Patch Reconstruction of the Aorto-Mitral Curtain without Posterior Extension: Alternative to the Commando Procedure for Aortic & Mitral Valve Replacement

Objective: To demonstrate an alternative technique for patch reconstruction of the aorto-mitral curtain (AMC) without posterior extension, in a complex case of double valve replacement with a partially destroyed AMC.

Case Video Summary: A 60 year-old male with two prior operations presented to our institution with symptomatic hemolytic anemia. In his twenties, he underwent his first operation, which consisted of aortic and mitral valve replacements. Fifteen years later, he underwent reoperation for infective endocarditis, involving mechanical aortic valve replacement and interestingly, implantation of a mechanical mitral prosthesis within the pre-existing bioprosthetic mitral sewing ring. Multimodality imaging at the time of presentation revealed severe mitral regurgitation due to multiple paravalvular leaks, moderate aortic regurgitation and two large calcified aortic root pseudo-aneurysms. There were no signs of active endocarditis.

A third time redo sternotomy was performed. Cardiopulmonary bypass initiated via central cannulation and cardiac arrest with antegrade and direct coronary sinus retrograde cold blood cardioplegia. The aortic prosthesis was explanted first. Next, the mechanical mitral prosthesis along with the surrounding bioprosthetic mitral sewing ring were removed. The aortic root was dissected and the coronary buttons mobilized. After extensive debridement of the aortic root including the large pseudo-aneurysms, the AMC was found to be partially destroyed. To maintain the geometry and integrity of the fibrous skeleton, patch reinforcement of the AMC was performed. Avoiding posterior extension and Commando reconstruction was only possible since the AMC was not completely destroyed and there was no need for annular enlargement. Once the mitral prosthesis was secured in position, the upper end of the patch was incorporated in the running suture of the aortic annulus for implantation of a new bio-composite graft. The coronary buttons were attached and an end-to-end aortic anastomosis performed. The heart was re-perfused and the patient easily weaned from cardiopulmonary bypass with well-functioning valve prostheses on transesophageal echocardiography and preserved biventricular function.

Conclusions: In cases of partial destruction of the AMC, patch reconstruction of the AMC without posterior extension can provide an alternative to the Commando procedure, which may reduce operative complexity, if there is no need for enlargement.

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