

# Coronary artery mycotic aneurysm presenting with pericardial effusion

## *Perikardiyal effüzyonla seyreden koroner arter anevrizması*

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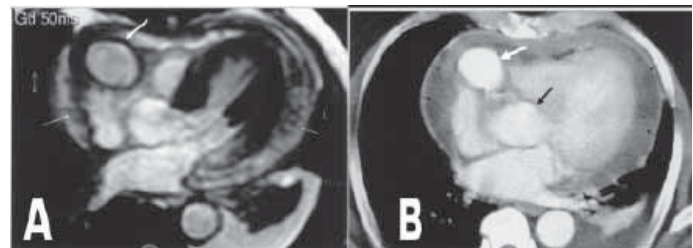
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### Introduction

Mycotic aneurysms of the coronary arteries are rare and a fatal condition that results with rupture or myocardial infarction when not recognized and operated early. In this report, we present a patient who was admitted with the diagnosis of pericardial effusion and was found out to have a mycotic right coronary artery aneurysm due to *Salmonella enteritidis* infection.

### Case report

A 55-year-old man was admitted with a one-week history of dyspnea and chest pain. He had history of severe hypertension. Physical examination revealed body temperature 36.5°C, orthopnea, jugular vein distention and a painful hepatomegaly. Leukocytosis with neutrophil predominance and anemia were determined. Sedimentation rate, serum fibrinogen and C-reactive protein were increased. Serial cardiac enzyme measurements were normal. An ECG showed ST segment depression in inferolateral leads. On echocardiographic examination, a large effusion and dense fibrous bands were detected in pericardial cavity. A diagnostic pericardiosynthesis was performed and hemorrhagic fluid was taken. Cultures of pericardial fluid yielded *Salmonella enteritidis* serotype *S. enteritidis* and intravenous ciprofloxacin was started. Blood and urine cultures remained sterile. On the fourth day, the patient developed Cheyne-Stokes type respiration that improved with nasal oxygen treatment. Urgent surgery was performed with a median sternotomy for pericardioectomy. On the exploration, the pericardium was thick, fibrotic and pericardial cavity was filled with fresh and organized thrombi. A 5x5 cm nonpulsatile hemorrhagic mass on atrioventricular groove was detected. A cardiac magnetic resonance imaging examination revealed a large and dense pericardial effusion and an aneurysm at right coronary artery border (Fig. 1A). Thoracic computed tomography showed bilateral pleural effusion and passive atelectasia in left lung (Fig. 1B). Pathologic examination of the resected pericardial material revealed thick fibrous fibrinous pericardium infiltrated by inflammatory cells. Thus, a diagnosis of mycotic aneurysm complicated by acute pericarditis was made. Coronary angiography confirmed the finding of a saccular right coronary artery (RCA) aneurysm (40x55 mm) with normal filling of the distal artery (Fig. 2) and also showed a 60% stenosis in circumflex artery (Cx). While



**Figure 1.** (A) T2-weighted axial cardiac MRI at the level above the partial pericardioectomy. The right coronary artery aneurysm is marked with thick white arrow. The pericardial effusion reveals layering of complex fluid (small arrows). (B) Contrast enhanced CT at the level above the partial pericardioectomy. The root of the aorta (black arrow) and the aneurysm (white arrow) reveal simultaneous contrast enhancement. The pericardial effusion reveals increased density (small black arrows)

CT – computed tomography, MRI – magnetic resonance imaging

preparations were made for a second urgent surgical intervention, a hemorrhagic flow drained from the mediastinal tube and the patient became hypotensive and bradycardic. On the emergency cardiopulmonary bypass, the RCA aneurysm sac was resected, and simultaneous bypass with saphenous grafts to the RCA and Cx was performed. Unfortunately, the patient could not be weaned from pump and died during perioperative period. Pathologic examination of the resected hemorrhagic mass composed of erythrocytes, fibrin and acute inflammatory cells.

### Discussion

Mycotic aneurysms account for 2.6% of all aneurysms (1). Risk factors for development of mycotic aneurysms include sepsis, endocarditis, arterial trauma, various immunocompromised states and congenital cardiovascular defects (2).

In literature screening, we have been able to find only 19 reported cases of mycotic coronary artery aneurysm. In 13 cases, infective endocarditis was the underlying condition, in four cases septicemia was present and in two patients etiology was unknown. Symptoms at admission were mainly chest pain or sudden cardiac death. Advanced imaging techniques increased the possibility of antemortem diagnosis. In the first 10 cases diagnosis was made by autopsy, but in four of the

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**Figure 2. Right coronary angiogram showing a saccular aneurysm (black arrows) of right coronary artery (white arrow)**

last nine cases early diagnosis and surgical treatment was possible. Treatment of a mycotic coronary artery aneurysm includes appropriate antibiotic treatment and prompt surgical intervention (1).

In our case, salmonella septicemia was the possible etiology of the coronary artery aneurysm. Although the patient had no history of gastroenteritis, cholelithiasis or antacid drug usage, widespread contamination of poultry foods by salmonella species may also lead to transient bacteriemias (3, 4). Salmonella organisms have a high predilection for atherosclerotic arterial walls and are the dominant agent of infected aortic aneurysms (5, 6). Our patient had been hypertensive and had atherosclerotic lesions both in RCA and Cx. Therefore, it is possible that the aneurysm had developed by the

infection of a pre-existing atheroma. Although timely diagnosis of the aneurysm was possible, the patient could not survive due to hemodynamic failure.

### Conclusion

In patients with hemorrhagic pericardial effusions new diagnostic techniques as cardiac magnetic resonance imaging and computed tomography accelerate the diagnosis of the underlying condition. Limited leaking or rupture of a coronary artery aneurysm is a rare etiology of pericardial effusions. As coronary artery aneurysms have a high tendency to rupture, once the diagnosis is made urgent surgical treatment is mandatory.

### Acknowledgement

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## Nadir rastlanan doğumsal kalp anomalisi: Ektopia kordis

### *A rare congenital cardiac anomaly: ectopia cordis*

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### Giriş

Ektopia kordis (ectocardia, exocardia), kalbin kısmen veya tamamen toraks boşluğu dışında yerleşmesidir. Her bir milyon canlı doğumda 5.5-7.9 oranında rastlanılmaktadır (1). Kızlarda daha sık görüldüğü bildirilmiştir (2). Beş tiptir: Servikal, servikotorasik, torasik, torako-abdominal ve abdominal. En sık görülenler torakal ve torako-abdominal olanlardır (3, 4).

### Olgu sunumu

#### Olgu 1

Yirmi üç yaşındaki annenin 2. gebeliğinden 1. canlı doğanı olarak miadından 6 hafta önce spontan vajinal yolla doğmuş bir erkek bebektir. Gebelikte annenin travma, radyasyona maruziyeti veya enfeksiyon öyküsü yok. Ancak, propiltiourasil kullanmış. İlk gebeliği hipertiroidi

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