

# Coronary Artery Revascularization in a Young Adult with Solitary Coronary Aneurysm Probably Secondary to Childhood Kawasaki Disease

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## Abstract

Surgical revascularization for coronary artery lesions secondary to Kawasaki disease (KD) has been rarely reported in adolescent patients. We report a young adult with no coronary risk factors but with a giant solitary coronary aneurysm with obstructive thrombosis inside, presumably secondary to KD, who underwent coronary artery bypass grafting (CABG) with left internal thoracic artery (LITA) and SVG.

Because coronary artery sequelae of KD can be a cause of ischemic heart disease even in young adults, heightened awareness of this entity is required for young adults with coronary lesions but without coronary risk factors (*Iranian Heart Journal 2009; 10 (4):57-59*).

**Key words:** Kawasaki disease ■ coronary artery aneurysm ■ coronary arteritis ■ myocardial infarction

**K**awasaki disease is an acute febrile illness affecting mainly infants and children. A fatal complication of Kawasaki disease is coronary involvement pertaining to coronary artery aneurysms. Surgical experience in adults who had childhood Kawasaki disease with coronary lesions has been rarely reported.<sup>1</sup> We performed coronary artery bypass grafting in a 16 year-old youth with no risk factors for atherosclerosis, but with coronary lesions possibly secondary to Kawasaki disease.

## Case report

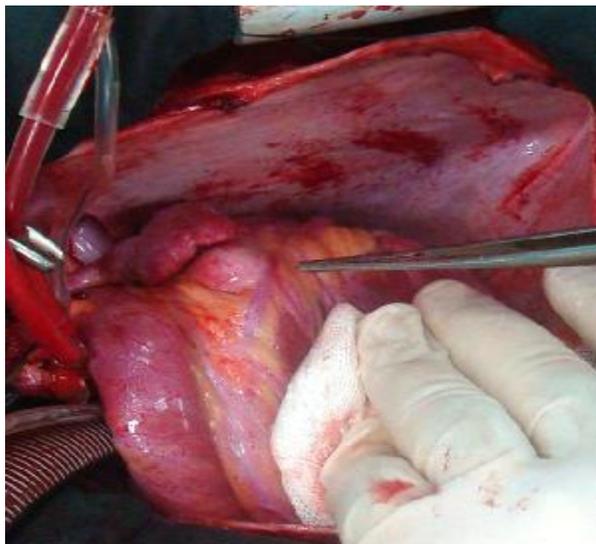
A 16 year-old boy was referred for evaluation of acute inferolateral MI two weeks prior to admission. On coronary angiography study, there was a 40% stenosis at the proximal part of the left circumflex artery (LCX), with an aneurysm in the vicinity of a branching obtuse marginal (OM) which was not suitable for stenting due to this proximity and possibility of closure of the OM orifice with thrombus inside the aneurysm (Fig. 1).

The patient underwent coronary artery bypass graft (CABG) surgery with a saphenous vein graft anastomosis to the distal OM and left internal thoracic artery (LITA) to the left circumflex artery (LCX) right after the aneurysm.

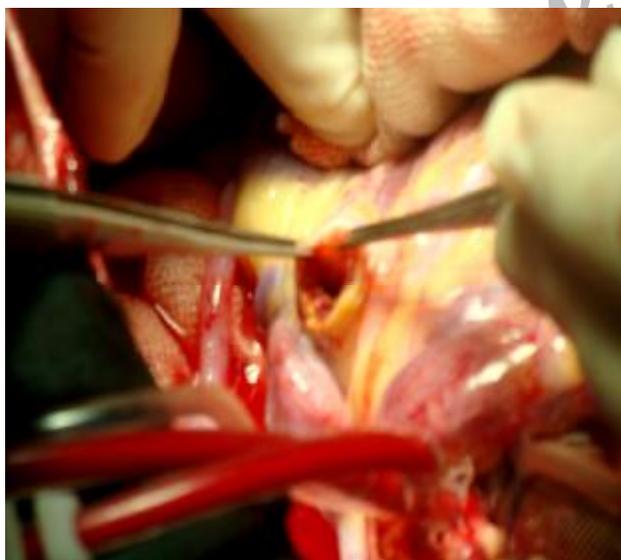


**Fig. 1.** Coronary angiography revealing LCX aneurysm with proximal stenosis.

The aneurysmal sac was opened and organized thrombus was removed, then the influx and efflux of the aneurysm were identified and ligated. The remaining wall was unroofed and oversewn by running suture (Figs. 2- 4).

