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Department of Cardiac Surgery, Skubiszewski Medical University of Lublin

JANUSZ STĄŻKA, KRZYSZTOF OLSZEWSKI, ELŻBIETA KRAWCZYK

Successful treatment of giant right coronary artery aneurysm mimicking right atrium thrombus – a case report

Small coronary artery aneurysms are found in 1% to 5% of patients undergoing coronary angiography (1, 3). Aneurysms are usually located in the proximal portion of the major arteries (1). Etiologies include atherosclerotic disease (most common), vasculitis (Kawasaki's disease or Takayasu arteritis), mycotic-embolic disease, and following PTCA (1, 3). Coronary artery aneurysms can also very rarely be congenital. Congenital lesions most commonly involve the right coronary artery, are generally large, and affect young patients (3). We describe a 58-year-old patient with an aneurysm of the right coronary artery.

CASE REPORT

A case of a 58-year-old male with 20 years' history of hypertension, eight years' history of stabile angina pectoris CCS II, after inferior myocardial infarction, hyperlipidemia, abdominal aorta aneurysm, and tabacco use, is reported. His family history revealed two cases of cerebral aneurysms and a case of sudden death. The patient presented with typical crescendo angina pain and paroxysms of atrial fibrillation for three months. Within this time he was hospitalized in Internal Medicine Department with additional sings and symptoms of pulmonary infection. Chest radiographs proved the diagnosis of bilateral bronchopneumonia successfully treated with doxycycline.

ECG revealed inferior wall myocardial infarction. Transthoracic echocardiography (SONOS 1000) demonstrated a tumour within a right atrium attached to its free wall, EF 55% end mitral insufficiency II. The surface of possible thrombus was evaluated at 12–14 square cm.

Coronary angiography (made in Cardiology Department of Specialistic Hospital in Lublin) showed total occlusion of the right coronary artery (RCA) in its middle portion with back flow to the distal portion from left anterior descending coronary artery (LAD), 20% stenosis of the stem of the left coronary artery in distal portion and occlusion of circumflex coronary artery (CX) and the second obtuse marginal branch (OM 2).

After regression of the bronchopneumonia symptoms the patient was admitted to the Dept. of Cardiac Surgery, Medical University in Lublin for coronary artery bypass grafting (CABG) as well as right atrium tumour/thrombus removal.

Surgery was performed in March 2002. In extra corporal circulation the right atrium was opened and no thrombus was found. The tumour (5 x 2 x 3 cm) compressing the right atrium was localized in atrioventricular groove along RCA. It was dissected and it appeared as a giant RCA aneurysm completely filled up by thrombus (Fig. 1). Both ends of aneurysm were occluded. After proximal and distal ligation of RCA the aneurysm was removed and veins grafts to posterior descending artery (PDA) and OM 2 were performed.

The postoperative course was uneventful and the patient was discharged home on 12th day.

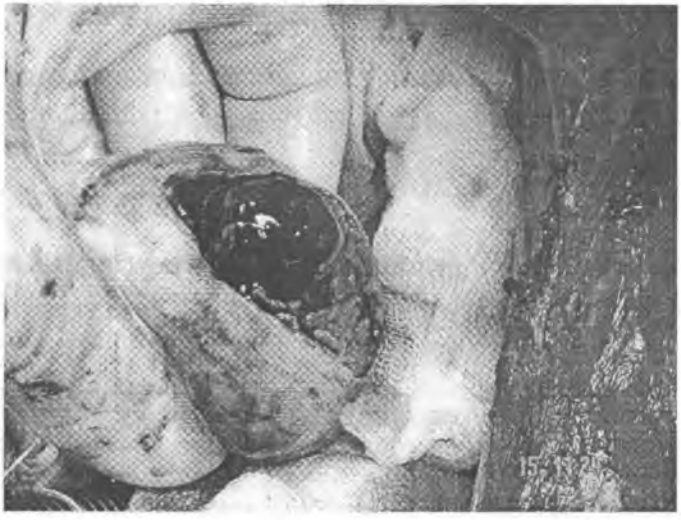

Fig. 1. Intraoperative view of totally thrombosed giant aneurysm of right coronary artery

DISCUSSION

Coronary aneurysm is defined as an increase of the diameter of the coronary artery segment twice the diameter of the adjacent nonaffected part of the vessel, which may be fusiforme or saccular (4). The first pathologic description of a coronary aneurysm was published by Morgagni in 1761, and the first clinical case of an aneurysm was reported by Bourgon who, in 1812, described a postmortem finding of a dilatation in the right coronary in a patient who experienced sudden death (2).

