Post-surgical Right Ventricular Pseudoaneurysm Presenting as an Epigastric Pulsatile Mass

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Abstract

We report a case of right ventricular pseudoaneurysm three weeks after open mitral valve commissurotomy. Transthoracic echocardiography showed a cavity of approximately 5 x 3 cm contiguous to the right ventricular inflow, communicating with the right ventricle by a small neck. Doppler study showed the presence of systolic and diastolic flow at the site of the rupture. Pseudoaneurysm is an infrequent surgical complication involving right ventriculotomy and often increases progressively in size. The association with open mitral valve commissurotomy has not been previously reported ***(Iranian Heart Journal 2010; 11 (1):38-40).***

Key words: pseudoaneurysm ■ right ventricle

Case report

A 39-year-old woman referred to our echocardiography lab because of a tender, pulsatile, subxiphoid mass with progressive enlargement since 3 weeks before. She had a history of open mitral valve commissurotomy four weeks previously because of severe mitral stenosis and left atrial appendage thrombus. She had an uneventful surgery and was discharged from hospital one week after her surgery.

A few days after discharge, she felt epigastric pain and fullness, with progressive bulging of the epigastrium. Physical examination revealed normal vital signs and an unremarkable cardiovascular examination. Her abdominal examination showed a large and tender pulsatile mass about 5 cm x 3 cm in the subxiphoid region.

Transthoracic echocardiography revealed normal left ventricular size and function, with mild rheumatic mitral stenosis and regurgitation.

The right ventricular chamber was under pressure, and the off axis view of the four-chamber view showed a large pear-shaped 5 x 2.5 cm echo-free space with stagnant flow that was connected to the right ventricular free wall (Fig. 1).

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Further evaluation showed a narrow neck at the right ventricular inflow portion and no other connection to the inferior vena cava or hepatic vein. Color Doppler and Doppler study of the neck showed systolic and diastolic flow (Fig. 2) and contrast study by saline injection in the arm showed bubble passage from the right ventricle to the echo-free space, suggestive of right ventricular pseudoaneurysm. Abdominal contrast CT scan and Doppler ultrasonography study (Fig. 3) confirmed the echocardiography findings. The diagnosis of right ventricular pseudoaneurysm as an iatrogenic complication of previous surgery was made and the patient was elected for reoperation. Intraoperative transesophageal echocardiography revealed a cystic mass with a compressive effect on the right ventricle, but it could not reveal the neck of the pseudoaneurysm due to the distance of the mass. The mass was excised without complication. The macroscopic examination of the mass was consistent with a pseudoaneurysm filled with serous and semisolid hematoma. The patient was discharged in good condition and has done well in the past six months post-operation.

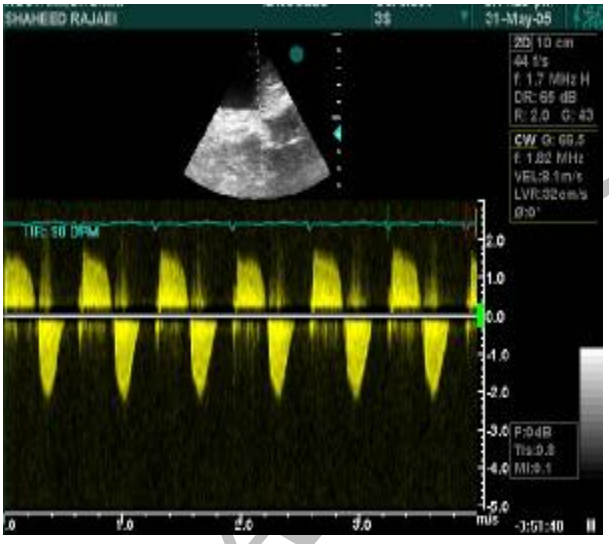

Fig. 2. Doppler assessment of systolic and diastolic flow at the site of rupture.

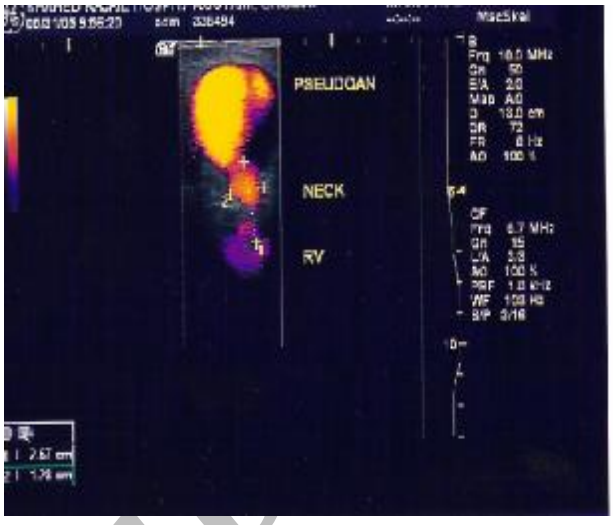

Fig. 3. Abdominal ultrasonography of the pseudoaneurysm.

Discussion

Pseudoaneurysm formation of the right ventricle is a rare condition caused by the disruption of the ventricular wall that allows the blood to leak into the surrounding space. It often complicates surgeries involving right ventriculotomy with potential for progressive increase in size.[1]

The echocardiographic features typical for pseudoaneurysm include sharp discontinuity of the endocardium at the site of the communication of the pseudoaneurysm with the cavity, and an orifice that is relatively narrow compared to the pseudoaneurysm diameter. Doppler echocardiography is useful in visualizing turbulent, bidirectional flow between the sac and the ventricle.[2]

Pseudoaneurysm of the left ventricular wall is (most commonly) a complication of myocardial infarction.[3] Other less common causes include infective endocarditis, chest trauma, syphilis, rheumatic myocarditis, myocardial biopsy (especially after heart transplantation), disseminated TB, and cardiac surgery.[4,5] Pseudoaneurysms tend to occur in areas of surgical manipulation or incision such as ventriculotomy or vent placement, but our case was unique because no case after open mitral valve commissurotomy has been reported according to our review of literature.

Previously reported cases of pseudoaneurysm of the right ventricle were pseudoaneurysms of the right ventricular outflow tract. Our case was pseudoaneurysm involving the right ventricle inflow tract, most probably due to the insertion and removal of the temporary pacemaker lead.

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