

# Amoebic Pericarditis: A Case of Extraintestinal Amoebiasis

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## INTRODUCTION

Amebic pericardial effusion is a rare case of amebiasis accounting only about 4% of extraintestinal amebiasis infection. This is a case of amebic pericardial effusion in a 22 year-old female presenting with cardiac tamponade and finding of anchovy sauce aspirate from the pericardial cavity.

Approximately 10% population in the world, especially in developing countries, easily suffered from *Entamoeba histolytica* (*E. histolytica*) infection, but only 10% are symptomatic. The most common complication of liver abscess is rupture (5-15.6%). The most common sites of rupture may occur in the pleural cavity, pericardial cavity, lung, bowel, intraperitoneal, and skin respectively. Although liver amebiasis rupture spread rarely in the pleural and pericardial cavity with an incidence rate of about 5-15% cases per year. It is 3.4-8.5 times more frequent in males than females and prevalent in 20-50 years old. Amoebic Pericarditis has a mortality rate of approximately 2% in a tertiary hospital facility.<sup>1</sup> Aspiration of anchovy sauce in the pericardial cavity may already suggests a diagnosis of *E. histolytica*.

The most common cause of infectious pericarditis is viral like coxsackievirus A and B and hepatitis viruses. Other forms of infectious pericarditis include pneumococci, streptococci, tuberculous, protozoal and parasitic.

The clinical syndrome of heart failure manifests as organ hypoperfusion and inadequate tissue oxygen delivery due to low cardiac output and decreased cardiac reserve, as well as pulmonary and systemic venous congestion. However both systolic and diastolic heart failure will manifest the same signs and symptoms.

Here is a case report of amebic pericarditis presenting as diastolic heart failure (tamponade). The objectives are:

1. To present a rare case of Amebic Pericardial Effusion and its incidence rate
2. To present the clinical signs and symptoms of Amebic pericardial effusion
3. To discuss management of amebic pericardial effusion

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## CASE REPORT

A case of S.C, 22 year-old female, Filipino, Roman Catholic, occasional alcoholic drinker, married with 3 children, living in a nipa hut with flush type toilet near the kitchen area, in Bolinao Pangasinan was admitted in this institution on December 18, 2011 with a chief complaint of difficulty of breathing which started about a week prior to admission as on and off undocumented fever with accompanying non productive cough. No other symptoms associated like dysuria and loose bowel movement. No medications taken nor consult done.

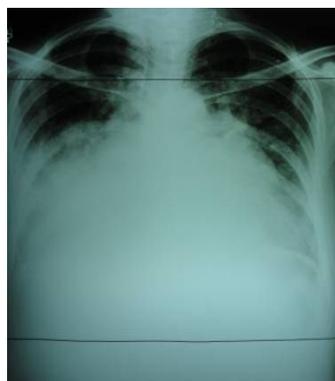
3 days prior to admission, patient complained of chest pain, heavy in character, non-radiating, relieved by rest, associated with 3-pillow orthopnea and easy fatigability in about 10 steps on flat surface.

A day prior to admission, she had severe difficulty of breathing which prompted her to seek consult in a community hospital. She was then referred and admitted in our institution.

Patient previously experienced joint pains and rashes characterized as butterfly malar rash and diagnosed as Systemic Lupus Erythematosus last 2008 by a government hospital in Baguio. Diagnostic work-ups like Antinuclear antibody and LE cell preparation were not known to informant. She was given Methylprednisolone 4mg tablet taken once a day which she took for a month with poor compliance due to financial constraints. There were no more follow-ups thereafter.

On admission patient was in severe cardio-respiratory distress. She was hypotensive with a BP of 90/60, tachycardic with cardiac rate of 136, tachypneic with respiratory rate of 35, and temperature of 36C. She had engorged neck veins at 30<sup>0</sup>, symmetrical chest expansion with rales all over lung fields, adynamic precordium, soft heart sound, apex beat at the 6<sup>th</sup> ICS left anterior axillary line, soft S1, (-) S3, tachycardia, regular rhythm, and no murmurs noted and positive pulsus paradoxus . Physical examination of the abdomen was unremarkable. Patient had grade 1 pitting bipedal edema. No skin lesions noted. Pulses were full and equal.

