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# Candida Cardiac Tamponade Secondary to Oesophageal-Pericardial Fistula: A Rare Presentation of Oesophageal Squamous Cell Carcinoma

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## ABSTRACT

*Candida* is a rare cause of purulent pericarditis. Oesophago-pericardial fistula is an uncommon and potentially life-threatening complication of both benign and malignant oesophageal tumours. Here we report the case of 40-year-old woman who presented with symptoms and signs suggestive of acute pericarditis complicated by cardiac tamponade which required acute management with paracentesis. Pericardial fluid analysis was positive for *Candida albicans*. Oesophagogastroduodenoscopy was performed and revealed a small fistula in the proximal oesophagus extending into the retrocardiac space. Multiple biopsy specimens of the fistula site and oesophageal stricture were obtained. Histopathological findings were consistent with poorly differentiated squamous cell carcinoma of the oesophagus complicated by fistulation to the retrocardiac space.

## KEYWORDS

Cardiac tamponade, oesophageal-pericardial fistula, oesophageal squamous cell carcinoma, candida pericarditis

## LEARNING POINTS

- Purulent pericarditis with atypical organisms should raise the suspicion of oesophago-pericardial fistula.
- Oesophago-pericardial fistula in oesophageal squamous cell carcinoma is rare and associated with high mortality and a poor prognosis.
- This is one of the few cases where a gastro-pericardial fistula has been diagnosed by endoscopy.

## INTRODUCTION

Candidiasis is a fungal infection caused by yeasts of the genus *Candida*, and is the most common oral fungal infection in humans. Candida albicans is the most prevalent of at least 15 species of *Candida* that can infect humans [1]. *Candida* species rarely cause purulent pericarditis. In a previous review of 660 cases of purulent pericarditis, only 1% of cases were caused by *Candida* species, with the majority caused by bacteria [2]. *Candida* pericarditis is usually caused by *C. albicans*, but there are reported cases of pericarditis due to *C. tropicalis*, *C. kruzei*, *C. glabrata*, *C. guilliermondii and C. parapsilosis* [3, 4]. The diagnosis of Candida pericarditis is made after death in over 50% of cases [5]. Here we present a case of oesophageal squamous cell carcinoma complicated by an oesophageal retrocardiac fistula and Candida pericarditis, and review the relevant literature.

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## CASE DESCRIPTION

A 40-year-old woman presented to the emergency department with a 1-day history of severe central chest pain. The pain was not related to exertion and did not radiate but was improved by leaning forward and exacerbated by lying flat. The patient had recently been diagnosed with chronic hepatitis C infection with no evidence of cirrhosis or extrahepatic manifestations.

On further questioning, the patient had a history of unintentional progressive weight loss of almost 30 kg over the past 4 months associated with a decrease in appetite, poor oral intake, and intermittent nausea and vomiting. She also reported a history of progressive dysphagia to solids associated with epigastric pain. There was no history suggestive of gastrointestinal bleeding, no tobacco or alcohol use, and there was no family history of chronic liver disease or malignancy.

On examination, the patient was hypotensive (78/50 mmHg), had a heart rate of 122 beats/min, and was tachypnoeic with a respiratory rate of 23 breaths/min. She had an elevated jugular venous pressure and her cardiac examination revealed distant heart sounds.

Initial laboratory investigations revealed low haemoglobin (8.1 g/dl), an elevated white blood cell count (13.70×$10^9$/l), and a normal platelet count (409×$10^9$/l), creatinine kinase (24 U/l), troponin T (264 U/l), alanine aminotransferase (6 U/l), aspartate transaminase (8 U/l), total bilirubin (10 µmol/l), international normalised ratio (1.1), urea (2.2 mmol/l) and creatinine (64 µmol/l). Her hepatitis C virus load was 245,428 IU/ml by PCR. An electrocardiogram showed diffuse ST elevations and PR depression (*Fig. 1*), with an echocardiogram showing a large pericardial effusion suggestive of cardiac tamponade.

