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Commentary: Bioprosthetic pulmonary valve endocarditis: Another "arrow in our quiver"

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CENTRAL MESSAGE

Pulmonary prosthetic valve endocarditis is rare and challenging. Implantation of a monocusp cryopreserved pulmonary artery patch provides an elegant solution that is free of synthetic material.

Prosthetic valve endocarditis presents the surgeon with short- and long-term decision-making challenges. Equally, prosthesis choice when replacing right-sided heart valves is not straightforward. It is unusual, indeed, to be faced with a patient in whom both of these considerations apply.

In this edition of the *Journal*, García-Rinaldi and colleagues[1] report a case of reoperation on an endocarditic prosthetic valve in the pulmonary position, with implantation of a monocusp cryopreserved pulmonary artery patch (MCP). The patient was a 32-year-old man, with previous tricuspid valve endocarditis treated medically, who presented with cardiac cachexia and severe pulmonary valve endocarditis. Shortly after initially successful pulmonary valve replacement with a stented bioprosthesis, the patient developed recurrent endocarditis of the pulmonary prosthetic valve. Lacking a homograft, and wanting to avoid synthetic material, the authors describe the rationale and technique of redo valve replacement surgery with an MCP. This consists of a patch of cadaveric pulmonary artery from which 3 MCP prostheses are fashioned, each with a single-valve leaflet. The authors elegantly illustrate the technique of trimming the patch for their particular patient, as well as what care to take and pitfalls to avoid so as to not damage the valve leaflet. The patient is well, has regained weight, and is free of pulmonary regurgitation and infection at 2-year follow-up.

Prosthetic valve endocarditis, where postoperative in-hospital mortality is reported at between about 15% and 30%,[2,3] presents the surgeon with significant challenges both regarding short-term outcome but also finding durable prosthesis solutions that minimize the risk of recurrent endocarditis. Previous reports comparing mechanical with stented bioprosthetic valve replacement for endocarditis have not shown a particular advantage to either valve type, with recurrence of endocarditis reported at about 10% for both.[4] However, valve replacement in endocarditis with prostheses lacking synthetic material, such as homografts,[5] stentless valves,[6] and newer porcine valve in pericardial sleeved conduits,[7] have shown an advantage in the long term with recurrent endocarditis reported in only about 2% to 5% of cases. The concern, of course, is the possible increase in initial mortality due to greater operative complexity when implanting these prostheses in patients who are frequently very sick.

Pulmonary valve endocarditis is rare, accounting for only about 2% of endocarditis cases,[8] and presents the surgeon with additional challenges regarding valve choice. The "conventional wisdom" that bioprostheses are superior in the pulmonary position has recently been questioned in a large retrospective analysis, which found acceptably low rates of valve thrombosis with mechanical prostheses.[9]

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It is not often that a surgeon will need to treat a patient such as the one described in this report. However, when they do, they may well not have a homograft or a newer, tissue-only, valve conduit. García-Rinaldi and colleagues,[1] finding themselves in this situation and wishing to use a bioprosthesis lacking synthetic material, present an elegant, relatively straightforward, and clearly described solution using an MCP. This is indeed another "arrow in the quiver" of the cardiac surgeon's armamentarium.

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