Adult Giant Coronary Artery Aneurysm — A Case Report and Literature Review

Wen-Rui Hao,1 Fu-Chean Chen,2 Pai-Fung Kao,1 Ming-Hsiung Hsieh,1 Yi-Jen Chen1 and Paul Chan1

Giant coronary artery aneurysm is a rare condition of coronary artery disease. We report a 49-year-old female who presented with chest tightness and persantin thallium scan showing myocardial ischemia. She was admitted to our hospital for cardiac catheterization. A giant right coronary artery aneurysm was noted. Surgical resection of the aneurysm was performed smoothly. Pathologic report showed atherosclerotic change of vessel wall. The underlying cause of the aneurysm in this patient is discussed.

Key Words: Coronary artery aneurysm • Coronary artery disease

INTRODUCTION

The detection of coronary artery aneurysms is increasing in frequency due to the advances of coronary angiography.1-4 Most patients with coronary artery aneurysms are asymptomatic, but manifestations of myocardial ischemia may occur.1-4

Kawasaki disease is a febrile illness in childhood.5 Coronary artery aneurysm may develop as sequelae in 9-15% of patients.6-8 Adult coronary aneurysm is a rare condition.1-4 We report a female patient who presented with ischemic heart disease. Coronary angiography was performed on her and a giant coronary aneurysm was noted. It is suggested that coronary aneurysm in this case is a possible sequelae of Kawasaki disease in childhood.

CASE REPORT

The 49-year-old female was admitted to Taipei Medical University Wan-Fang Hospital due to recurrent chest pain. According to the patient, she had been admitted to a local hospital because of fever while she was a child. She had received surgical intervention with an operation scar on the chest wall when she was of preschool age, however, she did not know the details of diagnosis and treatment. She also had had hypertension for 7 years and type II diabetes for more than 10 years with regular medical control.

Because of chest pain, the patient visited our cardiovascular clinic. Treadmill test and Thallium 201 myocardial perfusion scan were performed, both revealing myocardial ischemia. Under the impression of coronary artery disease, she was admitted for cardiac catheterization. Coronary angiography showed normal left main coronary artery, angioectasia of the left anterior descending artery and left circumflex artery with collateral circulation to the right coronary artery (RCA) (Figure 1), and total occlusion with a giant aneurysm at proximal portion of the RCA (Figure 2). The patient was then transferred to cardiovascular surgeon for further management.

Coronary artery bypass grafting and resection of the right coronary artery aneurysm was performed. Pathology showed atherosclerotic change of the resected aneurysm. The symptoms were much improved after operation. Follow-up coronary angiography showed no...
DISCUSSION

A huge coronary aneurysm is a rare condition of coronary artery disease. The definition of a coronary artery aneurysm is coronary dilatation which exceeds the diameter of normal segment by 1.5 times. The incidence of coronary aneurysm among coronary artery disease is about 1.5% to 5%. In the Coronary Artery Surgery Study (CASS) registry, 4.9% incidence of coronary aneurysm was noted. The etiology of coronary artery aneurysm included atherosclerosis, Kawasaki disease, congenital abnormalities and trauma, etc. The most common causes are atherosclerosis and Kawasaki disease.

Kawasaki disease is a febrile illness in childhood and infants. Coronary aneurysm may present in 9% to 15% of children with Kawasaki disease. Kato et al. analyzed 290 patients with Kawasaki disease; 15% developed coronary aneurysms in acute stage, and 50% of these showed complete regression on follow-up coronary angiography. Angina, myocardial infarction or heart failure occurred rarely and sudden death was seldom reported. Thallium 201 scan is a sensitive tool for diagnosis of the disease compared to treadmill stress test. Kondo et al. reported that dipyradomole thallium 201 myocardial perfusion scan had a 90% sensitivity to detect overall coronary stenosis in Kawasaki disease. In this case, the patient had febrile illness and received surgical intervention when she was a child. Fever-related heart disease was suspected. Because giant aneurysm of RCA was noted in this admission, we suspected she might have had Kawasaki disease at that time. However it is also possible that this giant aneurysm may be idiopathic.

The risk factors to predict the presence of coronary aneurysms in Kawasaki disease include (1) boys under 1 year of age, (2) fever lasting longer than 2 weeks, (3) elevated sedimentation rate persisting for more than 4 weeks, and (4) palpable axillary artery aneurysms. The natural course of the coronary aneurysm depends on its size. The size less than 4 mm in diameter regresses spontaneously within a short time, whereas those larger than 8 mm in diameter often associate with a stenotic lesion. Factors associated with regression of aneurysm in Kawasaki disease include (1) age less than 1 year, (2)
saccular as opposed to fusiform morphology, and (3) distal location. 13

Acute myocardial infarction has been reported to develop several years after the onset of Kawasaki disease, but usually within 1 year. 7,14,15 Kato et al. suggested that ischemic heart disease rarely developed more than 20 years after Kawasaki disease in adult survivors. 8 In this case, our patient presented with chest tightness and thallium perfusion scan showing myocardial ischemia. Coronary angiography displayed total occlusion of the RCA and a giant aneurysm. Resection of the RCA aneurysm was done and pathologic report showed atherosclerotic change of the aneurysmal wall. Previous study has reported that the pathologic change of Kawasaki aneurysm was similar to those of early atherosclerosis, just in our report. 16

Surgical revascularization for coronary artery lesions secondary to Kawasaki disease has been rarely reported in adult patients. We have reported an adult with a coronary artery aneurysm possibly secondary to Kawasaki disease who underwent aneurysctomy and coronary artery bypass grafting. The postoperative course was uneventful. Because of coronary artery sequelae of Kawasaki disease can be a cause of ischemic heart disease even in adults, heightened awareness of this possibility is required for adults with coronary lesions but without coronary risk factors.

REFERENCES

巨大的冠狀動脈瘤在冠狀動脈疾病是一種罕見的狀況。我們報告一位 49 歲的女性由於出現胸悶，經心臟核醫鉈-201 檢查有心肌缺氧現象，因此在冠狀動脈疾病診斷下住院進行心導管檢查。其結果發現有一個巨大右冠狀動脈瘤，因此給予外科手術切除及冠狀動脈繞道手術。病理報告顯示動脈瘤有粥狀硬化，我們報告此一案例並做文獻回顧。

關鍵詞：冠狀動脈瘤、冠狀動脈疾病。