Coronary Artery and Mitral Valve Surgery in Takayasu’s Arteritis: A Case Report

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Concomitant coronary artery disease and mitral valve disease are rare in Takayasu’s Arteritis. Our patient had Takayasu’s Arteritis diagnosed 9 years ago. She had an inferior myocardial infarction and double stent implantation 8 months ago. She was admitted to the hospital for chest pain, and 3 vessel diseases were diagnosed with significant mitral regurgitation due to anterior leaflet prolapse. In this report, we present perioperative management of our patient who underwent coronary artery bypass grafting and mitral valve replacement.

Keywords: Takayasu's Arteritis, coronary artery disease, mitral valve prolapse

Introduction

Takayasu’s Arteritis (TA) is a vasculitis that affects aorta with its major branches and it is the third commonest vasculitis in childhood worldwide, but is relatively uncommon in Europe and North America. Concomitant coronary artery disease and mitral valve disease are rare with TA. In this report, we present short term result of our patient who underwent coronary artery bypass grafting and mitral valve replacement in the light of literature.

Case Report

Our female patient was 15 years old and she had TA diagnosis 9 years ago. She had inferior myocardial infarction and 2 stent implantation to circumflex and right coronary arteries 8 months ago prior to admission. She had angina pectoris and dispnea (NYHA III) after 8 months.

In control coronary angiography, the left anterior descending (LAD) had 98% stenosis, circumflex had 90% in-stent re-stenosis, and the right coronary artery was occluded (Figs. 1 and 2). In echocardiography significant mitral regurgitation due to anterior leaflet prolapse had been diagnosed. The cardiology and cardiovascular surgery council made a decision to perform an operation for coronary bypass and mitral valve surgery.

The patient had bilaterally iliac artery stenosis; 80% stenosis on the left side, 50% on the right side. Angiography, which includes left and right internal mammarian artery (Figs. 3 and 4) was made. The left internal mammarian artery (LIMA) had greater calibration. In duplex ultrasound right inferior epigastric artery had 1.8 mm diameter and left inferior epigastric artery had 3.8 mm. After these findings, we thought that LIMA was the main supplier of blood for the lower extremities and we did not use it. After routine preparation, 2 vessel coronary bypass with reversed saphenous vein grafts (aorta-LAD and aorta-circumflex) and mitral valve replacement with mechanical valve was made (25 mm St. Jude). Chordae tendineas were elongated, and the anterior leaflet was thickened. There was destruction of the posterior leaflet on the portion of p3. Reconstruction did not work so replacement was made. Steroids were given perioperatively and preoperatively because of the renal disease. There were no complications such as infection, low cardiac output and arrhythmia. There were no acute inflammation in the aortic and mitral valve tissues. Patient has been...
followed postoperatively with warfarin without any symptoms. Postoperative echocardiography showed normal cardiac function and normofunctional mitral mechanical prosthesis, which was done 2 years after the operation.

**Discussion**

For the treatment of coronary artery disease with TA, interventional methods and coronary artery bypass surgery operation can be used. Although we do not know the long-term results of stenting in patients with left main coronary arterial disease with TA disease, some investigators choose to stent as the first line therapy because it has no aortic manipulations. Stent restenosis was reported in TA patients. Coronary bypass is a reliable and safe therapy for patients who are not a suitable candidate for stenting or stent restenosis occurs. Off-pump surgery can be a choice to make lesser aortic manipulation on the
aorta in these groups of patients.4)

The use of LIMA may cause problems in long term in terms of stenosis of subclavian artery and disease of LIMA itself. Therefore, saphenous vein grafts might be more suitable for CABG in TA disease. Subclavian artery stenosis and steal syndrome which occurred after using LIMA for bypass surgery in a patient with TA disease was reported.5) Although subclavian artery and LIMA were patent, we decided not to use it because we thought that LIMA was the main artery for the lower extremity.

Cardiac valve disease in TA is usually related to degeneration of aortic valve because of an existing hypertension. Successful results have been reported in the literature following aortic valve replacement in patients with TA disease.

Mitral valve disease with TA has been generally reported with severe aortic disease and concomitant, relatively low grade mitral regurgitation. A case of mitral valve prolapse was reported in literature, but the patient had no severe insufficiency; therefore, the disease could be medically managed, and no valve replacement was made.5) TA with 1–4 degree mitral valve regurgitation was reported as 3, 1% at the same report.

Mitral valve surgery in TA disease was reported for a patient with abdominal aortic surgery at the same time5) and for 2 patients with two valve replacement procedures.6) Since the patient is young and to reduce long term complications such as reoperation and manipulation to aortic tissue, a mechanical mitral valve was used.

Conclusion

TA is a vasculitis which affects large arteries. Advanced mitral regurgitation and concomitant coronary artery disease are rarely seen in the literature. In patients with TA who are about to undergo coronary artery surgery, careful preoperative examination and visualization of internal mammary arteries is a very useful method to clarify possible stenosis and lesions on this conduit. For young patients undergoing mitral surgery for TA disease, repair is recommended if applicable. In our case, replacement was the only option.

References