Coronary artery aneurysm is a relatively infrequent abnormality in patients with angiographically proven coronary artery aneurysm, the clinical picture is that of severe coronary artery disease. Aneurysm is associated with severe atherosclerosis and more rarely with Kawasaki's disease. The extent of atherosclerosis and poor distal vessel run-off contributes to the presence of symptoms. The histologic study of these aneurysms reveals diffuse hyalinization, lipidic deposits, rupture of intima and medium calcification and focal fibrosis, and intramural hemorrhage. The presence of dilated segments in arteries with severe atherosclerotic disease or in arteries with structural alterations, as in Marfan Syndrome, supports the hypothesis that these ectasias are reflexes of evolvement and weakening of the medium layer of the vase.

Whichever is the responsible mechanism, it is definite that the dilated sections present in coronary arteries are not benign entities. Reports in literature (5) show that coronary aneurysms, even without the association with stenosis, are subject to spasms, thrombosis, and spontaneous dissection, and as such, are potential causes for coronary insufficiency with myocardial infarction or, in some cases, even sudden death. There are several treatments of choice for patients with coronary aneurysm as anticoagulants and anti-platelet agents, an intra-coronary stent implantation. We believe that surgery is mandatory and that exclusion of the coronary aneurysm should be considered in all cases with giant aneurysm as well as other coronary vessel stenosis.

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SUMMARY

Coronary artery aneurysms are very rare abnormalities in patients undergoing coronary angiography. Clinical manifestation is usually that of coronary artery disease, and acute myocardial infarction. We present the case of a patient admitted to the Department of Cardiac Surgery due to coronary artery disease and the presence of thrombus in right atrium of the heart diagnosed by transthoracic echocardiography. Coronary angiography showed occlusion of the right coronary artery (RCA) in its middle portion, 20% stenosis of the stem of the left coronary artery in distal portion and occlusion of circumflex coronary artery (CX) and the second obtuse marginal branch (OM 2). During surgery no tumor was found within the right atrium, but right coronary artery giant aneurysm was revealed. The totally thrombosed aneurysm was removed with additional performance of two venous grafts to RCA and OM 2. The postoperative course was uneventful.

Skuteczne leczenie olbrzymiego tętniaka prawej tętnicy wieńcowej naśladującego skrzeplinę prawego przedsionka – opis przypadku klinicznego

Tętniaki tętnic wieńcowych należą do bardzo rzadkich nieprawidłowości u pacjentów poddawanych angiografii tętnic wieńcowych. Ich obraz kliniczny najczęściej przyjmuje postać choroby wieńcowej jak również ostrego zawału mięśnia serca. W pracy opisano przypadek pacjenta przyjętego do Kliniki Kardiochirurgii z rozpoznaniem choroby niedokrwiennej serca i skrzepliny zlokalizowanej w prawym przedsionku, której obecność stwierdzono na podstawie wyniku echokardiografii przezprzełykowej. W badaniu koronarograficznym stwierdzono zamknięcie prawej tętnicy wieńcowej w odcinku środkowym, 20% zwężenie obwodowego odcinka pnia lewej tętnicy wieńcowej, zamknięcie tętnicy okalającej i drugiej gałęzi marginalnej. Podczas zabiegu chirurgicznego nie znaleziono guza w świetle prawego przedsionka, natomiast stwierdzono obecność całkowicie wykrzepionego olbrzymiego tętniaka prawej tętnicy wieńcowej. Tętniak wycięto, a następnie wykonano dwa żylne pomosty aortalno-wieńcowe do prawej tętnicy wieńcowej i drugiej gałęzi marginalnej. Przebieg pooperacyjny był niepowikłany.