

Coronary Artery Bypass Graft (CABG) in the Presence of Coronary Aneurysms

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This is the case of a patient with coronary aneurysms, who underwent CABG for surgical exclusion of these aneurysms, followed by implant of the bypass grafts to the arteries affected, with satisfactory short-term and long-term results.

Introduction

The incidence of coronary aneurysms is uncommon in adult population undergoing coronary angiography and subsequent percutaneous or surgical therapies in patients with obstructive atherosclerotic disease. These findings were observed in pediatric patients with Kawasaki disease without significant coronary obstructions and good clinical response to therapy^{1,2}.

In adults, this anomaly may also result from an outbreak of Kawasaki disease in childhood^{2,3} or may even have an atherosclerotic etiology with or without obstructive plaque in coronary arteries and the surgical strategy suggested in the literature is not yet defined. On the other hand, it should be considered that the presence of coronary aneurysm in a coronary branch of any cause has a potential risk of rupture, because the walls are dilated and weakened by the disease. In the event of any afterload increase, this possibility should not be neglected and may cause sudden death by cardiac tamponade.

Case Report

Patient M.N.M., 61 years old, male, white, with a history of angina pectoris on exertion starting one year before, of a progressive nature, non-smoker, family history of coronary artery disease, with ECG showing sinus rhythm, diffuse alterations in ventricular repolarization, positive exercise test. Coronary angiography revealing left ventricular (LV) ejection fraction of 60%, severe obstructive lesions in the

right coronary artery (RCA), circumflex artery (Cx) and anterior interventricular artery (AIA) and dilation in the left coronary artery (LCA) extending to the AIA. Aneurysms in the initial portions of the right coronary artery and Cx were also found (Figure 1).

Given these findings, the patient underwent CABG with cardiopulmonary bypass graft, mild hypothermia (32°C) and intermittent aortic clamping as myocardial protection method. The right coronary arteries, right marginal branch of the circumflex artery and AIA were grafted with autologous saphenous vein grafts. Aneurysms were excluded through the ligation of the proximal and distal stumps. The surgery and the postoperative period progressed with the patient, who showed good clinical and surgical parameters and was discharged on the 9th day. Still in-hospital, the patient underwent hemodynamic restudy, which revealed the exclusion of aneurysms, patent aortocoronary grafts and maintenance of LV contractile function (Figure 2).

Discussion

Not only Kawasaki disease, but also atheromatosis may cause inflammation and dilation of the intima of arterial branches, predisposing to dilation and thrombus formation or, possibly, rupture with uncertain clinical outcome. It may not present any clinical signs or symptoms, whose diagnosis was made only at the time of coronary angiography.

Approximately 10-25% of pediatric patients with Kawasaki disease develop coronary aneurysms⁴ and may regress with time. Ages smaller than one year, female sex and maximum diameter of dilation 4 mm are the determinant factors¹⁻⁶.

In this case, the clinical history shows no report of previous Kawasaki disease. The presence of coronary aneurysms was diagnosed during coronary angiography performed due to the appearance of typical clinical picture of obstructive coronary disease discovered at 61 years of age.

The indication for surgical treatment for cases of this nature seems to be mandatory, considering the size of aneurysms and distal subocclusive plaques⁷ with no great possibilities for percutaneous intervention or medical treatment. However, in selected cases, interventional cardiology may be applied by placing coronary stents in coronary subocclusions and in aneurysms. In a different surgical approach described by Westaby et al, the right coronary aneurysm was resected and the artery was recomposed by termino-terminal anastomosis⁸.

Another aspect to be considered concerns aortocoronary grafts to be used in such cases, and this insight is related to the clinical and surgical experience of the team. The option for

Keywords

Myocardial revascularization; coronary aneurysm/ complications; mucocutaneous lymph node syndrome.

