical or surgical procedures such as placement of cardiovascular devices or central catheters.^{1 2} The incidence of systemic candidiasis caused by *C. parapsilosis* is increasing worldwide.¹ In some areas, *C. parapsilosis* is the second most common species found in patients with candidemia⁵; and, in Latin America, *C. tropicalis* and *C. parapsilosis* are the most important stains after *C. albicans*.²

Infections due to *C. parapsilosis* are more closely related to the use of invasive and parenteral nutrition devices compared to all other species of *Candida* spp, as a result of adhesion to synthetic materials owing to the ability of *C. parapsilosis* to form biofilms.² In our patient, the prolonged use of a central venous catheter, parenteral nutrition, previous broad-spectrum antibiotics, prior immunosuppressive therapy and malignancy were important risk factors for systemic candidiasis and colonisation of the endocardial tissue.

According to guidelines, replacement of the infected valve by surgery is the definitive treatment for fungal IE,^{3 4 6} and the mortality rate is significantly lower in patients treated with antifungal agents combined with surgery⁴; however, in our case, the clinical scenario was not appropriate due to the patient's poor clinical condition after two recent abdominal surgeries and recent abdominal infection. Although she had fungal vegetation, our patient did not have any other indications for early surgery, such as heart failure, perivalvular abscess or uncontrolled infection.⁷

In this case, adding voriconazole to the treatment was an alternative since *C. parapsilosis* was susceptible to voriconazole in the susceptibility testing, and the patient developed fungal IE while receiving anidulafungin daily. Also, current American guidelines for candidiasis treatment include echinocandins as treatment; however, they also recommend that doses may be increased when treating IE, so that anidulafungin could have

been given at doses of 100–200 mg daily.³ It is well known that anidulafungin inhibits the synthesis of 1,3- β -D-glucan, which is an important component of the fungal cell wall, and it has previously shown excellent activity against *Candida* spp biofilms.⁵

After initial therapy, when negative cultures were obtained and there was no new evidence of endocardial lesions, the patient was switched to fluconazole as long-term suppressive regimen, as recommended by current guidelines.³ She has been followed as an outpatient for 1 year, and is taking fluconazole 300 mg daily, with no evidence of IE recurrence.

There is no consensus regarding total time of treatment; however, we consider it very important to keep surveillance on these patients since bloodstream infection due to *Candida* spp is associated with high mortality despite timely receipt of therapy,⁸ also, it is advisable to continue lifetime antifungal treatment considering their immunosuppressive condition.

Learning points

- ▶ The incidence of systemic candidiasis caused by *Candida parapsilosis* is increasing worldwide.
- ▶ Infections due to *C. parapsilosis* are more related to the use of invasive and parenteral nutrition devices compared to all other species of *Candida* spp.
- ▶ Physicians should keep in mind dual antifungal therapy against infective endocarditis as a reasonable alternative for patients in whom surgery is not possible.
- ▶ Long-term suppressive therapy along with close surveillance should be conducted for patients treated against fungal infective endocarditis.

Contributors All the authors participated in the direct care of the case and identified the case. HAR and WHC wrote up the case with literature review. LMV supervised the whole process and reviewed the final manuscript with all the authors.

Competing interests None declared.

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REFERENCES

- 1 Pfaffer MA, Diekema DJ. Epidemiology of invasive candidiasis: a persistent public health problem. *Clin Microbiol Rev* 2007;20:133–63.
- 2 Sifuentes-Osorio J, Corzo-León DE, Ponce-de-León LA. Epidemiology of Invasive Fungal Infections in Latin America. *Curr Fungal Infect Rep* 2012;6:23–34.
- 3 Pappas PG, Kauffman CA, Andes D, et al. Clinical practice guidelines for the management of candidiasis: 2009 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2009;48:503–35.
- 4 Nishimura RA, Otto CM, Bonow RO, et al. American College of Cardiology; American College of Cardiology/American Heart Association; American Heart Association. 2014 AHA/ACC guideline for the management of patients with valvular heart disease: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Thorac Cardiovasc Surg* 2014;148:e1–132.
- 5 Almirante B, Rodríguez D, Cuenca-Estrella M, et al. Epidemiology, risk factors, and prognosis of *Candida parapsilosis* bloodstream infections: case-control population-based surveillance study of patients in Barcelona, Spain, from 2002 to 2003. *J Clin Microbiol* 2006;44:1681–5.
- 6 Steinbach WJ, Perfect JR, Cabell CH, et al. A meta-analysis of medical versus surgical therapy for candida endocarditis. *J Infect* 2005;51:230–47.
- 7 Hoen B, Duval X. Clinical practice. Infective endocarditis. *N Engl J Med* 2013;368:1425–33.
- 8 Grim SA, Berger K, Teng C, et al. Timing of susceptibility-based antifungal drug administration in patients with *Candida* bloodstream infection: correlation with outcomes. *J Antimicrob Chemother* 2012;67:707–14.

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