

Received: 2019.03.03 Accepted: 2019.04.08 Published: 2019.07.08

A Rare Case of Candida Pericarditis Associated with Esophagopericardial Fistula

Authors' Contribution: Study Design A Data Collection B Statistical Analysis C Data Interpretation D Manuscript Preparation E Literature Search F Funds Collection G

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Patient: Male, 43 Final Diagnosis: Candida albicans pericarditis Symptoms: Chest pain Medication: — Clinical Procedure: — Specialty: Cardiology

Objective: Rare disease Background: Candida albicans is the principal human fungal opportunistic organism commonly detected in the gastrointestinal and genitourinary systems. Five species of candida (Glabrata, Tropicalis, Albicans, Parapsilosis, and Kruzei) are responsible for most cases of invasive candidiasis or candidemia, which is a growing public health concern due to the increasing complexity of patients, leading to a high fatality rate.

Case Report: We report an extremely rare case of candida pericarditis due to esophagopericardial fistula in a young, heavy, alcoholic adult diagnosed by culture of the drained pericardial fluid, which showed a growth of Candida albicans.

Conclusions: We highlight the first case of candida pericarditis in immunocompetent adult successfully treated by pericardiocentesis and oral fluconazole.

MeSH Keywords: Candida • Gastric Fistula • Pericarditis

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/916006

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Background

The genus *Candida* involves 200 distinct strains, but only some types become pathogenic when the host immune system becomes debilitated or impaired [1]. The incidence of invasive candidiasis or candidemia is increasing due to the growing complexity of patients, and it constitutes a major cause of morbidity, especially in hospitalized patients [2]. Most cases of candida pericarditis associated with gastropericardial fistula in the literature were described in patients with previous history of gastric adenocarcinoma [3,4]. We present a case of candida pericarditis associated with esophagopericardial fistula in an immunocompetent, alcoholic adult without previous comorbidities.

Case Report

A 43-year-old chronic alcoholic male diagnosed with depression and schizophrenia presented to the Emergency Department

for chest pain of recent onset of less than 24 h, and for suspicion of drug poisoning. His past medical history was significant for multiple hospitalizations due to intentional drug intoxication since 2006. He had a 25-pack-year history of smoking and he drank 5 liters of beer daily. His current medications list included diazepam, hydroxyzine, olanzapine, and clomipramine.

In the ER, his heart rate was 103/min, his blood pressure was 101/68 mmHg, and his temperature was 37.4°C. Physical examination was unremarkable for cardiopulmonary findings: regular pulse, absence of cardiac murmurs, and symmetric positive bilateral airways entry. Laboratory studies showed: hemoglobin 13.3 g/dl, platelets 320 giga/l, WBC 15.73 giga/l, CRP 332, creatinine 0.76 mg/dl, normal liver enzymes, and positive troponin 395 ng/l. An electrocardiogram revealed sinus tachycardia at 103, with diffuse upward ST segment elevation in most leads (Figure 1).

A transthoracic echocardiography done in the ER showed abundant circumferential pericardial effusion of 20-mm thickness, normal left ventricular ejection fraction, and pre-tamponade signs (Figure 2). An enhanced CT of the thorax, abdomen, and pelvis revealed a large pericardial effusion with abnormal enhancement of the pericardium and few pockets of air within the effusion, bilateral small pleural effusion, and abnormal dilatation of the esophagus in the retrocardiac portion, suggestive of pre-existing fistula (Figures 3–5). The diagnosis of infectious pericarditis with pre-tamponade status associated with previous esophagus fistula was retained.

Two sets of blood cultures, urine culture, immunological tests, syphilis, and HIV serologies were drawn. A treatment with PO amoxicillin-clavulanic acid 1000 mg Q 8H, IV acetylsalicylate 1000 mg Q 8H, and SC enoxaparin 4000 UI was started. The patient was transferred to the CCU for pericardiocentesis, which resulted in draining 400 cc of pericardial fluid and 50 cc of pleural fluid, and these fluids were sent for culture. All serologies and cultures were negative except for the culture of