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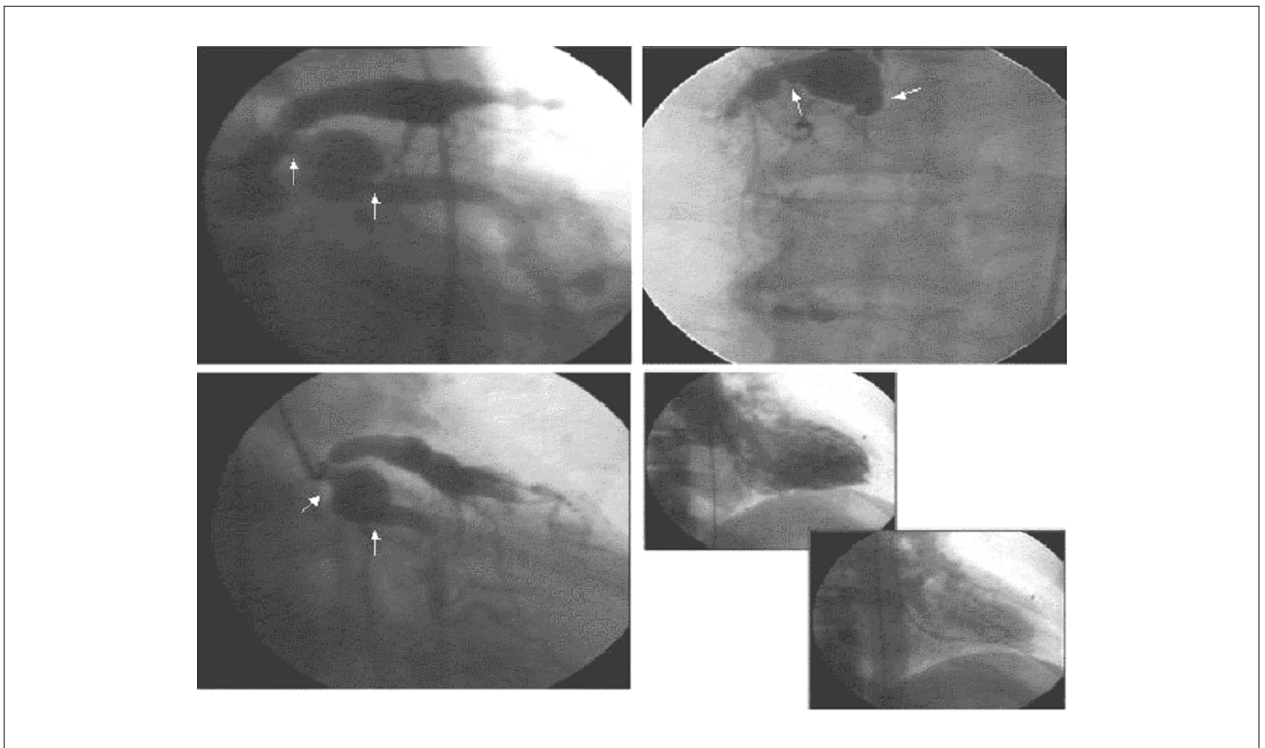


Figure 1 - Images of preoperative coronary angiography, left and right coronary arteries, left ventriculography (arrows indicate the site of surgical ligation of the aneurysms).

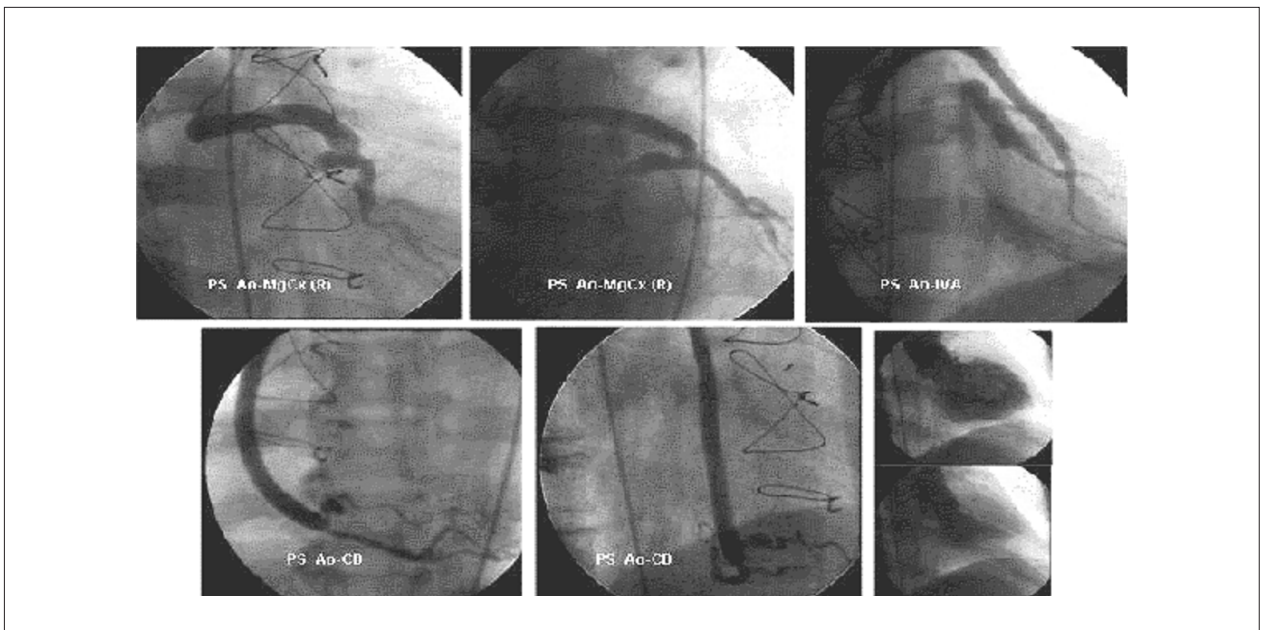


Figure 2 - Images of postoperative coronary angiography showing aortocoronary grafts, exclusion of aneurysm and left ventriculography.

saphenous vein grafts in this case was due to the fact that the arteries to be grafted are thick enough, allowing distal flow, estimating good long-term patency.

Finally, the exclusion of aneurysms from circulation through the ligation of the proximal and distal stumps is a factor that adds greater chance of long-term survival, since the possibility

of rupture of these structures with sudden death, especially in situations of increased demand and afterload is not negligible.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Case Report

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Study Association

This study is not associated with any post-graduation program.

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