

Non-infectious Pseudoaneurysm of Ascending Aorta Following Redo-Aortic Valve Replacement

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Abstract- A 46 year old man had been undergone Aortic valve replacement (AVR) due to mechanical aortic valve endocarditis two month ago. He was referred to Imam Khomeini hospital because of dyspnea since two weeks ago. Echocardiography showed the false aneurysm, with an area of flow beyond the lumen of the aorta. This patient underwent reoperation, the previously implanted aortic valve was removed, meticulous debridement was performed in aortic valve annulus and adjacent part of the ascending aorta, and aortic valve and root replacement were performed.

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Key word: Pseudoaneurysm, aortic valve insufficiency, heart valve prosthesis implantation

Introduction

Pseudoaneurysm of the ascending aorta is a well-known complication after aortic root surgery. Pseudoaneurysm formation can occur over variable lengths of time, ranging from the early to late postoperative period (over 10 years) (1).

Detailed information on the pseudoaneurysm must be obtained preoperatively and the lesion should be treated surgically immediately upon diagnosis.

The Bentall operation has been considered to be the "gold standard" in the surgical treatment of combined valve and ascending aorta pathology (2).

In this article, we report the case of a patient with pseudoaneurysm of ascending aorta who underwent surgical repair.

Case Report

A 46-year-old man was referred to Imam Khomeini hospital because of dyspnea since two weeks before. He had undergone replacement of the aortic valve due to mechanical aortic valve endocarditis two month earlier.

On admission, the patient was afebrile, with a blood pressure of 130/50 mmHg. There was a severe systolic murmur at 2nd left intercostal space.

ECG showed sinus tachycardia. Chest radiography was suggestive of mediastinum widening compatible

with dilatation of the ascending aorta. Transthoracic echocardiography showed normal left ventricular contractility, aortic prosthetic valve malfunction with severe regurgitation, and a large pseudoaneurysm of the ascending aorta which had blood flow. Moderate to severe paravalvular leak was adjacent to the site of entry into the false aneurysm.

The patient underwent aortic root and valve replacement. After repeating sternotomy the ascending aorta was cross clamped. The large pseudoaneurysm was originated from an intimal defect in aortic wall below the valve. In this procedure careful debridement was performed in aortic valve annulus and the adjacent part of the ascending aorta.

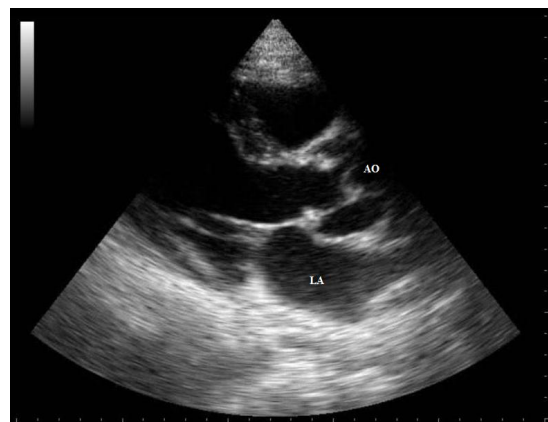


Figure 1. Pseudoaneurysm of Ascending Aorta

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The new homograft was sutured proximal to the aortic annulus with a standard continuous suture and native coronary arteries were implanted.

The aortic tissue was sent for histopathologic examination that the tissue of the pseudoneurysm did not reveal histopathologic signs for bacterial infection.

Transthoracic echocardiography was performed in the patient before discharging to evaluate the position and function of the implanted homograft that revealed minimal aortic valve regurgitation. Seven days after operation the patient was discharged in good condition.

Discussion

A Pseudoaneurysm is not actually an aneurysm but rather a well-defined collection of blood and connective tissue outside the vessels wall (3).

The pseudoaneurysm of the ascending aorta is well-known and life-threatening complication after cardiovascular surgery. Predisposing factors include graft infection, dissected native aorta and possibly tissue necrosis after excessive use of biologic glue (4). The potential sites for pseudoaneurysm formation after cardiac surgery are the sites of aortic cross clamp, aortotomy proximal or distal to aortic suture lines, aortic cannulation, cardioplegia needle, aortic vent, and coronary anastomosis (5,6).

Pain becomes a symptom during expansion of the cavity, and the aneurysm may present subcutaneously between the costal cartilages or through the sternum itself. An expanding false aneurysm may also produce symptoms of cardiac tamponade (4).

The mechanism of pseudoaneurysm formation is not completely understood, but suture line tension and persistent bleeding into the space between the graft and the wrapped aorta wall seem to be most important (7).

Echocardiography, angiography, and conventional computed tomography are usually the most valuable methods of diagnosing a pseudoaneurysm.

TEE appears to be the modality of choice for diagnosis of pseudoaneurysm with its ability to define perigraft architecture and identify blood flow within the pseudoaneurysm itself (1).

Reoperation for Mediastinal false aneurysm with or without infection is associated with considerable hospital mortality (4).

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