With an initial impression of Congestive Heart Failure, she was started on Furosemide 40 mg intravenously for 3 doses. Chest Xray (Fig. 1) was done with an initial impression of multicam-ber cardiomegaly. Patient was referred to Cardiology service. Review of the Chest Xray should a “water bottle sign” (loss of cardiac contours).



**Figure 1. Chest X Ray: enlarge cardiac silhouette “water bottle sign”**

On her 1<sup>st</sup> hospital day, patient had increasing severity of difficulty of breathing, persistently tachycardic with noted hypotension (80-90/50-60), and muffled heart sounds. With the chest Xray and the above-mentioned clinical findings, pericardial effusion with tamponade was entertained.

A 2-Dimensional Echocardiogram was done revealing massive pericardial effusion with tamponade. Furosemide IV was discontinued.

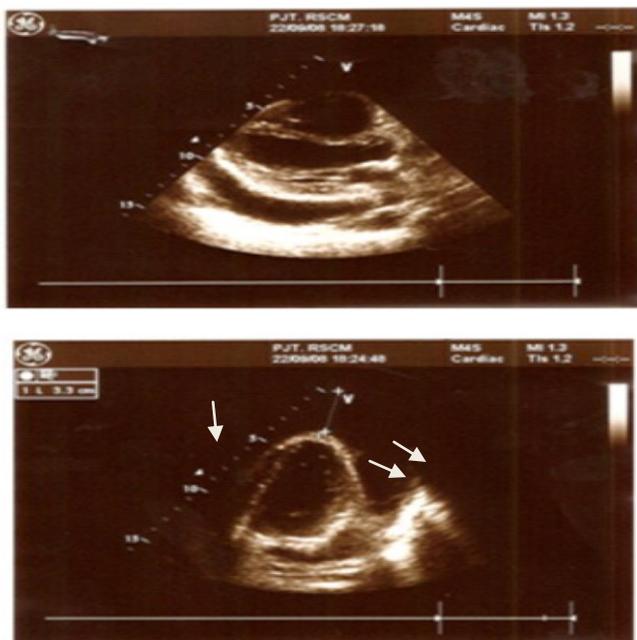


Figure 2: 2-D Echocardiogram: right ventricular and atrial diastolic collapse (see arrow)

Patient was then referred to surgery department for therapeutic and diagnostic pericardiocentesis guided by 2-Dimensional echocardiography. Aspiration of anchovy sauce- like fluid amounting to 610 cc was obtained from the pericardial cavity. Amebic Pericardial Effusion probably secondary to Ruptured Amebic Liver Abscess was then entertained. Pericardial fluid was sent for analysis revealing non-fungal component, negative for acid fast bacilli and positive for Entamoeba cyst in the direct smear analysis. Ultrasound of whole abdomen was requested which revealed minimal peritoneal fluid, apparent thickening of the gallbladder wall, prominent spleen with incidental note of minimal pericardial fluid. She was started on Metronidazole 500 mg IV given every 8 hours.



Figure 3: Anchovy sauce-like pericardial fluid

On the second hospital day, patient's difficulty of breathing was relieved. She had stable vital signs and was afebrile. Pericardiostomy tube was removed on the second hospital day after complete evacuation of pericardial fluid. However, on the 3<sup>rd</sup> hospital day, patient went home against medical advised. She was prescribed with Metronidazole 500mg to be taken 3x a day for 7-10days and was advised for close follow up at the Medical Out-patient department.

## DISCUSSION

Amebiasis is preventable and treatable. However, a delay in the diagnosis may cause serious complications. This is transmitted via fecal-oral -route with worldwide distribution. It is found mainly in developing countries in the tropics like Mexico, India, Africa and Tropical Asia. Liver amebiasis rupture spreading to pleural and pericardial cavity is a rare case. Risk factors are low socioeconomic status, poor sanitation, living in endemic areas and immunosuppression. Our patient is a 22 year-old female, immunocompromised -- diagnosed with Systemic Lupus Erythematosus, resides in a poor sanitation area, presented with difficulty

of breathing and noted hypotension, tachycardic, with muffled heart sounds (Beck's triad) confirmed by the accumulation of fluid in the pericardial space in a quantity sufficient to cause serious obstruction to the inflow of blood to the ventricles by echosonography<sup>2</sup>. Several findings indicate that tamponade is enough to cause at least some degree of hemodynamic compromise. Early diastolic collapse of the right ventricle and right atrium, which occurs during ventricular diastole via 2D echocardiogram are sensitive and specific signs of tamponade.<sup>3</sup> Formation of an effusion is a component of the inflammatory response when there is an inflammatory or infectious process affecting the pericardium.<sup>3</sup>

