

Giant Coronary Aneurysms and Massive Anterolateral Myocardial Infarction in a Six-Year-Old Boy with Kawasaki Disease: A Case Report

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Abstract

Kawasaki disease occurs across the globe, with Asians being at the highest risk. Approximately, 20% of untreated patients develop coronary artery abnormalities, including aneurysms, and severely affected patients are likely to develop coronary artery thrombosis or stenosis, myocardial infarction, aneurysm rupture, and sudden death.¹

We herein report the case of a 6-year-old boy who developed giant coronary aneurysms, thrombosis, and massive anterolateral myocardial infarction despite appropriate treatment for Kawasaki disease, which make this patient a special case (*Iranian Heart Journal* 2011; 12 (1):60 -62).

Keywords: kawasaki disease ■ aneurysm ■ thrombosis

Kawasaki disease (KD) is an acute febrile vasculitis of childhood with unknown etiology and affects all blood vessels, predominantly medium-sized arteries. KD has a striking predilection for coronary arteries, especially during the sub-acute phase.¹

Case Report

A 6-year-old boy was referred to our hospital because of prolonged fever and elevation in the erythrocytes sedimentation rate (ESR). His problem had begun 10 days previously with high-grade fever and left sub-mandibular lymphadenopathy, which had been treated with antibiotics at first as a suppurative lymphadenitis. The patient had, thereafter, been hospitalized due to the continuation of fever and had received parenteral antibiotics.

At presentation, he was still febrile and had limitation in neck movement because of left sub-mandibular lymphadenopathy.

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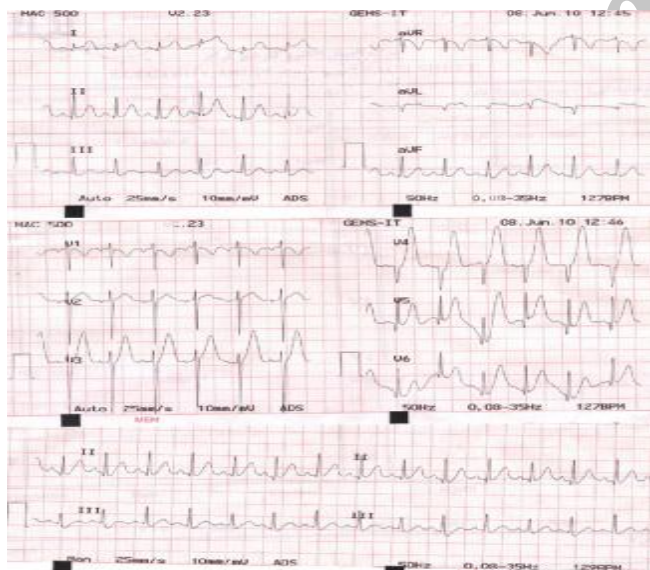
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sub-mandibular area.

Chest X-ray revealed cardiomegaly. Laboratory findings included leukocytosis (WBC= 12700, PMN= 72%) and elevated ESR (120 mm/h).

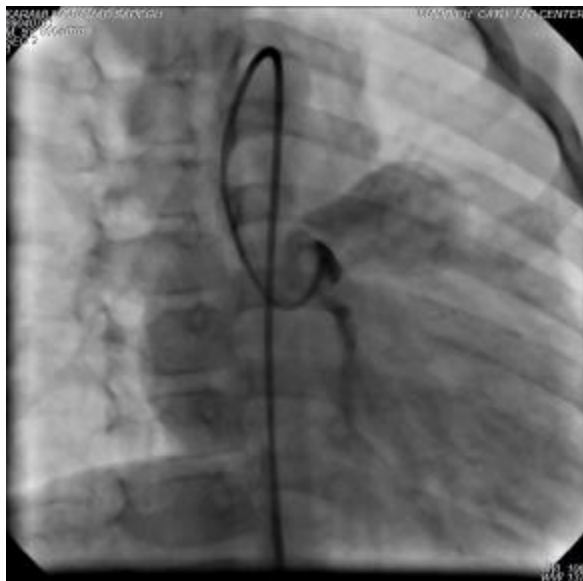
Given the patient's history, physical examination, and laboratory findings, KD was suspected and intravenous immunoglobulin and aspirin were immediately initiated.

On the first day of admission, the patient complained of chest pain and EKG was obtained, which showed a massive anterolateral myocardial infarction.



Emergent echocardiography was performed and demonstrated hypokinetic myocardium and giant aneurysms in the left anterior descending artery (LAD) and right coronary artery (RCA) with a left ventricular ejection fraction of 60%. The patient, therefore, received heparin (100 unit/kg) because of those giant aneurysms and his INR was controlled (1/5-2). On the third day, he developed chest pain, bleeding from gums, and unexplained rise in PT, PTT, and INR. Physical examination demonstrated tachypnea (RR= 42/min) and mild bleeding from the IV line. Emergent echocardiography revealed expanding aneurysm (>15mm) with coronary thrombosis. The thrombosis in association with the giant coronary aneurysm and coagulopathy supported the diagnosis of disseminated intravascular coagulopathy (DIC). The D-dimmer test also turned out positive. Consequently, all anticoagulant therapies were stopped and the patient was administered fresh frozen plasma and cryoprecipitate until his INR reached 2-2/5.

Clinical and laboratory evidence of DIC improved in the following two days and the patient was ultimately treated with propranolol (1mg/kg/day) and warfarin (INR= 1/5-2) instead of heparin. After the normalization of ESR (ESR=33 mm/h) and stabilization of the patient, angiography was performed, which showed giant aneurysms in the LAD and RCA.



Discussion

KD is an acute, febrile, self-limiting generalized vasculitis of unknown etiology and occurs predominantly in infants and young children. Before intravenous immunoglobulin treatment, the incidence of coronary artery abnormalities was quite high (20-25%).^{2,3}

Despite adequate treatment, coronary artery abnormalities develop in 5-10% of patients with KD.⁴ The proportion of patients with giant coronary aneurysms is small (0/5-1%).⁵

Echocardiography is an important tool for the diagnosis and estimation of the shape and size of aneurysms.⁶ The most common sites of aneurysms in order of frequency include the proximal LAD, proximal RCA, followed by the LMCA, LCX, and finally the distal RCA.⁶ The first echocardiography on the first day of the admission of our patient also showed aneurysms in the LAD and RCA.

A previous study in the Iranian city of Yazd reported a 3.5-month-old boy with KD who developed aneurysms in the RCA and left main coronary (LCA) arteries which progressed rapidly in serial echocardiography.

Selective right and left coronary angiographic examinations subsequently showed a super giant fusiform aneurysm of the RCA and a diffuse giant aneurysm of the proximal LCA. Regression of the coronary artery aneurysms was not observed during a 6-year follow-up period.⁶

The risk of aneurysms increases in patients with fever lasting for more than sixteen days, age < 1 year, hemoglobin < 10 g/dl, platelets $\geq 900 \times 10^9/L$, thrombocytopenia, male sex, and ESR > 100 mm/h. The latter two were present in our patient.

It is deserving of note that coronary artery bypass grafting surgery using the internal thoracic artery has been performed with some successes on a small number of cases.^{7,8,9} The arterial graft patency rate in later adult life is still unknown.¹⁰ Further studies and long-term follow-up are required to evaluate the long-term outcomes of bypass graft in patients with giant aneurysms secondary to KD.⁷

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