Dilatation of fusiform to sacular form right coronary artery aneurysm

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ABSTRACT

A young 37-year-old Saudi lady presented to us with unstable angina. Coronary angiogram demonstrated a fusiform aneurysm of the distal part of the right coronary artery. The patient was discharged home following stabilization. Two weeks later, she presented again with unstable angina. Coronary angiogram demonstrated a huge, large, sacular form of coronary aneurysm with multiple filling defects in that aneurysm. Surgical resection of aneurysm and saphenous vein graft insertion at the crux was performed and she was discharged home a week later.

Keywords: Aneurysm, fusiform, sacular.


Coronary aneurysm is a rare anomaly, reported by Boupon in 1812. In 1958, Nunker et al, reported the first case of coronary aneurysm documented with coronary angiography. Aneurysmal disease defined as dilatation 1.5 times the diameter of adjacent normal segment of patient’s largest coronary vessel. The most common cause of aneurysm is atherosclerotic coronary artery disease (CAD). Beferle in 1979 and Hartnell et al in 1985 reports suggested that the right coronary artery (RCA) is the most commonly affected artery. Aneurysmal disease in the CASS registry was found most frequently in the RCA. Because of the rarity of this disease, we are reporting a case of sudden enlargement of distal RCA aneurysm detected by angiogram and treated surgically by resection and bypassing the distal segment with vein graft.

Case Report. Thirty seven year old Saudi lady presented with unstable angina. She has no previous history of hypertension, diabetes mellitus or ischemic heart disease. She is a non-smoker. Family history was negative for CAD. There was no evidence of connective tissue disorder.

Clinical examination revealed a young, healthy looking lady. Blood pressure was 95/50 with a heart rate of 65/minute. First and second heart sounds were normal with additional fourth heart sound. Chest was clear. Serum cholesterol was within normal limits of 120mg. Electrocardiogram demonstrated regular sinus rhythm with small Q-wave and T-wave inversion in leads II, III and VI. Echocardiogram revealed normal size left ventricular cavity with normal left ventricular function with an overall ejection fraction of 65% and no regional wall motion abnormality. There was a round mass of 2cm x 3cm located in the right atrium. She was stabilized with Nitroglycerin and Heparin intravenously in addition to a Calcium channel blocker.

Coronary angiogram was performed using Judkins technique. Left coronary angiogram revealed a normal left coronary system. Right coronary angiogram demonstrated an elongated fusiform aneurysm in the distal part of the RCA measuring 15mm x 4mm with multiple filling defect and...
Discussed. Coronary aneurysm is classified as sacular or fusiform, single or multiple. A fusiform aneurysm is a dilatation along the axis of the vessel at least twice the diameter of the transverse dimension. On the other hand, a sacular aneurysm is an irregular outpouching in which the transverse diameter is greater than the longitudinal dimension with or without proximal obstructive lesion appearing as a parch.

There are other types of aneurysm: diffused in which most of the arteries are affected, segmental in which only a localized segment is affected.

Our patient showed an acute enlargement of distal fusiform aneurysm over a short period of time (2 weeks) which changed into a sacular type of aneurysm. This could well be explained that the distal arterial wall is connected to a sacular aneurysm which seems to be closed by clot, or as shown in the first angiogram, but in the second angiogram, it was opened and filled with dye which explained that aneurysm originally was sacular type, as it has been shown on two-dimensional echocardiogram with a sacular mass in the right atrium at the same anatomical site of distal RCA.

The common cause of coronary aneurysm is coronary atherosclerosis, which represents 50% of the cases. Other leading causes of CAD/aneurysm include Kawasaki disease, which is commonly reported in Japan and in North America, and its worldwide distribution makes it the most common cause of non atherosclerotic aneurysm. In addition to previous causes, periarteritis nodosa and systemic lupus can also cause aneurysmal dilatation of artery.

Congenital coronary aneurysm is a rare cause, and could be explained by inhibition of development of normal coronary vessel with retention of primitive sinusoids so that the artery ends in a blind sac. Histologically, it consists of dense, fibrous tissue without inflammatory feature or cystic medial necrosis.

In our patient, congenital etiology is most likely the cause of her aneurysm since the histology is consistent with this type of aneurysm.

The coronary artery aneurysm frequently presents with one or more complications which includes distal embolization from thrombosis in situ and it is presented as angina or myocardial infarction (MI) symptoms. Rupture of aneurysm could lead to catastrophic tamponade and sudden death. Our patient went for urgent surgery to avoid rupture since there was a sudden enlargement of the aneurysm.

Electrocardiogram is generally not specific, but it manifests the evidence of complication of angina or MI or pericardial effusion. Two-dimensional echocardiogram showed a round mass in the right side of the right atrium, however, coronary angiogram is a definitive method that established...
diagnosis of the RCA fusiform aneurysm, which changed to sacular form in the 2nd angiogram.
Management of patients with coronary aneurysm is by medical therapy or surgical resection. Medical therapy offers to be potentially beneficial including antiplatelet and anticoagulation. Medical therapy has not been documented to prevent complications of aneurysm nor improve symptoms or survival. Recently, the trend is in the form of surgical intervention especially for large fusiform or sacular aneurysms. Robinson in 1985 showed the outcome for over 500 cases as excellent, provided care is taken to exclude the aneurysm from the anastomosis.13,14 Our patient was treated surgically and she is doing well without any symptoms.
In conclusion, congenital coronary aneurysm is a rare anomaly. Clinical recognition is increased. Coronary angiogram is an established technique for diagnosis. Surgical resection is the ideal treatment in selected patients with large aneurysm having complications.

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**References**