Urgent therapeutic pericardiocentesis is the initial treatment of choice with echocardiographic guidance with a success rate of 97% and a complication rate of 4.7%.<sup>3</sup> Therapeutic and diagnostic 2-D ECHO guided pericardiocentesis was done in this patient with aspiration of anchovy sauce-like fluid from the pericardial cavity. According to a journal that "an aspiration of anchovy sauce pus from both the pericardial cavity and the liver should be regarded as confirming the diagnosis of amebic pericarditis secondary to amebic liver abscess because demonstration of *Entamoeba histolytica* is seldom possible".<sup>6</sup> This one of the rare case documented in our country that we have isolated the cyst form of *E. histolytica*.

In this case, the ultrasonographic findings did not show any primary focus, however, accord-

ing to another article, that a presence of a lump in the enlarged left lobe may be a pointer to the diagnosis, however, if the abscess has ruptured into the pericardium, often the lump is not seen and the bulging left lobe is flattened. This is not noted in the chest X-ray of our patient. The role of modern imaging, sonography is good enough to support clinical diagnosis, but is not conclusive in diagnosing any amebic liver abscess.<sup>4</sup>

Diagnosis is usually made by serology (indirect agglutination), which has a sensitivity of 90%. Peripheral eosinophilia is not particularly common. Stool microscopy has limited value for the diagnosis of extraintestinal amebiasis. The presence of amebic cysts or trophozoites determined by stool microscopy (in about 15-33%) does not definitively indicate that the extraintestinal focus is secondary to the identified intestinal parasite because both pathogenic and nonpathogenic *Entamoeba* may be present in the gut. ELISA method can differentiate pathogenic from nonpathogenic *Entamoeba* in stool samples.<sup>6</sup> In the literature, the trophozoite is the invasive form with the following pathogenic sequence: adherence, contact dependent, killing and phagocytosis via Gal/GalNac Lectin and the amoebic receptor for phosphatidyl serine.<sup>8</sup> In our case, the patient had the dormant stage (cyst form) and upon review of other literature, this form is not mentioned to be noted in the pericardial fluid.

A high index of suspicion should be maintained in all cases of pericardial effusion with immunosuppression who are at risk of amoebic

infection thus further evaluation and analysis should be made.

A more specific and sensitive test (>90%) like real time Polymerase Chain reaction (PCR) would also support the diagnosis of amoebiasis.<sup>8</sup> A thorough management of the immunocompromised state (like SLE) should also be instituted.

Patient presented initially as a case of systolic heart failure but cardiac tamponade mimics this. Our patient has diastolic type of heart failure for which pericardiostomy tube insertion and fluid resuscitation is needed and not the usual management of diuretics, digoxin and dilators.

Patients with amebic pericardial effusion are given Nitroimidazoles, particularly Metronidazole 500mg taken every 8 hours for 7-10 days, the mainstay of therapy for invasive amebiasis. Surgical drainage is required to relieve the symptoms of the patient in addition with the medication<sup>5</sup>. Emergency pericardiostomy tube insertion was done in this patient and was given Metronidazole.

## CONCLUSION

This is a rare case of extraintestinal amoebic infection which accounts for 4%, in a dormant (cyst) form and not the invasive trophozoite in amoebic pericardial effusion analysis. It presented with cardiac tamponade and not the usual intestinal amoebic infection like diarrhea, hematochezia and tenesmus.

Our patient with a history of SLE might be immunosuppressed and at risk from amoebiasis.

Early diagnosis of cardiac tamponade has been done with prompt insertion of pericardiostomy tube. Patient presented with classical signs and symptoms of tamponade of Beck's triad. Definitive treatment is still the use of Nitroimidazoles and a close follow-up of recurrence site. The immunocompromised state should also be addressed.

Diastolic heart failure in tamponade is only managed by prompt pericardiocentesis instead of systolic heart failure management (i.e. diuretics, digoxin and dilators) which will further aggravate the medical condition.

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