

# Large Aneurysm of the Left Main Coronary Artery: A Case Report

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## Abstract

Left main coronary artery aneurysms are very rare and are incidentally encountered in about 0.1% of patients undergoing angiography. Atherosclerosis represents the main cause of this aneurysm in adult patients. Here, the author presents a case of a 58-year-old female with a history of hypertension and diabetes who had a Canadian Cardiovascular Society Grade II–III angina for the past 6 months. Selective coronary angiography revealed a large aneurysm involving the left main coronary artery (measuring 2 cm × 3 cm) with extensive coronary calcifications, ectatic proximal left circumflex followed by 80% stenotic lesion with normal left anterior descending and right coronary artery. The patient was managed with coronary artery bypass grafting along with ligation of the aneurysm. At the 3-month follow-up, the patient was asymptomatic. Therefore, distal coronary artery bypass surgery represents one of the therapeutic options and was safe and effective in our case.

**Keywords:** Aneurysm, coronary artery, left main

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## INTRODUCTION

Aneurysms of the coronary artery are rare, with an angiographic incidence of 0.15%–4.9%, and most commonly, the right artery is affected.<sup>[1]</sup> However, left main (LM) coronary artery aneurysms are even rarer, occurring in about 0.1% of patients undergoing angiography.<sup>[2]</sup>

In general, coronary artery aneurysm can be diffuse (i.e., >150% dilation of the largest diameter of a coronary artery) or limited (spherical or saccular dilation).<sup>[2,3]</sup> It can be complicated by myocardial ischemia or infarction, while rupture is rare. Management options include pharmacotherapy using antiplatelets and anticoagulation; percutaneous interventional therapy with covered stents

or surgical therapy using reconstruction, resection and exclusion with bypass.<sup>[4-7]</sup> However, there is lack of substantial evidence indicating the preferred treatment option.

Because of the rarity of this condition and the management challenge it represents, the author reports a case of large aneurysm of LM coronary artery that was successfully managed with ligation of the aneurysm and coronary artery bypass surgery.


## CASE REPORT

A 58-year-old female presented to our cardiology outpatient department with a Canadian Cardiovascular

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Society Grade II–III angina for the past 6 months. She had a medical history of hypertension controlled with valsartan 80 mg and amlodipine 5 mg in addition to type 2 diabetes mellitus controlled with glibenclamide and metformin. Physical examination was normal, and her noninvasive workup demonstrated positive electrocardiography stress test with exercise-induced ischemia at 6 metabolic equivalents. Her lipid profile revealed the following: total cholesterol, 180 mg/dL; low-density lipoprotein cholesterol, 112 mg/dL; and triglyceride, 140 mg/dL. Selective coronary angiography was done and demonstrated large aneurysm of LM stem measuring 2 cm × 3 cm with extensive coronary calcifications, ectatic proximal left circumflex followed by 80% stenotic lesion with normal left anterior descending and right coronary artery [Figure 1].

Due to the ischemic symptoms with a large LM stem aneurysm, the patient was referred for coronary artery bypass surgery with ligation of the LM aneurysm [Figure 2]. The patient had a smooth postoperative course and was discharged 7 days after the surgery. Her medical therapy included a daily dose of aspirin 81 mg, atorvastatin 40 mg, valsartan 80 mg and amlodipine 5 mg. In the 3 months of follow-up in the outpatient cardiology clinic, the patient remained asymptomatic.

## DISCUSSION

LM coronary artery aneurysm is a very rare finding, occurring in 0.1% of patients undergoing angiography.<sup>[2]</sup> With regard to the etiology of coronary aneurysms, atherosclerosis represents the major cause in adults, while Kawasaki disease accounts for most of the cases in children and adolescents. Other causes include trauma as well as congenital, connective tissue, vasculitis or idiopathic disorders.<sup>[8]</sup> Our

patient had no history of vasculitis or connective tissue disease; considering her age and history of long-term hypertension, the atherosclerotic process might be the most likely etiology.

Patients with coronary aneurysms may be asymptomatic and discovered incidentally. However, many studies have demonstrated that a slow flow in the aneurysmal segment results in thrombus formation and distal embolization.<sup>[2,8]</sup> The most common presentations are angina or myocardial infarction.<sup>[8]</sup> Our patient presented with recurrent chest pain, which may be the result of distal embolization from the aneurysmal LM coronary artery.