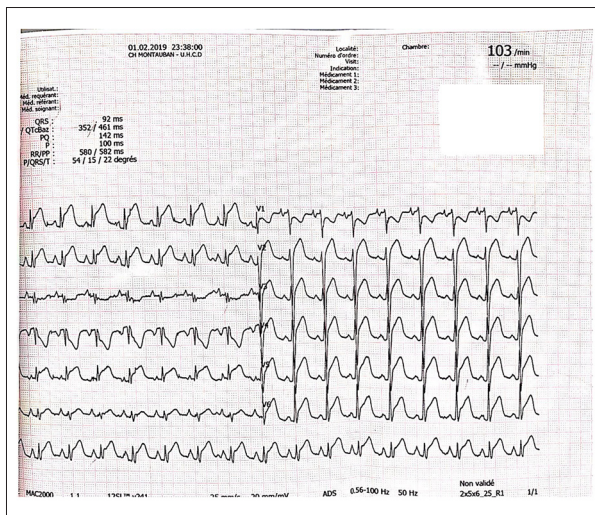


Figure 1. EKG showing ST elevation in most leads.

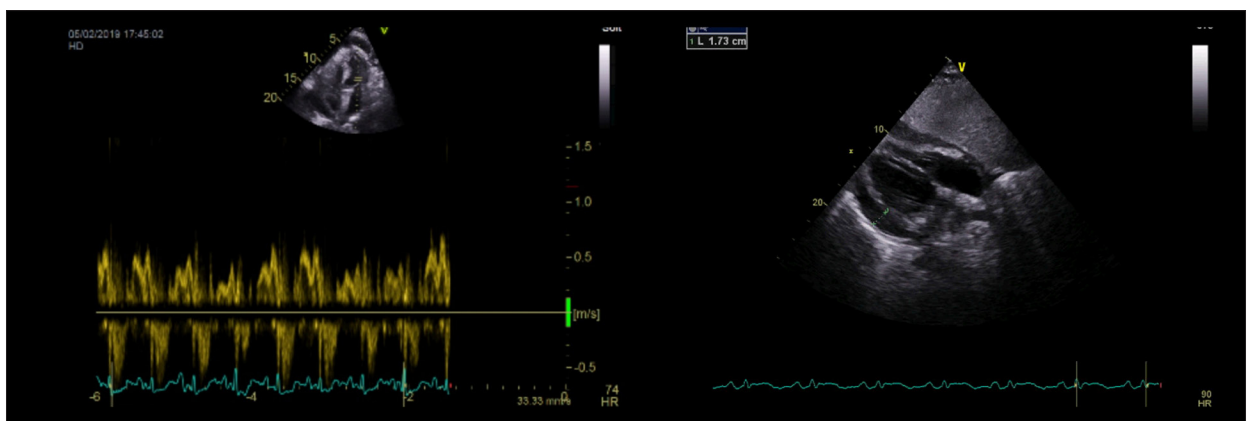


Figure 2. ETT showing abundant circumferential pericardial effusion with pre-tamponade signs.

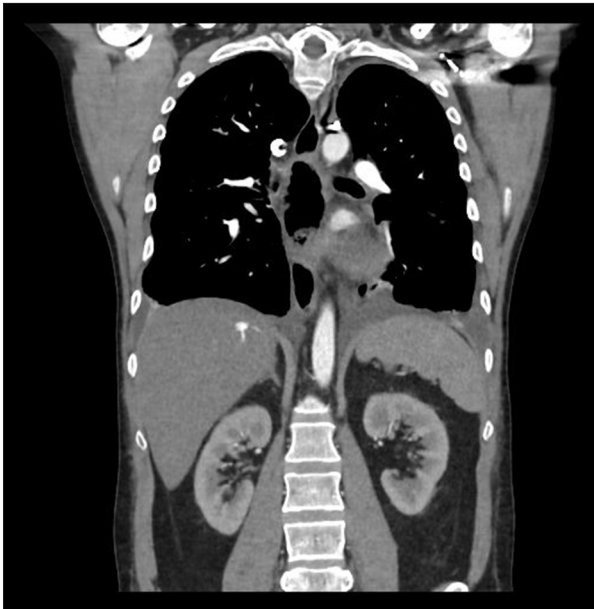


Figure 3. CT scan showing abnormal dilatation of the esophagus in the retrocardiac portion suggestive of previous fistula.

