



An uncommon presentation of acut rheumatic fever: pericardial tamponade

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Summary

Acute rheumatic fever is still an important health care problem in developing countries. In acute rheumatic fever that presents with pancarditis, the most common morbidities develop after involvement of the endocardium. Although pericardial disease generally presents with relatively benign clinical features, massive pericardial effusion and associated cardiac tamponade can develop in rare cases and may cause to mortality. In this study, we present a 7-year-old male patient who presented with fever and chest pain. Physical findings included high temperature (38,5°C), tachycardia, tachypne, deep cardiac sounds and hepatomegaly. Elektrokardiography findings revealed low QRS voltage and chest x-ray was compatible with cardiomegaly. Transthoracic echocardiography showed severe pericardial effusion which caused to tamponade preventing atrial loading, severe mitral insufficiency and mild aortic insufficiency. Laboratory results included elevated ASO (580 IU/ml) and erythrocyte sedimentation rate (80 mm/h). Primer prophylactic treatment including steroid was administrated and pericardiocentesis was performed. Pericardial tamponade associated with acute rheumatic fever is a rare clinical entity and only a few case reports have been reported, so far. (*Türk Arch Ped* 2013; 48: 342-344)

Key words: Acute rheumatic fever, children, pericardial tamponadee

Introduction

Acute rheumatic fever (ARA) is one of the most important causes of morbidity and mortality in developing countries. The clinical course and prognosis in acute rheumatic fever varies according to the severity of carditis. While the most common cause of mortality in the acute period is myocardial involvement, pericardial effusion and tamponade may be the cause of mortality very rarely.

Pericardial tamponade is a picture which occurs as a result of rapid fluid accumulation in the pericardium and may lead to fatal outcomes if it is not diagnosed early and treated urgently. Pericardial tamponade may be observed in infections, heart failure, malignencies, collagen tissue diseases and rarely in ARA (1,2). The most common symptoms include sudden chest pain, fever and respiratory distress. In patients presenting with these symptoms, deep cardiac sounds, hypotension, venous distension and pulsus paradoxus suggest tamponade and the definite diagnosis can be made by echocardiographic examination. In this article, a patient who presented with fever, chest

pain and respiratory distress, who was found to have pericardial tamponade on echocardiographic examination, who underwent urgent pericardiosynthesis and who was diagnosed with acute rheumatic fever was presented.

Case

A 7-year old male patient presented because of fever, chest pain, cough and dyspnea which had been lasting for three days. In the history, it was learned that he had upper respiratory tract infection 2 weeks ago and joint pain for the last one week. On physical examination, fever was found to be 38,5 °C, blood pressure was measured to be 80/60 mmHg, the heart rate was found to be 150/min, diminished cardiac sounds were heard, respiratory rate was found to be 32/min and lung sounds were found to be normal. The liver was 4 cm palpable below the costa. On telecardiogram, the cardiothoracic index was found to be 60% and water bottle shaped heart was observed. Electrocardiogram revealed low QRS voltage and negative T in V5-V6. Laboratory tests were as follows: WBC: 18 000 mm³, hemoglobin: 8.4 g/dL, hematocrit 26%, platelets 260 000 mm³, C reactive protein

80 mg/dl, erythrocyte sedimentation rate 80 mm/h. Urgent echocardiography was performed considering primarily acute pericarditis. On echocardiographic examination, it was observed that pericardial effusion which was measured to be 32 mm in the adjacency of the right ventricle and 28 mm in the adjacency of the left ventricle was present and the right atrium was collapsed (Picture 1).

In addition, significant mitral failure and mild aortic failure were found on colored Doppler USG (Picture 2).

The patient who was thought to have pericardial tamponade clinically and echocardiographically was taken into the catheter room and pericardiocentesis was performed under guidance of ultrasonography. 450 cc serohemorrhagic fluid was removed from the patient. Pericardial fluid removed by pericardiocentesis had biochemical properties compatible with exudate (Glucose: 94 mg/dL, Protein: 2.8 /dL (blood protein level 5 g/dL, LDH: 680U/L (blood LDH 800 U/L) , density: 1034). On microscopic examination, 200 cells/mm³ (80% PNL) were found and no microorganism was found by gram staining or EZN staining. No growth was found in pericardial fluid culture and no acid-fast microorganism was found.

