LETTER TO THE EDITOR

Effectiveness of Posterior Pericardiotomy After Valve Replacement

Nevzat Erdil, M.D., Vedat Nisanoglu, M.D., and Bektas Battaloglu, M.D.

Department of Cardiovascular Surgery, Turgut Ozal Medical Center, Inonu University, Malatya, Turkey

doi: 10.1111/j.1540-8191.2006.00316.x *(J Card Surg 2006;21:638-639)*

Dear Editor,

Cardiac tamponade, especially posterior tamponade, is one of the most serious and potentially lethal complications occurring in a minority of patients after open heart surgery and yet most potentially correctable of all postoperative problems. A small amount of pericardial effusion placed posterior pericardium may compromise the left atrium and ventricle, and might lead to tamponade.[1,2]

The effectiveness of the posterior pericardiotomy (PP) in reducing the incidence of pericardial effusions and related complications was well-established in recent prospective studies after coronary artery surgery.[3,4] Pericardial effusion is significantly more common after valve replacement than after coronary artery bypass grafting or other types of heart surgery. We have previously postulated that PP was beneficial for reducing the incidence of early and late pericardial effusions in patients who underwent a valve replacement.[5] After this observation, we have been routinely performing a PP during valve surgery. It was surprising for us to find that PP was still open and effective three years after valve replacement.

A 45-year-old female patient with the symptoms of palpitation and dyspnea was admitted to our hospital three years ago. Echocardiographic examinations revealed a severe mitral stenosis. We had performed mitral valve replacement with a 29-no. CarboMedics mechanical prosthesis. Additionally, a PP was performed by a longitudinal incision made parallel and posterior to the left phrenic nerve, extending from the left inferior pulmonary vein to the diaphragm. Postoperative period was uneventful and the patient was discharged from the hospital on the 6th postoperative day with INR = 2.3.

Address for correspondence: Nevzat Erdil, M.D., Department of Cardiovascular Surgery, Turgut Ozal Medical Center, Inonu University, 44069 Malatya, Turkey. Fax: +90-422-3410728; E-mail: nerdil@inonu.edu.tr

Three years after the initial operation, the patient presented with sudden onset of dyspnea and orthopnea. On physical examination, there was bilateral pulmonary rale. No mechanical valve sound was audible. Bedside echocardiography and dynamic fluoroscopy were urgently performed, which revealed an absence of mechanical leaflet movement. Both of the leaflets were nearly closed in a fixed position. Then, the patient was sent to the operation room for emergency cardiac valve replacement surgery. Femoral artery and vein were cannulated intraoperatively. After performing sternotomy, intrapericardial adhesions were carefully dissected. There were no pericardial and pleural effusions. We observed a dense adhesion on the anterior and lateral side of the pericardium. Interestingly, there was no pericardial adhesion at the posterior side of the pericardium where a window had been opened. Following the aortic cross-clamp, the left atrium was opened. The bileaflet prosthetic valve was found to be thrombosed, extending to both the leaflets. The valve was replaced with a 27-no. CarboMedics mechanical prosthesis. The patient was supported by low-dose infusion of an inotropic agent with aggressive diuresis. The patient was followed-up in the intensive care unit for two days without any complication and was discharged uneventfully on the 7th postoperative day with INR = 2.5.

The efficiency of the PP in reducing the incidence of pericardial effusions and related complications has been well-established in coronary artery surgery;[3,4] however, the effectiveness of the PP in cardiac valve surgery has been shown recently.[5] PP has significantly decreased the early and late pericardial effusions, with a potential to lead tamponade. Although it is a single case report of a patient who had undergone cardiac valve replacement with PP, documentation of the open pericardial window without any adhesion in the posterior part of the pericardium even three years after the first operation, is an evidence of its functionality.

It is likely that the absence of pericardial adhesion in the posterior is due to open pericardial window by prevention of fluid accumulation and subsequent inflammatory reaction. According to our knowledge, there is no literature reporting the late patency of PP not only in valve surgery but also in coronary artery surgery. However, late patency and effectiveness of PP should be confirmed in further clinical reports.

REFERENCES

1. Pepi M, Muratori M, Barbier P, et al: Pericardial effusion after cardiac surgery: Incidence, site, size, and haemodynamic consequences. Br Heart J 1994;72(4):327-331.
2. Malouf JF, Alam S, Gharzeddine W, et al: The role of anticoagulation in the development of pericardial effusion and late tamponade after cardiac surgery. Eur Heart J 1993;14:1451-1457.
3. Kuralay E, Ozal E, Demirkilic U, et al: Effect of posterior pericardiotomy on postoperative supraventricular arrhythmias and late pericardial effusion (posterior pericardiotomy). J Thorac Cardiovasc Surg 1999;118:492-495.
4. Farsak B, Gunaydin S, Tokmakoglu H, et al: Posterior pericardiotomy reduces the incidence of supra-ventricular arrhytmias and pericardial effusion after coronary artery bypass grafting. Eur J Cardiothorac Surg 2002;22:278-281.
5. Erdil N, Nisanoglu V, Kosar F, et al: Effect of posterior pericardiotomy on early and late pericardial effusion after valve replacement. J Card Surg 2005;20:257-260.