

An unusual case of left ventricular pseudoaneurysm accompanied by chronic aortic dissection

Sol ventrikül psödoanevrizmasına eşlik eden kronik aort diseksiyonlu nadir bir olgu

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We presented a 71-year-old man with a left ventricular pseudoaneurysm occurring after myocardial infarction and coexisting chronic type A aortic dissection detected by chance during the operation. The patient presented with a complaint of dyspnea on exertion four months after myocardial infarction and two months after percutaneous transluminal coronary angioplasty for a circumflex coronary artery lesion. Transthoracic echocardiography showed a large left ventricular pseudoaneurysm in the left ventricular posterior wall. Diagnosis was confirmed by cardiac catheterization. Coronary angiography revealed total in-stent occlusion of the circumflex coronary artery with poor distal vasculature. A chronic aortic dissection was detected during antegrade cardioplegia cannula insertion. Supracoronary ascending aorta replacement was performed with a synthetic tube graft and the pseudoaneurysm was resected. Pathologic examination of the resected tissue from the aneurism wall revealed no myocardial tissue. The patient was discharged uneventfully on the eighth postoperative day.

Key words: Aneurysm, false/surgery; heart ventricles/surgery; myocardial infarction/complications.

Left ventricular (LV) pseudoaneurysm is a rare, but a serious complication of transmural myocardial infarction (MI).^[1] It is usually formed several weeks after the infarction in the inferior or posterolateral left ventricular wall when cardiac rupture involves adherent pericardium or scar tissue.^[2] Due to the risk for secondary rupture, the presence of a large pseudoaneurysm mandates surgical intervention.^[1]

Chronic type A dissection develops in patients in whom immediate surgical treatment of the acute dissection is not performed. It is rarely symptomatic, but it may present with chest pain as a result of aneurysm expansion or heart failure related to aortic regurgitation.^[3]

Bu yazıda, miyokard infarktüsünden sonra sol ventrikül psödoanevrizması gelişen ve ameliyat sırasında kronik tip A aort diseksiyonu saptanan 71 yaşında bir erkek hasta sunuldu. Hasta miyokard infarktüsünden dört ay, sirkumfleks koroner arter lezyonuna yönelik yapılan perkütan transluminal koroner anjiyoplastiden iki ay sonra egzersiz dispnesiyle başvurdu. Transtorasik eko-kardiyografide, sol ventrikül posterior duvarında büyük bir psödoanevrizma saptandı. Tanı kardiyak kateterizasyonla da doğrulandı. Koroner anjiyografide sirkumfleks koroner arterde stent içi tam oklüzyon olduğu ve distal vasküler yatağın iyi olmadığı görüldü. Antegrad kardiopleji kanülü yerleştirilirken de eşlik eden kronik aort diseksiyonuna rastlandı. Psödoanevrizma rezeksiyonuyla birlikte, sentetik tüp greftle suprakoroner çıkan aort replasmanı uygulandı. Anevrizma duvarından alınan örneğin patolojik incelemesinde miyokard dokusuna rastlanmadı. Hasta ameliyat sonrası sekizinci günde sorunsuz olarak taburcu edildi.

Anahtar sözcükler: Anevrizma, yalancı/cerrahi; kalp ventrikülü/cerrahi; miyokard infarktüsü/komplikasyon.

In this case report, we presented a case of giant left ventricular pseudoaneurysm, in which a chronic type A aortic dissection was detected intraoperatively.

CASE REPORT

A 71-year-old man was referred to our institution for dyspnea on exertion, of one-month history. He had a history of acute transmural inferoposterior MI that was treated conservatively four months before, and a history of cardiac catheterization and percutaneous transluminal coronary angioplasty for a circumflex coronary artery lesion two months before. On preoperative transthoracic echocardiography (TTE), posterior and lateral walls were hypokinetic, left ventricular ejection fraction

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(LVEF) was 20%. Aortic root was 35 mm in diameter with no dissection or aortic regurgitation. Coronary angiography and cardiac catheterization were performed for recurrent dyspnea and chest pain. Coronary angiography revealed total in-stent occlusion of the circumflex coronary artery. The distal segment of the circumflex coronary artery could not be visualized. The other coronary arteries were normal. Left ventriculography revealed a left ventricular pseudoaneurysm originating from the posterior wall. Left ventricular end-diastolic pressure was 20 mmHg. Transthoracic echocardiography showed a posterior left ventricular pseudoaneurysm, 78x58 mm in size. The width of its neck was 32 mm, and LVEF was 20%. Serum cardiac enzymes and serum troponin I levels were in normal ranges.

Under general anesthesia, cardiopulmonary bypass was instituted through the femoral artery and vein cannulations. Hemopericardium was detected at median sternotomy. A chronic ascending aortic dissection was seen during antegrade cardioplegia delivery. The operation was performed under moderate hypothermia with a nasopharyngeal temperature of 28 °C. After cross-clamping of the ascending aorta, cardiac arrest was accomplished with antegrade infusion of isothermic hyperkalemic cardioplegic solution, and was maintained by continuous retrograde infusion of cardioplegia. The intimal tear and the dissection were localized to the ascending aorta. Supracoronary ascending aorta replacement was performed with a synthetic tube graft (Fig. 1). The left ventricular pseudoaneurysm was explored and rupture of the left ventricular posterior wall was detected (Fig. 2). The defect was repaired with a synthetic patch of 3x4 cm in diameter by the remodeling ventriculoplasty of the Dor procedure.

