

# Candida sake – A Rare Cause of Fungal Endocarditis

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## INTRODUCTION

Fungi are reported to be responsible for 1.45 of all cases of endocarditis<sup>1</sup>. More than half of all fungal endocarditis (FE) are caused by *Candida* species and *Candida albicans* is the most frequently isolated pathogen. The frequency of non-*albicans* *Candida* endocarditis is increasing and *C. parapsilosis* is the predominant agent among these<sup>2</sup>. We report a case of FE in a patient of rheumatic mitral valve disease with prior valve surgery caused by *Candida sake*. This is the first published report of *Candida sake* endocarditis in English literature.

## CASE REPORT

A 40 year old woman with rheumatic heart disease and mitral valve stenosis presented with left sided hemiplegia and facial weakness of four days duration. The patient also had a history of moderate grade continuous fever for two months associated with progressively increasing shortness of breath. The patient had undergone balloon mitral valvotomy seven months ago. On examination, the patient was conscious, oriented, febrile (temperature 40°C) and had anaemia. Her pulse was 96 / minute, regular and BP was 112 / 68 mm Hg. Cardiovascular examination revealed a loud S1 and an apical mid diastolic murmur suggestive of mitral stenosis and pulmonary artery hypertension (loud P2). On neurological examination, left hemiplegia and left supranuclear VII N palsy was evident. Hepato-splenomegaly was present on the examination of the abdomen.

A contrast enhanced computed tomography (CECT) of the head demonstrated an infarct in the right middle cerebral artery (MCA) territory (embolic). The presence of fever, anaemia and hepato-splenomegaly suggested the possibility of subacute bacterial endocarditis. A transthoracic echocardiography demonstrated large -18mm mobile vegetation on the anterior mitral leaflet. Blood cultures for bacteria were sterile. In view of past cardiac surgery (balloon mitral valvotomy), neurological deficit and a large vegetation, blood cultures for fungi were also sent and were processed by lactic and biphasic culture techniques. *Candida sake* was isolated in a pure form.

*Two subsequent blood cultures also grew Candida sake.*

The patient was started on intravenous itraconazole and surgical intervention was planned. However, on the 4th day of admission, prior to surgery, the patient developed 2 episodes of generalized tonic clonic seizures, deterioration in mental status and expired.

## DISCUSSION

Previous valvular surgery, rheumatic heart disease, non rheumatic valvular disease, prior bacterial endocarditis are the most important predisposing factors for development of FE. Prior antibiotic use, immunocompromised states, intravenous drug abuse, hyperalimentation and central lines are the other implicated risk factors. FE is most often seen in the aortic valve followed by the mitral valve. Fever, changing or new heart murmurs, major peripheral embolisation, focal or generalized neurologic signs, heart failure are the common clinical features of FE.

Major arterial embolisation (45%) and neurological involvement (26%) should especially alert the physician to the probability of FE. Neurological involvement could present as hemiplegia, facial palsy, and alteration in consciousness, seizures or transient ischemic attacks (TIAs).

Blood cultures have a sensitivity of about 54% in isolating fungi in patients with FE. Cardiac vegetation cultures (73%) and histological examination of the valve (95%) are more sensitive and superior in this regard<sup>2</sup>. Trans thoracic echocardiography (TTE) was found to be as sensitive as trans esophageal echocardiography (TEE) in detecting FE<sup>3</sup>. Vegetations in FE are usually large, hyperechoic and dense. The presence of abscesses and surrounding tissue destruction also raises the suspicion of FE<sup>4</sup>.

FE has a universally dismal prognosis. In an analysis of 270 cases of FE, 72% of patients died<sup>2</sup>. Mortality was highest in mitral valve FE - 79%. FE is an aggressive disease, difficult to treat and most workers advocate a combination of antifungal therapy and surgical intervention. It is important to note that unusual and less common species of *Candida* including *Candida sake*, exhibited decreased susceptibility to conventional antifungal agents in in-vitro studies<sup>5</sup>. Although the number of such cases is less, it may be worthwhile to initiate therapy with broad spectrum antifungal agents when such pathogens are isolated. Even among survivors, FE recurs in about a third of patients. Recurrence can occur as late as two years. A close follow up of these patients is mandatory.

One of the reasons proposed for the poor outcome in FE is the delay in diagnosis. Prior valve disease and cardiac surgery, large dense vegetations on the mitral valve on echocardiography, presentation with neurological deficits and peripheral embolisation, sterile bacterial cultures should prompt an early and intensive search for fungal causes of endocarditis.

*This article was accepted: 2 October 2007*

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Our patient had rheumatic mitral valve disease, prior balloon mitral valvotomy, focal neurological involvement, a large vegetation on echocardiography and blood cultures isolated *Candida sake* – and extremely rare and previously unreported etiological agent for FE.

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