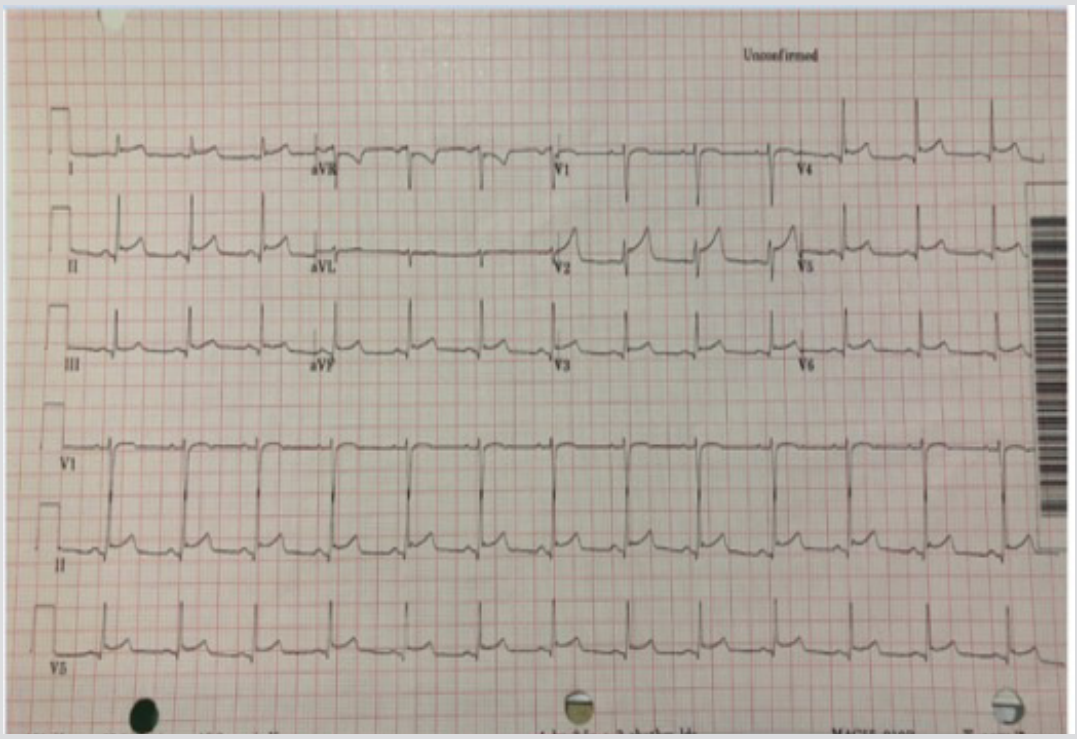


*Figure 1. Electrocardiogram showed showing diffuse ST elevations and PR depression consistent with cardiac tamponade*

Based on these initial findings and because of her critical clinical status, she underwent emergency pericardiocentesis, and 300 ml of turbid, pale-yellow fluid was drained. A tube was placed in situ for further drainage. Pericardial fluid analysis showed a high leukocyte count with predominant polymorphs (82%) and culture grew yeasts identified as *C. albicans*.

The patient was started on high-dose aspirin and colchicine. She was monitored daily by echocardiogram to assess the status of the pericardial effusion. Anidulafungin was given initially and then changed to fluconazole based on microbiological sensitivity profiling.

Due to her history of progressive dysphagia, oesophagogastroduodenoscopy was performed, which showed an oesophageal stricture that prevented the passage of both the regular adult scope and an ultra-thin scope beyond 37 cm from the oral incisors. A small mucosal defect was seen in the proximal oesophagus that was suspicious for a fistula into the retrocardiac space. Multiple biopsy specimens were taken from the oesophageal mucosal stricture site.

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Histopathological examination was consistent with poorly differentiated squamous cell carcinoma complicated by fistulation into the retrocardiac space.

