**KONNO-RASTAN COMBINED WITH MANOUGIAUN ROOT ENLARGEMENT FOR SMALL AORTIC ROOT**

**ABSTRACT:**

Aortic stenosis is a rarely seen condition in pediatric population. Valve replacement is another treatment option for patients who do not benefit from medical and invasive procedures. In this report, we described the surgical treatment we performed on a 17-year-old patient.

**INTRODUCTION:**

Aortic stenosis is a rarely seen condition in pediatric population. The estimated incidince is in 3.8/10.000 live births(1).Balloon angioplasty is one treatment method in neonatal period for aortic stenosis (2). Valve replacement, on the other hand, another treatment option for patients who do not benefit from medical and invasive procedures (3). Valve replacement options include Ross, Konno, biological or mechanical valve replacement. As the patients grow older, who underwent valve replacement surgery, patient prosthesis mismatch still appears as an important factor (4).

In this report, we described the surgical treatment we performed on a 17-year-old patient who had developed patient-prosthesis mismatch, with aortic valve replacement history.

**CASE REPORT**

10 years ago, undergoing aortic valve replacement with a number 17 metallic aortic prosthetic valve with diagnosis of aortic stenosis and Manougian procedure a 17-year-old male patient was admitted to our clinic with complaints of increased chest pain and shortness of breath after exercise.

There was no family history. Blood tests were normal. X-ray cardiothoracic rate was increased in his chest. The patient was overweight (BMI: 27.19 kg / m2). Echocardiography findings were: bioprosthesis valve, ventricular hypertophy, incompatibility and **EF (????)**

After the patient and her family were informed about the operation and the necessary operation consent was obtained, aortic valve replacement surgery was planned.

***Surgıcal Tehcnıque***

Under general anesthesia, a sternotomy incision was made along the old sternotomy incision line. Adhesions were removed in the patient who had adhesions due to Re operation. The pericardium was opened and suspended. Aortic - right atrium cannulated after systemic heparinization. Cardiopulmonary bypass was initiated and the patient was cooled. A vent catheter was inserted into the left atrium from the right upper pulmonary vein. Myocardial protection was provided with direct cold blood cardioplegia after aortic clamp and aortotomy. The old aortic valve was excised. The pericardial band used for the old Manougian procedure was found to be calcified and then resected. RVOT was opened and the septum was cut. Conno-Rastan anterior enlargement was made with the Dacron patch. The Manougian posterior expansion was made with the Dacron patch.( Figüre 1). Teflon-reinforced 2/0 ti-cron sutures placed one by one No: 27 St jude mechanical valve. (Figüre 2). A pericardial patch treated with autologous gluteraldehyde was applied over the coronary arteries. The aortotomy was closed by expanding with a dacron patch. Rebuilt with RVOT dacron. (Figüre 3) The cross clamp was removed after the air purge. Separation from CPB was obtained at appropriate hemodynamics and temperature. Bleeding control and decanulation were performed. The drainage tube was placed in the right pleura and mediastinum. Temporary pacing wires were placed. The sternum was closed in the anatomical plan. The patient was taken to the intensive care unit in stable conditions. There were no complications.

**DİSCUSSİON:**

Aortic stenosis causes can vary from congenital bicuspid aortic valve, calcification to rhumatic fever (5). When aortic stenosis that starts asymptomatically is not treated; It has a classical tria with dyspnea, syncope and angina, and heart failure and rhythm disturbances may be added to these symptoms in later stages (6). PPM should always be avoided as it has been associated with perioperative mortality, reduced long-term survival, consistent symptoms, and slow regression of LV mass and a meta-analysis has reported that severe PPM is associated with reduced long-term survival (7) Patient-prosthesis incompatibility (PPM) is one of the problems affecting patient quality of life after aortic valve replacement surgery and This situation may be more prominent especially in child population as their growth continues (8). It has been shown that aortic root augmentation operations can be performed to correct PPM, and the incidence of PPM is reduced by root expansion surgeries. Conno-rastan and manougian procedures are the most preferred root augmentation operations for patients; In operations with conno and manougia, it is possible to implant larger aortic valves in patients with growth potential (9). The Ross procedure is another technique used for therapeutic purposes in aortic valve pathologies, and by its nature, the patient's pulmonary autograft is used to replace the aortic valve (10). Because of our patient had bicuspid pulmonary valve he was not found suitable for ross operation when he was little. No 17 mechanical valve was then suitable for the patient. But since the child grew up in time, this mechanical valve remained small, which is expected. What needs to be done in the meantime is to replace the valve.

**CONCLUSION**

A cardiac surgeon should be well skilled with the root enlargement procedures which may be helpful at the time of AVR for young obese man and womn with small aortic root. Combined aortic root enlargement techniques should be considered in the presence of bodily growth potential.

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**FİGURES:**

Figüre 1: The Manougian posterior expansion was made with the Dacron patch

Figüre 2: Teflon-reinforced 2/0 ticron sutures placed one by one No: 27 mechanical valve.

Figüre 3: The aortotomy was closed by expanding with a dacron patch and rebuilt with RVOT dacron.