

# Cardiac Tamponade – a Medical Emergency Treated by a Surgeon

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## Abstract

Cardiac tamponade is a life-threatening emergency, which can occur due to a number of causes. One of the rare causes of this dangerous complication is rupture of a left-lobe amebic hepatic abscess into the pericardium. We encountered an interesting case of an elderly male who presented with acute respiratory distress and other features suggestive of cardiac tamponade. We could demonstrate the left-lobe abscess, pericardial effusion and also the pericardial fistula on ultrasonography. The patient was successfully managed by percutaneous drainage of the left-lobe hepatic abscess, which also drained the pericardial effusion with immediate symptomatic relief. Generally, such cases end up in the hands of physicians initially, but timely surgical intervention can save the precious human life.

## INTRODUCTION

Amoebiasis has a worldwide distribution and is more common in tropical countries with areas having poor sanitation. Fortunately, hepatic liver abscess occurs only in 3 to 7% of all patients with intestinal amoebiasis. Amebic liver abscesses are more likely to be solitary and more commonly located in right hepatic lobe. The commonest presentation is with pain in the right upper quadrant. The incidence of complications is higher in patients with abscesses in the left lobe and most complications are related to rupture of the abscess into an organ or adjacent space. The common complications reported are pleuropulmonary complications and complications due to rupture of the abscess into the peritoneal cavity. Though uncommon, erosion, usually from the left lobe into the pericardium, is the most dangerous complication of amebic hepatic abscess.

## CASE REPORT

A 58-year-old male was admitted to the medical ward of our institute with complaints of acute respiratory difficulty and pain in the right upper abdomen. On examination, his jugular venous pressure (JVP) was grossly raised and he was having tender hepatomegaly. His pulse was 102/min, low volume, and blood pressure was 80/60mm of Hg. The patient was put on medical treatment immediately and during investigations, his abdominal USG demonstrated a large amebic abscess in the left hepatic lobe with massive pericardial effusion (Fig. 1).

## Figure 1

Figure 1: Ultrasound scan showing a hepatic abscess in the left lobe with pericardial effusion.



On a further ultrasound scan of the patient, we could demonstrate the communication between hepatic abscess and pericardial effusion, i.e. pericardial fistula.

**Figure 2**

Figure 2: Ultrasound scan showing a pericardial fistula



Surgical consultation for this case was sought after these sonology findings and immediately drainage of the abscess was planned. A No. 16 Ryle's tube was put in the left lobe abscess through the shortest route, under ultrasonography control. About 500 cc of anchovy-sauce pus was drained within ten minutes, leading to significant improvement in the symptoms of the patient. During this procedure, we could demonstrate the drainage of pericardial effusion through the pericardial fistula and the subsequent film revealed a significantly decreased amount of residual pericardial effusion.

**Figure 3**

Figure 3: Ultrasound scan showing residual pericardial effusion



Subsequently, the patient was shifted to the ward and was

put on effective tissue amoebicidal agents, i.e. metronidazole and chloroquine along with other supportive treatment. In the meantime, the diagnosis of amebic abscess was confirmed by microscopic examination of aspirated pus and by indirect haemagglutination test (IHA) of the patient. The patient responded well to the above treatment and the drainage tube was removed on the 12<sup>th</sup> postoperative day when the amount in the drain decreased to less than 10 ml/24 hours. Ultimately, the patient was discharged in a healthy condition after 2 weeks of hospital stay.

## DISCUSSION

Although knowledge of pyogenic hepatic abscess has existed since the time of Hippocrates, it was not realized that amebic liver abscess was a separate entity until the nineteenth century. In 1890, Osler first reported the presence of amoebae in a liver abscess as well as in the stool of the same patient.<sup>2</sup> In the 1920s, active amoebae were identified in the pus recovered from the wall of an abscess. Until that time, open surgical drainage had been the treatment recommended for both pyogenic and amebic liver abscesses. In 1935, Ochsner and Debaeky demonstrated a great reduction in mortality when aspiration and emetine were used instead of surgical drainage for amebic liver abscesses.<sup>3</sup>

*E. histolytica* may live within the lumen of the colon in the small form without tissue invasion. When tissue invasion occurs, trophozoites ingest erythrocytes and become large forms. The most frequent site of extraintestinal colonization is the liver and the amoebae gain access to the liver through the portal vein. When a sufficient number of amebic trophozoites enters the liver and becomes lodged in smaller venules, this results in necrosis of a small area of liver known as amebic hepatitis. This state can heal or can progress to abscess formation depending on the state of nutrition and immune status of the host. The fluid contained within an amebic liver abscess is usually dark reddish-brown and has been described most often as “anchovy sauce” or “anchovy paste”. This material which is typically sterile and consists of a mixture of blood and destroyed liver cells has also been described as “chocolate sauce,” or “crushed strawberries”. The abscess cavity can vary in size from 1 to 25cm, and if the condition is untreated, it can rupture into adjacent organs/cavities. The reported incidence of complications of amebic hepatic abscess varies from 20 to 35% in earlier and 12 to 20% in more recent series.<sup>4</sup> Most of the complications are related to rupture of the abscess into an organ or adjacent space. The most common complications are those involving the pleura and lung, leading to pleural

effusion, empyema, pneumonitis, lung abscess etc. The next commonest complication is due to rupture of the abscess into the peritoneum leading to generalised or localised peritonitis.<sup>5</sup>

Erosion, usually from the left lobe, into the pericardium is the most dangerous complication of amebic hepatic abscess. Fortunately, this complication is uncommon. A low incidence of about 1.5% has been reported by Crane and associates, and by Balasegaram.<sup>6</sup> The largest experience and lowest reported mortality from this complication came from South Africa, where Adams and MacLeod reported amebic pericarditis in 27 of 2074 patients (1.3%).<sup>4</sup> Adams and MacLeod described the following modes of presentation: (i) hepatic, (ii) cardiac and (iii) in shock. About two thirds of their patients presented with cardiac signs, with inconspicuous symptoms and signs of the causative liver abscess. The onset of symptoms can be gradual, leading to congestive heart failure and very rarely the onset is very rapid leading to cardiac tamponade, as in our case. In patients with amebic pericarditis, Adams and MacLeod recommended the use of effective tissue amebicides and adequate drainage of the pericardial sac by needle aspiration. If the pericardial fistula is clearly defined, simple drainage of the liver abscess by a percutaneous drain can cure this life-threatening condition.<sup>7</sup> Some of these patients develop subsequent constrictive pericarditis, but most of them improve with conservative management, without progression to fibrous constriction.

The patient in consideration was an elderly male, who presented with features of cardiac tamponade due to a massive pericardial effusion caused by rupture of a left hepatic lobe abscess. He was successfully managed by

percutaneous drainage of the hepatic abscess, which also drained the pericardial effusion through the pericardial fistula. The case is being reported to highlight the following facts:

To make the physicians aware of this condition, especially in patients where cardiac tamponade is of sudden onset.

A simple but timely surgical intervention like USG-guided percutaneous drainage of the abscess can cure this life-threatening complication.

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