

An emergency surgical repair for ruptured giant right coronary artery aneurysm

Dev sağ koroner arter anevrizma rüptürünün acil cerrahi onarımı

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Spontaneous rupture of a coronary artery aneurysm which may cause catastrophic events such as ischemia, myocardial infarction, tamponade and sudden cardiac death. A 56-year-old woman presented with sudden pain in chest and tachycardia. There were signs of acute inferior myocardial infarction on electrocardiography, and it revealed pericardial effusion and cystic mass anterior to right atrium. After removing the tamponade it was seen that the bleeding was from right coronary arterial aneurysm rupture. Aneurysm resection and bypass via saphenous vein graft were performed and the patient was discharged on the postoperative seventh day.

Key words: Coronary aneurysm/complications/surgery; rupture.

There have been rare cases of large aneurysms causing myocardial infarction as a result of coronary steal phenomenon or compression. In addition to the mechanical and functional effects of coronary steal and compression, these aneurysms lead to myocardial infarction through varying other mechanisms. These include changes in the hemodynamics in the blood vessel leading to turbulent flow in certain areas and stasis in others. This stasis leads to thrombus formation within the aneurysm.^[1,2]

CASE REPORT

A 56-year-old woman was admitted to the emergency department for sudden onset chest pain, shortness of breath and palpitations. Physical examination revealed a blood pressure of 80/60 mmHg, tachypnea, orthopnea, jugular venous distension and distant heart sounds. The electrocardiogram (ECG) showed sinus tachycardia with low voltage throughout and ST segment elevations in leads II, III, and aVF consistent with an acute inferior wall myocardial infarction. An emergency echocardiogram demonstrated a massive pericardial effusion with signs of cardiac tamponade, additionally a spherical, cystic mass (7x9 cm)

Koroner arter anevrizma rüptürü ani kardiyak ölüme neden olabilir. Rüptüre bağlı ventrikül duvar diseksiyonu, miyokard kasılma bozukluğu, iskemi ve tamponad gözlenebilir. Elli altı yaşında kadın hasta ani başlayan göğüs ağrısı ve çarpıntı yakınmasıyla başvurdu. Elektrokardiyografisinde akut inferior miyokard infarktüsü bulguları vardı. Ekokardiyografide perikardiyal effüzyon ve sağ atriyumun önünde kistik kitle görüldü. Acil ameliyata alınan hastada tamponad boşaltıldıktan sonra kanamanın sağ koroner arter anevrizması rüptüründen olduğu görüldü. Anevrizma rezeksiyonu ve safen ven greftiyle bypass yapılan hasta ameliyat sonrası yedinci gün taburcu edildi.

Anahtar sözcükler: Koroner anevrizma/komplikasyon/cerrahi; rüptür.

localized behind the pericardium, seen anterior to the right atrium. She was referred to intensive care unit under impression of rupture of the right atrial cyst in the pericardium and cardiac tamponade. She was immediately taken to the operation room. Emergency median sternotomy and pericardial exploration were carried out, then 1000 cc fluid was removed. After removing the tamponade, a thorough and careful investigation of the heart, great vessels, and pericardial sac was undertaken. The site of bleeding was found to be a free rupture of the RCA aneurysm (Fig. 1). She was placed on cardiopulmonary bypass and cardioplegic arrest. During operation the mass identified as a thrombosed RCA aneurysm. Then the aneurysm was resected, and both proximal and distal arteries were ligated (Fig. 2). A saphenous vein graft was used to bypass to the distal RCA. Her postoperative recovery was uneventful and the patient was discharged on the 7th postoperative day.

DISCUSSION

The reported incidence of coronary artery aneurysms varies from 1.5% to 5%. The largest antemortem study of

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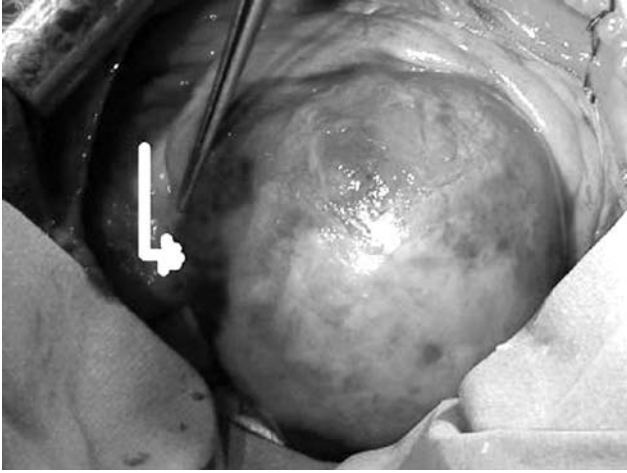


Fig. 1. Ruptured giant right coronary artery aneurysm (white arrow).

coronary aneurysms is reported in the Coronary Artery Surgery Study (CASS), which found an incidence of 4.9% diagnosed by coronary angiography. Male patients are more commonly affected.^[3-5] Even though aneurysmal dilatation has been described in all major coronary vessels, RCA is most commonly affected.

Ninety percent of these aneurysms are of atherosclerotic origin, often occurring in relation to other atheromas in the coronary arterial tree and often associated with post-stenotic dilatation and ectasia.^[6] Kawasaki disease is another important cause, which occurs usually in infants and children but where coronary artery aneurysms may be discovered much later in adulthood.^[7] Other causes include polyarteritis nodosa, Marfan syndrome, syphilis, trauma, and congenital causes.^[8] In our case, we have described there was evidence of mild atherosclerotic heart diseases. Although histological evaluation also suggested of the mass showed a mild atherosclerotic RCA aneurysm wall with thrombus within it. There was no evidence childhood history of Kawasaki disease, nor was there any evidence of an acute inflammatory disease or other acquired causes. Because of this, in the current report, we have described a case of ruptured atherosclerotic aneurysm of the RCA.

In frequency coronary aneurysms usually contain thrombus and hematoma that can cause them to present as an intramyocardial mass or, more rarely, to rupture such as in our case.^[9] The inferior wall myocardial infarction was thought to have been the result of distal embolization of thrombus from the aneurysm.

With larger coronary artery aneurysms, surgical therapy may be necessary and entails excision of the aneurysm, restoration of blood flow with bypass and repair by patches or direct suture of any rupture into the ventricular or atrial chambers.^[9] Surgical treatment should be recommended to coronary artery aneurysm and saphenous vein was a good selection for bypass graft when the diameter of native artery was relatively

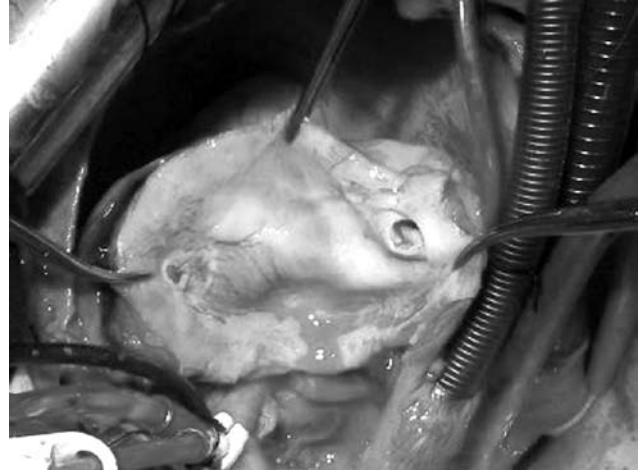


Fig. 2. Opened view right coronary artery aneurysm.

large.^[10] In this case, the aneurysm was excised and the distal coronary artery was reconstructed with a saphenous vein bypass.

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