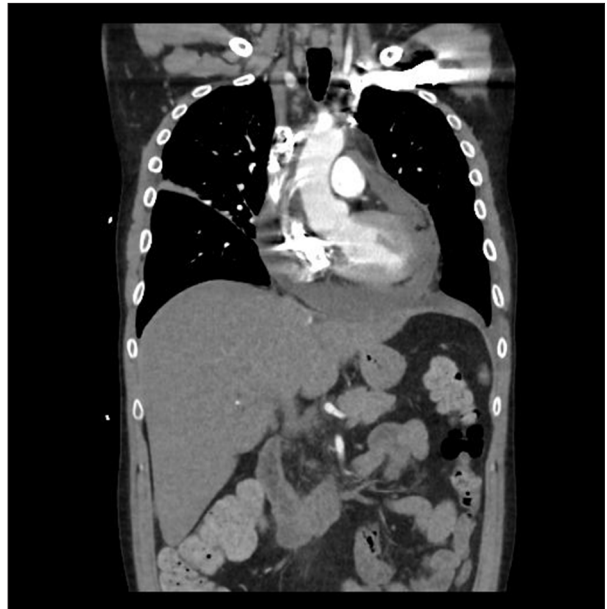


Figure 5. CT scan showing large pericardial effusion with pockets of air within the effusion.



Figure 4. CT scan showing pericardial enhancement.

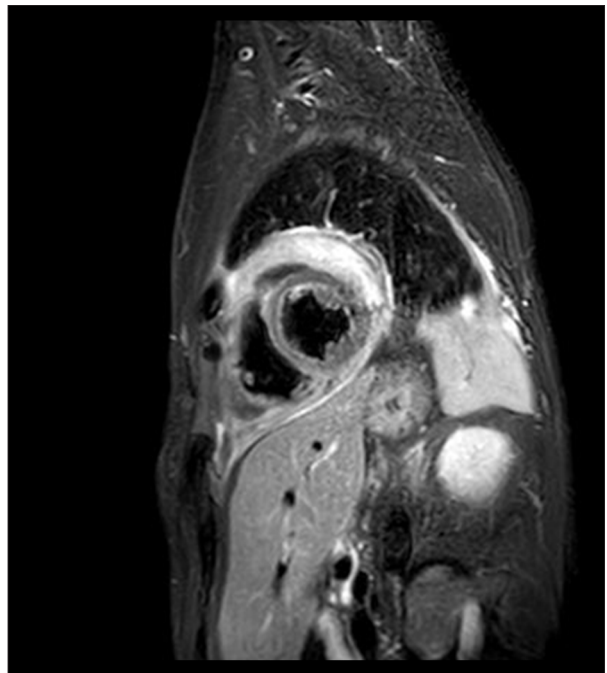


Figure 6. Cardiac MRI after drainage, showing the residual pericardial effusion.

pericardial fluid, which showed growth of yeast of *Candida albicans*. An anti-fungigram revealed *Candida albicans* sensitive to fluconazole and caspofungin. Treatment with fluconazole 800 mg/day as loading dose, then 400 mg/day for 2–3 weeks, according to the recommendations for the treatment of invasive candidiasis, was started, with interruption of amoxicillin-clavulanic acid and acetylsalicylate. After 3 weeks of treatment with fluconazole, a cardiac MRI showed a residual circumferential pericardial effusion with 8-mm of thickness,

without compressive signs, and normal myocardium (Figure 6). At a follow-up visit with the gastroenterologist, an upper-GI endoscopy confirmed the presence of an esophagus fistula, which was repaired with an endoluminal prosthesis (Figure 7).