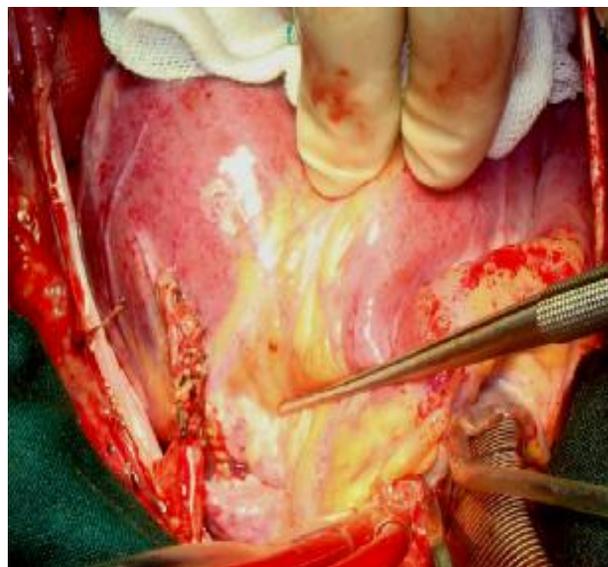


**Fig. 2.** Operative finding before CABG and aneurysmorrhaphy.



**Fig. 3.** Removal of clots and securing influx and efflux of artery.

The hospital course was uneventful and the patient was discharged a week after operation. Follow up study by CT angiography after three months revealed patent grafts.



**Fig. 4.** LITA bypass and oversewn aneurysm.

### Discussion

Tomisaku Kawasaki published the first English-language report of 50 patients with Kawasaki disease (KD) in 1974. Since that time, KD has become the leading cause of acquired heart disease among children in North America and Japan. Although an infectious agent is suspected, the cause remains unknown. However, significant progress has been made toward understanding the natural history of the disease and therapeutic interventions have been developed that halt the immune-mediated destruction of the arterial wall.<sup>2</sup> The major complication of Kawasaki coronary disease is myocardial infarction caused by thrombus formation inside the aneurysm or by organic obstructive lesion following the regression of aneurysm. While the indications for surgical therapy remain controversial,<sup>3</sup> coronary artery bypass grafting (CABG) has been suggested even in young children for giant coronary aneurysms (more than 8 mm diameter) with or without a stenotic region when myocardial ischemia is detected.<sup>3,4</sup> Kawasaki disease (KD), an acute febrile childhood vasculitis of unknown etiology, preferentially involves the coronary

arteries. Diagnosis typically rests on strict clinical criteria. If untreated, KD may be complicated by coronary arteritis and progress to aneurysm formation, thereby predisposing the child to a small but significant risk of death. There are few cases of atypical KD causing death due to rupture of a coronary artery aneurysm with massive cardiac tamponade.<sup>5</sup> The clinical challenge to recognize KD during the acute phase--especially in atypical cases when the diagnostic criteria are incomplete--is critical. Therapeutic intervention with intravenous gamma-globulin (IVIG) and aspirin during the first 10 days of onset is highly effective not only in reducing nearly tenfold such potentially fatal cardiac complications by arresting the immune-mediated necrotizing arteritis, but also in alleviating the acute symptoms related to systemic inflammation. A history of antecedent Kawasaki disease should be sought in all young adults who present with acute myocardial infarction or sudden death.<sup>6</sup>

Kawasaki syndrome is an acute, self-limited vasculitis that occurs in children of all ages and presents a challenge for the clinician: the disorder can be difficult to recognize; there is no diagnostic laboratory test; there is an extremely effective therapy; and there is a 25% chance of serious cardiovascular damage if the treatment is not given early in the course of the disease.<sup>7</sup> Whilst the diagnosis of KD is basically clinical and upon childhood past history which is not easily proven, KD is the most probable diagnosis in our case due to the limited number of differential diagnoses. CABG has been offered for definitive and final treatment of coronary artery sequelae by Japanese group<sup>8</sup> and our patient also enjoyed an acceptable and reasonable result postoperatively.

## References

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