The patient underwent computed tomography (CT) of the chest and abdomen with contrast, which revealed distal oesophageal circumferential wall thickening extending to the oesophago-gastric junction associated with pre-stenotic oesophageal dilatation. This was contiguous with a large retroperitoneal/epigastric mass. There were bilateral lung nodules suspicious for metastasis, with focal right rib destruction, along with multifocal infiltration of both kidneys. Multiple, slightly prominent para-aortic lymph nodes were also noted. There was extensive lytic destruction of the left femoral neck, and the liver was markedly enlarged to approximately 20 cm with no radiological signs of metastasis. The imaging findings were consistent with the endoscopic findings and widespread metastatic disease.

The patient had an ultrasound-guided biopsy of the left kidney lesions, which confirmed poorly differentiated squamous cell carcinoma consistent with metastasis from an oesophageal primary.

The patient was diagnosed with advanced oesophageal squamous cell carcinoma complicated by oesophageal retrocardiac fistula and fungal pericarditis. She was prescribed ongoing fluconazole for a total of 28 days. She started total parental nutrition and underwent oesophageal stenting. She received first-line chemotherapy with carboplatin and paclitaxel and completed three cycles. Assessment revealed progressive disease, so the patient received second-line chemotherapy with capecitabine plus 3-weekly irinotecan (XELIRI regimen). Unfortunately, she did not respond to second-line chemotherapy, and so given her poor prognosis, she was submitted to palliative comfort care.

## DISCUSSION

Questions remain around the pathogenesis of *Candida* pericarditis. It has been suggested that pericardial *Candida* infection often represents a form of haematogenous spread [3]. Risk factors for *Candida* pericarditis include recent thoracic or abdominal surgery, malignancy or immunosuppression [4]. In our case, cardiac tamponade was secondary to an oesophageal-pericardial fistula and consequent *Candida* pericarditis, which was a rare presentation of oesophageal squamous cell carcinoma.

Clinical symptoms and signs of gastro-pericardial fistulation are variable but include dysphagia, odynophagia, tachycardia, dyspnoea, precordial tympany, pericardial friction rub, and severe chest pain. The acute onset of substernal chest pain is a common feature in these patients. In 37% of cases, gastro-pericardial fistula presents with life-threatening cardiac tamponade [5]. Our patient presented with severe central chest pain, decreased appetite and food intake, progressive dysphagia to solids associated with epigastric pain, and intermittent nausea and vomiting.

The gastric mucosa is often an area of fungal colonization, with Candida infection detected in 54.2% of gastric ulcer cases and 10.3% of chronic gastritis cases [6].

Since the clinical presentation of *Candida* pericarditis is often non-specific, diagnosis can be difficult. Ultrasound-guided pericardiocentesis facilitates the diagnosis by yielding a sample of pericardial fluid for microbiological and histopathological analysis. To establish the diagnosis, pericardial fluid or tissue culture for *Candida* and the demonstration of fungal elements on histopathological examination along with proof of acute inflammation may be required [7]. Although blood cultures and serological tests may facilitate the diagnosis of a systemic *Candida* infection, they do not indicate pericardial involvement [8]. Only a few cases of gastro-pericardial fistula have been diagnosed by endoscopy, including ours, with an en face view of the fistula. When suspected, some authors recommend performing endoscopy in these cases in a controlled environment, such as in the intensive care unit or operating room [9]. In our patient, the pericardial fluid culture grew yeasts, which were identified as *C. albicans*.

Surgical drainage and antifungal treatment are standard management for *Candida* pericarditis. Surgical drainage is crucial. Amphotericin B is the most consistently used antifungal therapy, although fluconazole use has also previously been described [10, 11]. Echinocandins, a class of antifungals that inhibits glucan synthesis in the fungal cell wall, has been shown to have activity against *Candida* biofilms in vitro[12]. There is one report of successful use of echinocandin and fluconazole in a patient with *C. albicans* pericarditis after a heart transplant, making this case the second use of an echinocandin (anidulafungin) in treating *Candida* pericarditis [13]. However, it should be noted that Candida species resistant to caspofungin have been reported [14].

## CONCLUSION

Oesophago-pericardial fistula in oesophageal carcinoma is rare but associated with high mortality and poor prognosis. Purulent pericarditis with atypical organisms should raise the suspicion of oesophago-pericardial fistula, especially in high-risk patients such as those with oesophageal carcinoma.

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