Aneurysm of the Body of the Left Atrium Presenting with Chest Pain

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A patient with aneurysm of the body of the left atrium presenting with angina pectoris and mild congestive heart failure, but completely normal coronary arteriograms, is reported. A diverticulum seen in the left ventricular angiogram, read as a ventricular diverticulum, was found at surgery to be an aneurysm of the body of the left atrium. The possible etiologies and complications of the left atrial aneurysm are briefly discussed.

Aneurysms of the left atrium have most frequently been described in the left atrial appendage and some are associated with defects in the pericardium. Aneurysmal dilatation of the body of the left atrium is less common, and only four previous cases have been reported, none of which was associated with chest pain or congestive heart failure.

Case Report

A 55-year-old Caucasian woman who had been seen at the University of Chicago Clinics for mastoiditis and upper gastrointestinal discomfort about six years ago presented with a history of increasing exercise intolerance and occasional paroxysmal nocturnal dyspnea over a six-month period. Two weeks prior to admission, she developed congestive chest pain for the first time which persisted for six hours. There was neither a history of rheumatic heart disease nor of cardiac dysrhythmias.

Physical examination revealed a short (5 feet) woman in no acute distress and in regular sinus rhythm. Her blood pressure was 140/70 mm Hg. There was no clubbing of digits or cyanosis, and the jugular venous pressure was slightly elevated at 45° with normal ‘a’ and ‘v’ waves. The cardiac impulse indicated slight enlargement of a dynamic left ventricle and on auscultation a soft atrial sound was present with a normal first heart sound and a grade 2/6 pansystolic murmur, which radiated to the left axilla. The second heart sound was split normally to respiration, and there was no audible opening snap of the mitral valve or left ventricular filling sound or mitral delayed diastolic murmur. Basal rales were present in both lungs. The rest of the physical examination was normal.

The electrocardiogram, which showed no change since that of five years ago, showed normal sinus rhythm with a P-wave suggestive of left atrial enlargement. The mean frontal QRS axis was 45° with q-waves in leads 2, 3, and aVF. ST and T-waves were normal. Chest x-ray examination showed mild cardiomegaly when compared to those taken prior to the onset of symptoms. The left atrium was moderately enlarged and mild upper lobe pulmonary venous congestion was present. No Kerley B lines were seen.

Laboratory Data

Hemoglobin, serum electrolytes, fasting cholesterol, triglyceride, blood sugar and uric acid levels gave normal results.

Hospital Course

The patient was treated with bed rest, digitalis and diuretics with resolution of the heart failure and symptoms. Right and left heart catheterization was then performed showing normal pressures in the aorta, left ventricle, pulmonary capillary wedge, pulmonary artery, right ventricle and atrium. Cardiac index was 3.4 L/min/M² at rest. The left ventricular end-diastolic pressure rose from 10 to 13 mm Hg after LV angiography, which in the right anterior oblique position showed minimal mitral regurgitation and what appeared to be an aneurysmal dilatation of the inferior wall of the left ventricle (Fig 1). Selective coronary arteriograms and an aortogram were normal.

Open heart surgery was performed, with a preoperative diagnosis of diverticulum of the left ventricle and mild mitral regurgitation. However, at surgery, a diverticulum arising from the body of the left atrium extending to the mitral valve ring was found (Fig 2). The mitral valve and left ventricle were examined carefully but were found to be normal. The left atrial diverticulum was excised and the postoperative recovery was uneventful.

Follow-up

The electrocardiogram and chest x-ray film after recupera-

![Figure 1. Left ventriculogram showing mild mitral regurgitation and aneurysmal dilatation of the left atrium simulating diverticulum of the left ventricle.](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/20961/ on 06/26/2017)
tion were normal, and six weeks after surgery right and left heart catheterization studies were repeated, pressures and cardiac outputs were normal, and the left ventriculogram showed only a minor degree of mitral regurgitation. Pulmonary angiogram showed filling of a normal left atrium from four pulmonary veins.

Pathology

Areas of the excised specimen were examined histologically and were shown to consist of fibrous tissue. No thrombus was seen (Fig 3).

