Surgical Treatment for Coronary Artery Aneurysm

Two successful cases of the surgical treatment for coronary artery aneurysm (non-Kawasaki disease) were reported. The first case had a saccular aneurysm on the left circumflex coronary artery (LCx) #14. Resection of the LCx aneurysm was performed subsequent to single vessel coronary artery bypass grafting (CABG) to the distal portion of LCx#14 under the cardioplegic cardiac arrest. The second case had aneurysms on both the left anterior descending artery (LAD) #7 (fusiform) and the LCx#11 (saccular). After double vessel CABG to LAD#7 and LCx#11, ligation or resection of two aneurysms was performed successfully. Postoperative courses have been uneventful with good angiographic results achieved. Since these surgical procedures demonstrated safety, the patients are expected to achieve a good long-term prognosis. (Jpn J Thorac Cardiovasc Surg 2005; 53: 42-45)

Key words: coronary artery aneurysm, coronary artery bypass grafting

Yuji Takeda, MD, Naoki Minato, MD, Yuji Katayama, MD, and Tomoki Shimokawa, MD.

Aneurysms in coronary arteries are rare. Although infrequent, this disorder has the potential to cause serious consequences, such as rupture and myocardial infarction, which make it important to treat the condition properly once it is diagnosed. There are several reports concerning successful surgical treatments of coronary artery aneurysm. In this document, through the use of two case studies, we outline our preferred surgical techniques, namely ligation or resection of the coronary aneurysm and coronary artery bypass grafting (CABG) to the distal portion of them.

Cases

Case 1. A 76-year-old woman was admitted to our hospital with palpitations. She was slightly anemic with Hb. 9.1 mg/dl and Ht. 26.1% which was considered causing the palpitations. Physical examination and ECG showed no abnormality. We had a suspicion of existence of coronary ischemia, and performed coronary angiogram (CAG). A CAG revealed a saccular type aneurysm on the left circumflex coronary artery (LCx) #14 (Fig. 1). The distal portion of the LCx was intact. Surgery was indicated by the large diameter (15 mm) of the saccular type aneurysm. After the standard cardiopulmonary bypass (CPB) was established, cardioplegic cardiac arrest was induced. The proximal and the distal portions of the aneurysm were ligated and the aneurysm was resected. The distal anastomosis of the saphenous vein graft (SVG) was performed in an end-to-side fashion immediately distal to the aneurysm using a continuous suture of 7-0 polypropylene. Then the proximal anastomosis was completed onto the ascending aorta.

The postoperative course of this patient was uneventful and a postoperative CAG showed a patent SVG with good run-off (Fig. 2A). Pathological diagnosis of the resected aneurysmal wall revealed arteriosclerosis (Fig. 2B). After the 7-year follow-up, the patient remains free from any cardiac events.

Case 2. A 58-year-old woman was admitted to hospital with acute myocardial infarction (AMI) caused by right coronary artery (RCA) occlusion. Emergency percutaneous transluminal coronary angioplasty (PTCA) with stenting to the RCA was performed successfully. At this time, two coronary artery aneurysms were detected on the left anterior descending artery (LAD) #7 and LCx#11, fusiform type 7 mm and saccular type 9 mm in maximum diameter, respectively (Fig. 3). Surgery was proposed, once she had recovered from the AMI.

After a median sternotomy, the left internal thoracic...
Fig. 1. Preoperative CAG in Case 1. A saccular type aneurysm on LCx#14 was 15 mm in maximum diameter.

Fig. 2. A: Postoperative patent saphenous vein graft to LCx#14.
B: Pathological diagnosis of the resected aneurysmal wall was arteriosclerosis (Hematoxylin and eosin, original x10).

Fig. 3. Preoperative CAG in Case 2. The coronary artery aneurysms were recognized on LAD#7 (fusiform type 7 mm) and LCx#11 (saccular type 9 mm).