The patient had an uneventful recovery. On the eighth postoperative day, TTE revealed a normal aortic root with no aortic regurgitation or dissection, left ventricular configuration was normal, and LVEF was 25%. The patient was discharged without any complication. Pathological examination of the pseudoaneurysm sac revealed no myocardial tissue. The patient was symptom-free in the postoperative first month.

DISCUSSION

Left ventricular pseudoaneurysm is a very rare complication of acute transmural MI. It generally appears several weeks after MI, and more than half are localized in the posterior wall.^[1,2] It generally occurs after MI due to occlusion of the circumflex artery.^[4] In contrast to LV pseudoaneurysms, only about 4% of true LV aneurysms develop in the posterolateral or inferior wall.^[5] Anterior myocardial rupture may be more likely to result in hemopericardium, tamponade, and death.

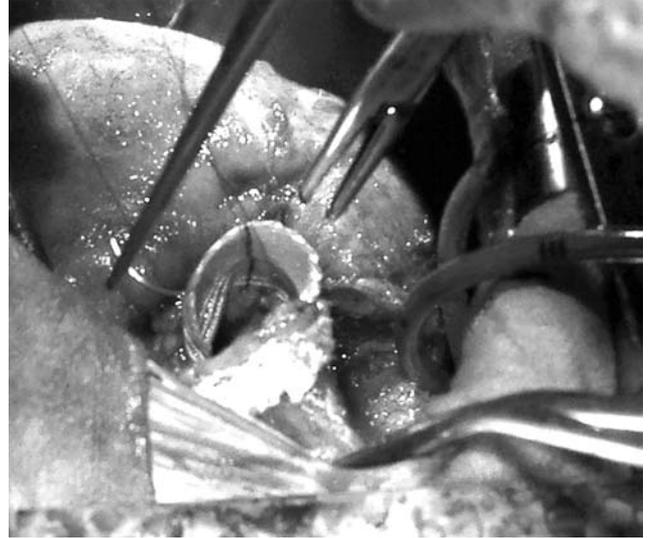


Fig. 1. Intraoperative view of the ascending aorta replacement with a synthetic tube graft.

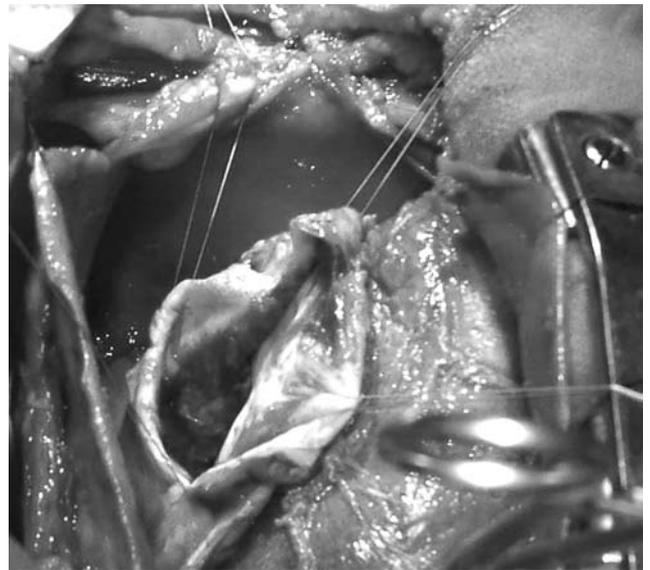


Fig. 2. Intraoperative view of the left ventricular pseudoaneurysm.

In our case, LV pseudoaneurysm was associated with a chronic type A dissection. To our knowledge, this is the first reported case of these two coexisting pathologies that were surgically treated successfully.

Chronic aortic dissection is usually asymptomatic. It may be incidentally discovered following an asymptomatic acute dissection; this most often occurs in patients with a preexisting aortic aneurysm.^[3]

The symptoms of an LV pseudoaneurysm are often unspecific, and the diagnosis is generally accidental.^[4,6] The presence of a neck narrower than the aneurysmal cavity detected by echocardiography and/or left ventriculography is suggestive of a pseudoaneurysm.^[7] In the present case, the diagnosis was established by

echocardiography, left ventriculography, and confirmed by pathological examination.

Asymptomatic small (<3 cm in diameter) pseudoaneurysms have a more stable course, and patients with small pseudoaneurysms are candidates for conservative treatment, and regular echocardiographic or magnetic resonance assessments.^[4,6-9] Many investigators advocated surgical intervention as the appropriate treatment for large LV pseudoaneurysms since untreated pseudoaneurysms have an approximately 30-45% risk for rupture.^[4]

Despite appropriate medical management and close follow-up, 20% to 40% of patients with a chronic dissection require operation for aneurysmal dilatation within 10 years. The purpose of the operation in chronic aortic dissections is to replace all segments of the dissected aorta at risk for rupture and to prevent the possibility of subsequent malperfusion syndrome.^[3]

It is obvious that early diagnosis and appropriate surgical intervention are essential for patients with large LV pseudoaneurysms. Early surgical intervention is a safe and effective treatment of choice in patients with an LV pseudoaneurysm and aortic dissection.

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