DISCUSSION

Aneurysmal dilatations of the left atrial appendage,1-6 which may herniate through a pericardial defect,1-4 are fairly common, but aneurysms of the body of the left atrium are extremely rare.7-10 Four previous cases of aneurysm of the body of the left atrium have been reported—all except one being in children.11 In three,8,10,11 supraventricular tachycardias were a prominent feature, while in the other3 the aneurysm was associated with a bizarre symptom complex consisting of abdominal pain, cyanosis and syncope. In two of the cases,8,10 the aneurysm appeared as a mediastinal mass on plain chest x-ray film, while in another the space-occupying mass posterior to the left ventricle was suggested by the left ventricular angiogram. Systolic murmurs were present in two of the four cases.5,11 Systemic emboli have been reported in aneurysmal dilatation of the left atrial appendage,4,5 but none in the cases of aneurysms of the body although in two thrombi were actually present.10,11

This patient differs from the previous cases in that she presented with chest pain and mild congestive heart failure, which responded rapidly to medical therapy, and that no dysrhythmias had ever occurred; neither did she have systemic emboli, nor was thrombus in the aneurysm found at surgery. Although several features of the history and physical examination suggested coronary arterial disease with associated papillary muscle dysfunction and left ventricular failure, selective coronary arteriogram ruled out this possibility. The cause of the chest pain and failure is uncertain, but may be due to critical distension of the abnormal left atrial wall.

The cause of aneurysms of the body of the left atrium is not known, but has been thought to be due to congenital weakness of the atrium.4-10

All cases of atrial aneurysms treated by surgical excision have done well postoperation with no reported recurrence of systemic embolization or of supraventricular tachycardias once over the immediate postoperative period. The patient has likewise done well after surgery with no recurrence of chest pain or congestive heart failure.

REFERENCES

2 Dimond EG, Kittle CF, Voth DW: Extreme hypertrophy of left atrial appendage. Am J Cardiol 5:122-125, 1960
7 Godwin TF, Anger P, Key JA, et al: Intrapericardial aneurysmal dilation of the left atrial appendage. Circula-
Pulmonary Artery Compression Due to Acute Dissecting Aortic Aneurysm: Clinical and Angiographic Diagnosis

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Clinical and angiographic features simulating acute massive pulmonary embolism, the result of compression of the right and main pulmonary arteries by a dissecting hematoma, are described in a 52-year-old white woman.

The syndrome of compression of the pulmonary artery by an aortic aneurysm has been described frequently.1-4 Compression of the pulmonary artery by an acute dissecting aortic aneurysm, however, has only recently been reported pathologically in one patient.5 The purpose of this report is to describe the clinical and angiographic features of acute dissecting aortic aneurysm in a patient whose presentation and findings simulated acute massive pulmonary embolism due to compression of the pulmonary artery by the dissecting hematoma.

Case Report

A 52-year-old white woman did not complain of any unusual symptoms until the day of admission to the hospital on April 24, 1973. On that morning she suddenly developed acute persistent severe, tearing anterior chest pain that radiated to the back. Shortly after the onset of pain, she vomited and could not breathe. On arrival at the hospital the patient’s pain was still severe, with radiation to the back, left shoulder and left subscapular area. According to the referring physician, she had hypercholesterolemia, mild hypertension and stable class 3 angina pectoris. She was a heavy smoker. There was no history of syncope or congestive heart failure.

Physical examination revealed a well-nourished, well-developed pale woman in acute respiratory distress. The heart rate was 125 per minute, the peripheral pulse was thready and the systolic blood pressure was less than 80 mm Hg. Her pupils were equal and reacted normally to light and accommodation; the fundi were normal. The lungs were clear on auscultation. The precordium was normal and the heart sounds were distant. Neurologic examination revealed no abnormalities.

Laboratory studies on admission included oxygen tension (P02) of 52.2 mm Hg, arterial carbon dioxide pressure tension (Pco2) of 44.3 mm Hg and pH of 7.4. The hematocrit level was 38 percent, hemoglobin index 12.9 gm/100 ml and white blood cell count was 22,400 cu mm, with 85 percent neutrophils. The serum amylase reading was 82 units. The urine specific gravity was 1.024 and the protein content 100 mg percent. The sediment showed two to three red blood cells and many white blood cells per high power

Figure 1. Posteroanterior and lateral right ventricular angiogram showing displaced right ventricular outflow tract to left, filling defect in main pulmonary artery and complete obstruction of right pulmonary artery.