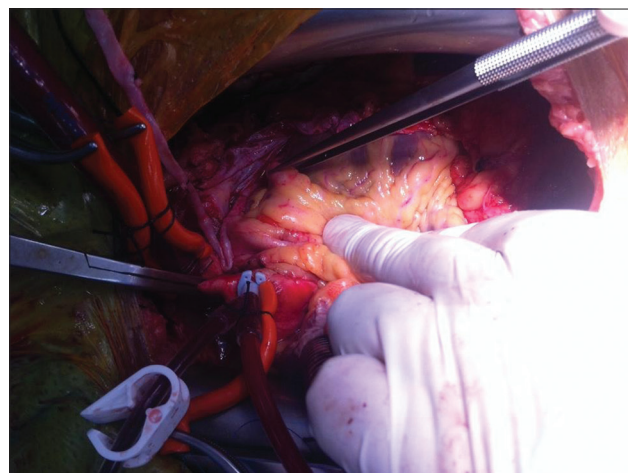
Due to lack of randomized studies, the management of patients with coronary artery aneurysm is primarily based on case reports.<sup>[4,5,7]</sup> One of the management options of LM coronary aneurysm is surgical ligation of the aneurysm accompanied by distal bypass surgery; this option was adopted for our patient, as it has been supported by a few case reports.<sup>[4,5,7,9,10]</sup> Other management options include percutaneous intervention using covered coronary stents and conservative medical management with continued antiplatelet and anticoagulation therapy.<sup>[6]</sup>

After discussion with the heart team, our patient underwent coronary artery bypass surgery with ligation of the LM aneurysm [Figure 2] and grafting of the left anterior descending artery using left internal mammary graft and obtuse marginal branch of the left circumflex with saphenous vein graft. The patient had an uneventful postoperative course and was discharged in a stable condition.

In conclusion, coronary aneurysms represent a rare manifestation of atherosclerosis that can be challenging from the management perspective owing to lack of



**Figure 1:** Coronary angiogram, right anterior oblique caudal view showing large 3 cm × 2 cm saccular left main coronary aneurysm



**Figure 2:** Giant left main stem aneurysm during the surgical ligation

evidence-based guidelines. Surgical management with ligation of the aneurysm and distal coronary artery bypass surgery was found to be safe and effective in our case.

#### **Declaration of patient consent**

The author certifies that he has obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the Journal. The patient understands that her name and initials will not be published, and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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#### **Conflicts of interest**

There are no conflicts of interest.

#### **Peer review**

This article was peer reviewed by one independent and anonymous reviewer.

#### **REFERENCES**

1. Doustkami H, Maleki N, Tavosi Z. Left main coronary artery aneurysm. *J Tehran Heart Cent* 2016;11:41-5.
2. Topaz O, DiSciascio G, Cowley MJ, Goudreau E, Soffer A, Nath A, *et al.* Angiographic features of left main coronary artery aneurysms. *Am J Cardiol* 1991;67:1139-42.
3. Ercan E, Tengiz I, Yakut N, Gurbuz A. Large atherosclerotic left main coronary aneurysm: A case report and review of literature. *Int J Cardiol* 2003;88:95-8.
4. Pinheiro BB, Fagundes WV, Gusmão CA, Lima AM, Santos LH, Vieira GB, *et al.* Surgical management of a giant left main coronary artery aneurysm. *J Thorac Cardiovasc Surg* 2004;128:751-2.
5. Li D, Wu Q, Sun L, Song Y, Wang W, Pan S, *et al.* Surgical treatment of giant coronary artery aneurysm. *J Thorac Cardiovasc Surg* 2005;130:817-21.
6. Lima B, Varma SK, Lowe JE. Nonsurgical management of left main coronary artery aneurysms: Report of 2 cases and review of the literature. *Tex Heart Inst J* 2006;33:376-9.
7. Izumi Y, Yoshida H, Shimizu N, Kubota H. Emergent operation for aneurysm of the left main coronary artery presenting acute myocardial infarction. *Ann Thorac Cardiovasc Surg* 2004;10:195-7.
8. Baman TS, Cole JH, Devireddy CM, Sperling LS. Risk factors and outcomes in patients with coronary artery aneurysms. *Am J Cardiol* 2004;93:1549-51.
9. Viola L, Keita L, Veerasingam D. Surgical treatment of a giant left main aneurysm. *Interact Cardiovasc Thorac Surg* 2017;24:138-9.
10. Tuncer E, Onsel Turk U, Alioglu E. Giant saccular aneurysm of the left main coronary artery. *J Geriatr Cardiol* 2013;10:110-2.