

# Aggressive Management In A Child With Homozygous Familial Hypercholesterolemia

Ailevi Homozigot Hiperkolesterolemide Yoğun Medikal Tedavi

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## Abstract

Homozygous familial hypercholesterolemia is a rare and fatal disease. Twelve year-old girl patient with anginal symptoms and diffuse xanthomas were treated with diet restriction, per oral high dose statins, ezetimibe, low-density lipoprotein cholesterol apheresis and coronary artery bypass grafting. She has been on follow-up visit in stable condition.

**Key words:** Familial hypercholesterolemia, Child, Apheresis, Coronary bypass, Ezetimibe.

## Özet

Homozigot ailevi hiperkolesterolemi nadir ölümcül bir hastalıktır. Anjinal semptomlar ve diffüz ksantomlar ile başvuran 12 yaşındaki hastamız uygun diyet kısıtlaması, oral yüksek doz statinler, ezetimib, lipoprotein kolesterol aferezi ve koroner arter bypass greft cerrahisi ile agresif bir şekilde tedavi edilmiştir. Üç senedir izlenen hasta herhangi bir problem olmadan takip edilmektedir.

**Anahtar Kelimeler:** Ailevi hiperkolesterolemi, Çocuk , Aferez, Koroner bypass, Ezetimid.

## Introduction

Familial hypercholesterolemia is an autosomal dominant disorder characterized by elevation of serum cholesterol bound to low-density lipoprotein (LDL) (1). In this case, we describe a severe homozygous familial hypercholesterolemia case that is treated with aggressive medical and surgical treatment.

## Case Report

A 12-year-old female was referred to our center for extensive cutaneous and tendon xanthomas on her interdigital areas, elbows, knees, Achilles tendons, with chest pain and III/VI pansystolic murmur at the precordial region (Figure 1 and 2).

Anginal symptoms usually started soon after activity in ten minutes and have been reported for six months. Her both knees xanthomas were removed surgically due mechanical instability, one year ago. Negative family history for premature coronary heart disease was reported. Her parents were first degree cousins. Both parents and one of the sisters had an abnormal lipid profile with approximately 300 mg/dl LDL cholesterol. In ECG, pathological q wave in lead aVR, ST depression in V4-V5 and poor r wave in lead V1-V3 were noted. Serum lipid profile showed total cholesterol of 985 mg/dl, LDL cholesterol of 796.3 mg/dl, high-density lipoprotein cholesterol 29.2 mg/dl, and triglyceride levels of 198 mg/dl. Lipid electrophoresis revealed elevated beta lipoproteins.

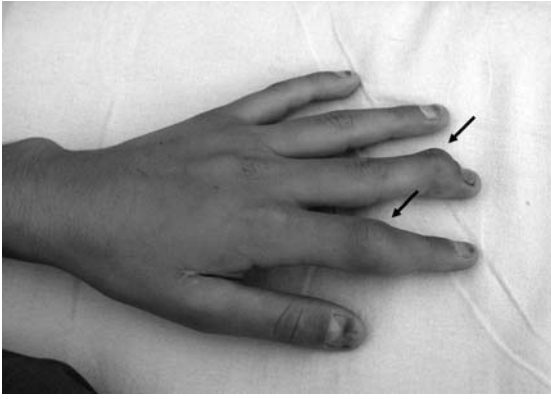
Other laboratory parameters including secondary causes of hyperlipidemia were excluded. Transthoracic echocardiography demonstrated calcification and sclerosis in aortic valve, first degree aortic and mitral insufficiency, mild aortic stenosis and normal systolic functions.

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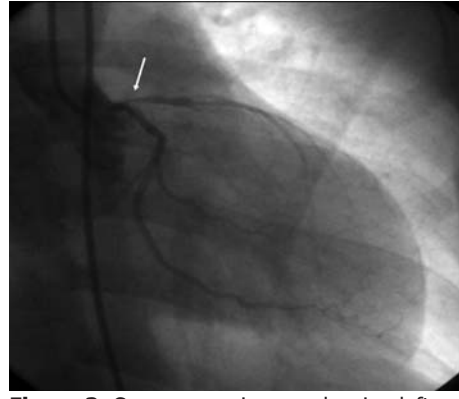
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**Figure 1.** Interdigital areas of the patient are showing xanthomas (arrows).



**Figure 3.** Coronary angiogram showing left coronary stenosis at the proximal segment (arrow) and diffuse atherom plaques.



**Figure 2.** Knees of the patient with xanthomas (arrows).



**Figure 4.** Dilated bilateral renal calyces showing at the urogram phase of angiography.

Selective coronary angiography and aortography showed significant stenosis at the proximal segment of the left anterior descending coronary artery, retrograde flow from the right coronary artery; diffuse plaques at all the coronary arteries, calcification at the ascending aorta (Fig. 3). Bilateral dilated renal calyces were noted at the urogram phase of angiography that could be due to possible lipid accumulation (Fig. 4). A clinical diagnosis of homozygous familial hypercholesterolemia was considered and diet treatment with low cholesterol, high dose statins and ezetimibe was started.

The left internal mammary artery to left anterior descending artery grafting bypass procedure was performed by cardiac surgent with no complication. LDL apheresis was ordered routinely via left radial arteriovenous fistulae bi-weekly. Post-surgically she stayed in good healthy condition and then she was discharged following days and has been followed up for three years. Levels of LDL cholesterol have been on 200 mg/dl.

## Discussion

Aggressive management is usually necessary to increase the prognosis and to improve the quality of life in patients with familial hypercholesterolemia. A reduction in cholesterol levels is essential to stabilize the coronary artery disease and subsequently to reduce xanthomas (1-4). Combined therapy with statin and ezetimibe are considered the best current therapy (4).

Despite mild aortic stenosis and incompetence in our patient, there was no commissural fusion and good overall cusp mobility, that might have been due to incomplete opening caused by atheromatous accumulation in the sinuses of Valsalva (2). These findings are supported by macroscopic findings during operation. Regression of coronary atherosclerosis has been reported with LDL apheresis in homozygotes (3) and consequently we can speculate that a similar beneficial effect could be expected for the aortic valve and root involvement.

It is important to screen patients with premature coronary artery disease for familial hypercholesterolemia and to treat aggressively in patients with homozygous familial hypercholesterolemia. We hope that the morbidity and mortality in familial hypercholesterolemia could be lessened and eventually eliminated in the future by this screening.

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