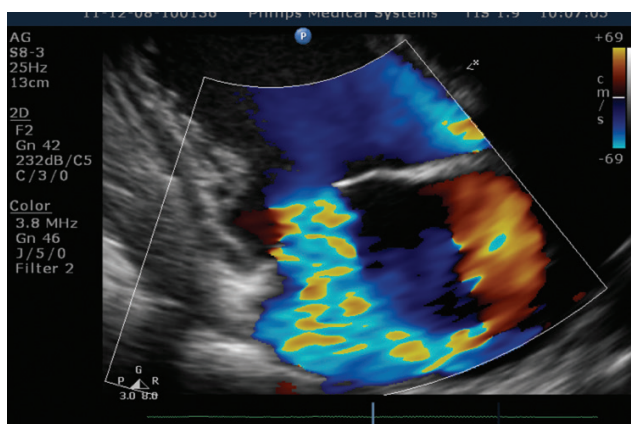
The patient's general status was controlled and two antibiotics were started in the patient who was thought to have acute purulent pericarditis initially in the first evaluation. Echocardiography revealed mitral and aortic failure. With an ASO value of 508 IU/mL acute rheumatic fever was considered. A diagnosis of acute rheumatic fever was made with a major finding (carditis) and three minor findings (increased acute phase response, arthralgia, fever) accompanied by the supportive criterion of increased ASO and 1 200 000 U benzathine penicillin was administered for primary protection. For carditis, prednisone treatment at a dose of 2 mg/kg/day was started. The patient's complaints regressed in the second day of steroid treatment. On echocardiographic examination performed on the 7th day, it as observed that pericardial effusion regressed completely and significant mitral failure and mild aortic failure persisted. Repeated laboratory tests were as follows: WBC 14 000 mm³, C reactive protein 6 mg/dL, erythrocyte sedimentation rate 25 mm/h and ASO 300 IU/mL. The patient who had no problem in the follow-up was discharged with secondary protection (administration of 1 200 000 U benzathine penicillin every 3 weeks) and started to be followed up as an outpatient.

Discussion

Pericardial tamponade can be encountered in many conditions and pericardiocentesis performed as urgent treatment is life-saving. Pericardiocentesis should be performed without losing time in patients who are thought to have pericardial tamponade and detailed investigations



Picture 1. Pericardial effusion detected on subcostal plane echocardiogram*



Picture 2. Valve failure on parasternal long axis echocardiographic examination (the arrow shows mitral failure and asterix shows aortic failure)

should be done for the differential diagnosis after the patient's general status is controlled.

Pericardial effusion may occur in infections caused mostly by bacterial and viral agents and rarely by fungi. The most common microorganisms include staphylococci, meningococci, H.influenza and Coxackie viruses. Especially tuberculosis should also be considered in our country.

Pericardial tamponade is most commonly caused by malignencies and traumas. In occurrence of pericardial tamponade, the speed of fluid accumulation plays significant role rather than the amount of the fluid (1,2,3,4).

Acute rheumatic fever is a non-suppurative complication which occurs following group A beta hemolytic streptococcal infection. It involves many systems including mainly cardiovascular system and skeletal system. The most common form of involvement leading to mortality and morbidity is carditis. Cardiac involvement related with

acute rheumatic fever may be in the form of pancarditis by involving each three layer of the heart. Valve failure related with endocardial involvement and valv stenosis which occurs in the later period are significant causes of morbidity and mortality, while myocardial involvement and pericardial involvement in the acute phase may show a fatal course. Pericardial involvement related with acute rheumatic fever is mostly in the form of benign, mild pericardial effusion. It may rarely be in the form of severe pericardial effusion and tamponade (5,6). Information about pericarditis related with acute rheumatic fever in the literature is limited with a few cases. In 1983, Arthur Tan et al. (4) made a diagnosis of pericardial tamponade in a 12-year old patient who had a diagnosis of acute rheumatic fever and treated the patient by performing pericardiocentesis. Similarly, Ünal et al. (7) also performed pericardiocentesis in a patient who had pericardial tamponade related with acute rheumatic fever.

Although pericardial tamponade occurs as a result of many etiologies in children, acute rheumatic fever should be kept in mind especially in developing countries.

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