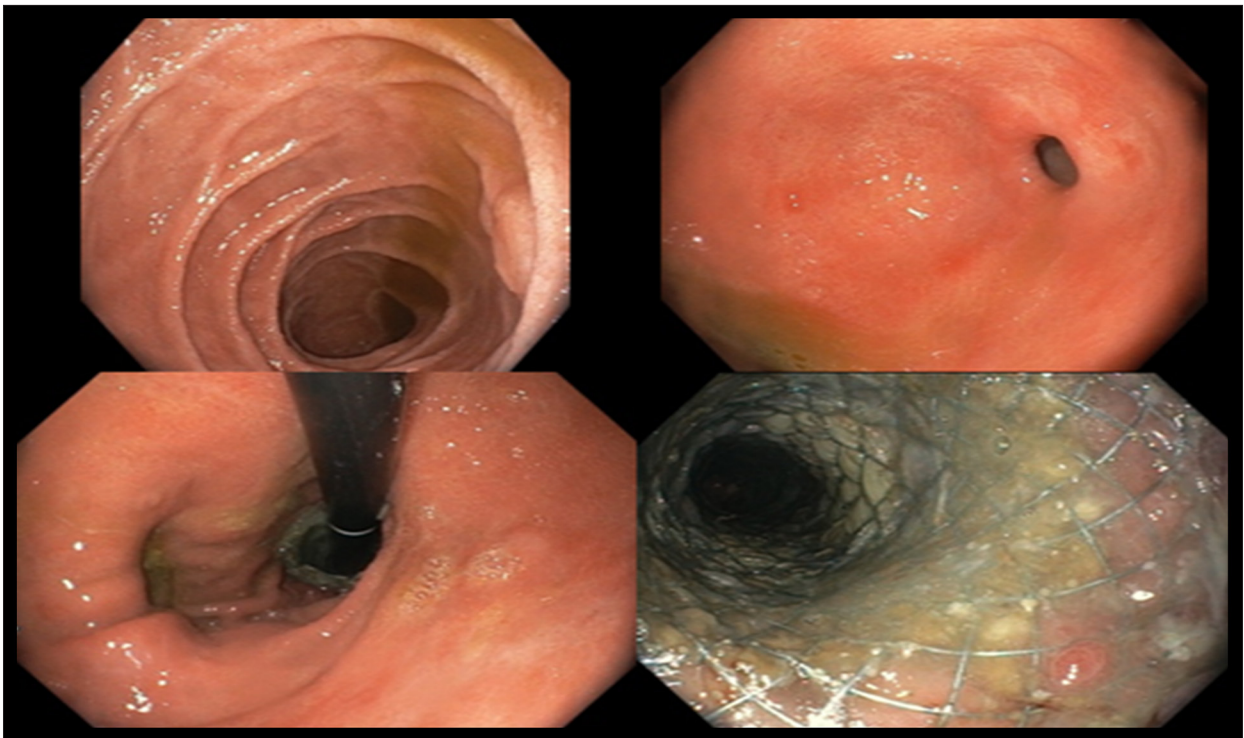


Figure 7. Endoscopy showing esophagus fistula.

Discussion

Candida pericarditis is an unusual clinical entity. A prior review of 660 cases of purulent pericarditis in the literature showed that 1% were related to candida [4]. Previous thoracic surgery and immunocompromised state are the most significant risk factors for candida pericarditis determined in previous cases. A literature review showed that 21 of 24 cases of purulent pericarditis caused by candida species had undergone thoracic surgery [5], and all cases of gastropericardial fistula were recognized in patients with gastric adenocarcinoma. We highlight the first case of candida pericarditis in a young immunocompetent adult without history of thoracic surgery, but with suspected previous candida esophagitis, which fistulized to the pericardium, causing the emergence of the opportunistic pathogen from the gastrointestinal tract to the pericardium.

In non-neutropenic patients, candidemia or invasive candidiasis is treated initially with an echinocandin such as anidulafungin (200 mg loading dose, then 100 mg IV daily), caspofungin (70 mg loading dose, then 50 mg IV daily), and micafungin (100 mg IV daily), but in non-critical patients and in those who are not likely to have an organism resistant to fluconazole (e.g., *C. krusei* or *C. glabrata*), fluconazole (800 mg loading dose, then 400 mg Per OS or IV daily) can be given as an alternative [6,7]; these conditions were present in our case. Furthermore, the literature shows that pericardiocentesis followed by operative drainage and anti-fungal agents appears to

be the best approach for achieving a cure [5–8]. Concerning the high bioavailability of fluconazole, oral therapy is convenient for most patients, and IV therapy is reserved for patients who have swallowing problems or gastrointestinal malabsorption, or who are extremely ill [7]. In addition, it is recommended to switch from an echinocandin to fluconazole in stable patients sensitive to fluconazole [7]. There is no clear guideline in the literature regarding the duration of anti-fungal therapy in candida pericarditis, but for candidemia or invasive candidiasis, it is recommended to continue the anti-fungal agent for 2 weeks after having a negative blood culture and clearance of symptoms [6]. In our case, blood culture was negative and candida pericarditis was due to previous esophageal candidiasis, thought to have emerged from a pre-existing fistula to the pericardium in an obese, chronic alcoholic adult. For this reason, and taking into consideration the guidelines and data found in the literature, we decided on a duration of treatment of 3 weeks.

Conclusions

Fungal pericarditis is a rare clinical entity correlated with high rates of mortality and morbidity, but its rarity does not mean that it cannot occur. We highlight a case of *Candida albicans* pericarditis associated with previous esophago-pericardial fistula treated by oral fluconazole in an obese, chronic alcoholic adult, with good evolution.

Conflicts of interest

None.

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