Aortic Valve Perforation Due to Latent Infective Endocarditis

A 64-year-old man underwent aortic valve replacement for aortic regurgitation. The aortic valve was perforated in the noncoronary cusp. Pathological findings showed that the perforation probably occurred due to infective endocarditis. However, the patient had no obvious inflammatory signs preoperatively, to suggest latent infective endocarditis. (Jpn J Thorac Cardiovasc Surg 2006; 54: 67-69)

Key words: aortic valve perforation, aortic regurgitation, infective endocarditis

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Aortic valve perforation due to latent infective endocarditis is extremely rare and we herein report such a case with successful aortic valve replacement.

Case

A 64-year-old man with a heart murmur visited the hospital because of productive cough. Sellers III aortic regurgitation (AR) was recognized by aortography, and echocardiography revealed neither vegetation nor an evident perforation sign of the aortic valve. The patient had no symptoms and took medication at that time. Nine months later, the patient developed chest discomfort on effort. As aortography again showed Sellers III AR, the patient was referred to our hospital. Echocardiography showed severe AR and a regurgitant jet originating from the center of the valve without obvious eccentric turbulence or interruption of leaflet tissue continuity, which are features of valvular perforation. The patient had no inflammation signs preoperatively. White blood cell (WBC) and C-reactive protein (CRP) were 7,040/μl and 0.1 mg/dl, respectively.

Aortic valve perforation with a diameter of 7 mm in the noncoronary cusp was recognized at the time of operation. The free edge of the noncoronary cusp was thickened and shortened (Fig. 1). Hence, aortic valvuloplasty preserving the noncoronary cusp could not be undertaken. The other cusps showed no thickening or union between the cusps. Aortic valve replacement was performed using a 23-mm St Jude Medical valve (St Jude Medical, Inc., St Paul, Minn, USA).

Pathological findings revealed marked fibrous thickening of the perforated cusp compared to the other two cusps (Fig. 2A). On microscopic examination, the perforated cusp was thickened with marked fibrosis with partial hyalinosis and showed little inflammatory reaction (Fig. 2B). Elastica Masson staining showed marked hyaline fibrosis with disrupted elastic fibers in the perforated cusp. His postoperative course was uneventful.

Discussion

Aortic valve perforation may occur as the result of various factors which include infective endocarditis, rheumatic change, collagen disease and iatrogenic injury. Infective endocarditis occasionally results in perforation with some obvious inflammatory findings. However, this patient showed no evidence of inflammation during the preoperative course. To our knowledge, aortic valve perforation without signs of inflammation is extremely rare in infective endocarditis.

Satoh et al. reported four cases of valve surgery as concealed infective endocarditis. One of the four cases showed aortic valve perforation without signs of inflammation, similar to our patient. However, the patient also had mitral stenosis that might indicate...
The aortic valve in our patient showed pure latent infective endocarditis because it had neither union between cusps nor thickening in the other non-perforated cusps, which are changes frequently found in rheumatic valve disease. In the microscopic findings, the perforated cusp showed marked fibrous thickening and disrupted elastic fibers without acute inflammatory change consistent with old infective endocarditis. The Aschoff nodule peculiar to rheumatic change was not recognized.

Although the lack of inflammation signs is uncommon in infective endocarditis, afebrile cases rarely occur. This patient appears to have had mild inflammation followed by spontaneous remission of infective endocarditis. The inflammation that resulted in valve perforation appears to have occurred prior to the time the patient was admitted to the hospital for the first time, because echocardiography and aortography had not obviously changed between the time of our preoperative evaluation and his prior hospitalization nine month before. As the four valvular operations in 35 cases of infective endocarditis showed no signs of inflammation in Saitoh's report, valvular perforation due to latent infective endocarditis may occur more frequently than has been previously recognized. Latent infective endocarditis may be an important consideration in valvular surgery including valvuloplasty.