

Intractable Hemolytic Anemia after Heart Valve Surgery

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Abstract

Heart valve surgery consists of valve replacement and repair. Both operations have been standard strategies for treating heart valve diseases worldwide, and are associated with excellent long-term clinical results. Hemolytic anemia after heart valve surgery, however, is a troublesome complication related to implanted prosthetic valves or rings.

Keywords: Heart valve surgery; Prosthetic heart valve; Prosthetic heart ring

Short Communication

Heart valve surgery consists of valve replacement and repair. Both operations have been standard strategies for treating heart valve diseases worldwide, and are associated with excellent long-term clinical results. Hemolytic anemia after valve surgery, however, sometimes occurs. We have reported on valve-related complications after prosthetic heart valve implantation [1-3]. In the article published in 2015, we conclude that thromboembolic and hemorrhagic events related to anticoagulant therapy should be considered during life-long follow-up, and that non-structural prosthetic valve dysfunctions as para-valvular leak are also issues to be resolved [1].

Para-valvular leaks are caused by technical errors, latent prosthetic endocarditis, or annular calcification. It occurs at 0.2-0.7% per patient-year among patients with the Bicarbon valves implanted at our institute [4]. A minor leak might be subclinical in the aortic position, but hemolysis caused by the leak often leads to reoperation in the mitral position. A repair or replacement of the implanted valves is required for its treatment [5]. We described a case that presented with hemolytic anemia after 5 years after the patient's third mitral valve operation [6]. Operative findings revealed severe calcification around the regurgitant orifice and we successfully repaired the valve primarily. We inferred that the severe calcification and the prosthetic valve ring destroyed the tissue around the prosthesis.

Mitral valve repair with a prosthetic ring also might cause hemolytic anemia [7]. We experienced a case after mitral valve repair with a prosthetic heart ring, developing hemolytic anemia [8]. The patient suffered from perioperative myocardial infarction of the left ventricular inferior wall. The highest serum creatinine phosphokinase was 4114 mU/ml. On the postoperative day 3, severe hemolysis became apparent. It was associated with brown-to-black urine color and low levels of serum haptoglobin. Hemoglobin levels remained between 7.1 and 9.2 g/dl without blood transfusion, and the lactate

dehydrogenase level rose to 5847 mU/ml. Echocardiography revealed mild mitral valve regurgitation with akinesis of the inferior wall of the left ventricle. The regurgitant flow direction was toward the posterior wall of the left atrium. When it made contact with the implanted prosthetic ring, the flow direction changed. The patient underwent mitral valve replacement despite of heart failure on the postoperative day 9.

Technical errors should be overcome. Improved histocompatibility of the suture ring of the mechanical valves might also help avoid the complications after heart valve repair. Hemolytic anemia after heart valve surgery, however, is still a troublesome complication related to the implanted prosthetic valves or rings.

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