

## Surgical treatment of chronic total occlusion of the left main coronary artery: a case report

*Sol ana koroner arter kronik tam tıkanıklığının cerrahi tedavisi: Olgu sunumu*

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In this report, we present a case who was admitted to our hospital with complaints of effort-induced mild chest pain and palpitation. Although rarely seen, chronic total occlusion of the left main coronary artery was detected. After a successful coronary artery bypass graft surgery in which the left internal mammary artery was anastomosed to the left anterior descending artery and a saphenous vein graft to the circumflex artery, the patient recovered well. He remained asymptomatic within a follow-up period of six months after the surgical treatment.

**Key words:** Coronary angiography; coronary artery bypass grafting; left main coronary artery.

Acute total occlusion of the left main coronary artery (LMCA) induces global ischemia of the left ventricle and causes fatal complications, including cardiogenic shock and ventricular tachycardia. On the other hand, chronic total occlusion of the LMCA is considered to be very rare.<sup>[1,2]</sup> Patients with this lesion can survive only when good collaterals have been developed from the right coronary artery.<sup>[3]</sup>

### CASE REPORT

A 48-year-old man was referred to our hospital with complaints of effort-induced mild chest pain and palpitation. He was a smoker and had hypercholesterolemia. A 12-lead electrocardiogram at rest was normal, but he had a positive treadmill exercise test. Cardiac catheterization showed a total occlusion of the LMCA (Figure 1).

The right coronary arteriogram was normal and revealed good, well-developed collaterals. The left anterior descending and left circumflex arteries were opacified through good collaterals from the right coronary artery (Figure 2). Both the left anterior

Bu makalede, eforun tetiklediği hafif göğüs ağrısı ve çarpıntı şikayetiyle hastanemize başvuran bir olgu sunuldu. Nadiren rastlanmakla birlikte, hastanın sol ana koroner arterinde kronik tam tıkanıklık saptandı. Sol internal meme arterin sol ön inen artere ve safen ven greftinin sirkumfleks artere baypas edilmesi ile gerçekleştirilen başarılı bir koroner arter baypas greft cerrahisinden sonra, hasta iyileşti. Cerrahi tedaviden sonra altı aylık takip süresi içerisinde hasta asemptomatikti.

**Anahtar sözcükler:** Koroner anjiyografi; koroner arter baypas greftleme; sol ana koroner arter.

descending and left circumflex coronary artery were also totally occluded in the proximal portions. The left ventricular wall motion was normal.

On-pump coronary artery bypass graft (CABG) surgery was performed. We used both antegrade and retrograde cardioplegia for better myocardial preservation.<sup>[4]</sup> The left internal thoracic artery was used for the left anterior descending artery bypass and a saphenous vein graft for the circumflex artery grafting. During the six-month postoperative period, the patient did not suffer from chest pain, and the treadmill exercise test remained negative.

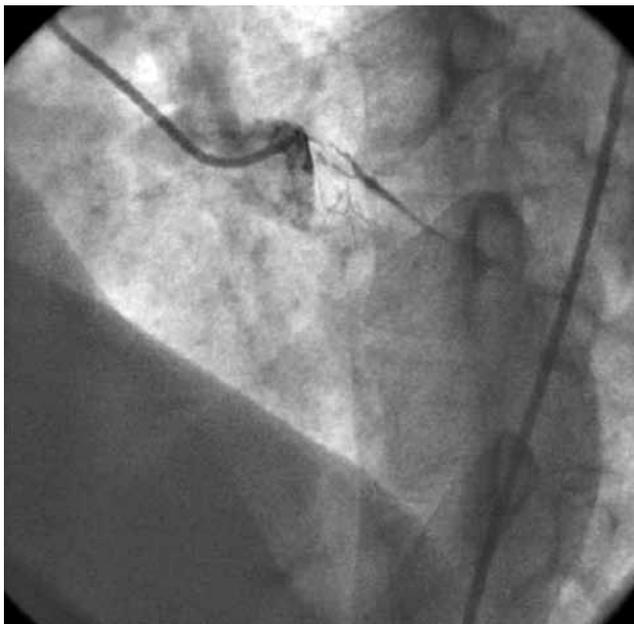
### DISCUSSION

The incidence of totally occluded LMCA ranges from 0.04-0.4%. Most of the cases are detected during emergency angiography. Detection of a totally occluded LMCA by elective coronary angiography is extremely rare.<sup>[5]</sup>

Since the LMCA supplies blood to a large part of the myocardium, patients with total occlusion of the

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**Figure 1.** A the left coronary arteriogram shows the total occlusion of the left main coronary artery.

LMCA are generally believed to have a poor prognosis. Some articles report that patients with a dominant right coronary artery and sufficient collateral circulation to the left coronary artery region are more likely to survive. Topaz et al.<sup>[6]</sup> emphasized the importance of collateral vessels and reported 13 collateral pathways in patients with chronic LMCA occlusion. Such a situation is found in 0.05% of coronary angiographies. The left ventricular function depends on the absence or coexistence of the right coronary lesions. Most of the lesions are regarded as atherosclerotic. Inflammatory diseases, such as Kawasaki disease, and congenital diseases, such as congenital atresia of the LMCA, are very rare. The onset of symptoms due to congenital diseases is generally in childhood.

The clinical course of patients with chronic total occlusion of the LMCA is varied, with the majority of patients complaining of recurrent stenocardial pain. They also have a history of myocardial infarction and may also present with symptoms of heart failure. However, our patient complained only of mild chest pain and palpitation.

Coronary artery bypass graft surgery has been regarded as the first choice for the treatment of chronic total occlusion of the LMCA, although some cases are known to survive several years without surgery.<sup>[7,8]</sup>

In conclusion, chronic total occlusion of the left main artery is a rare condition, and surgery is highly recommended.<sup>[9,10]</sup> After successful CABG surgery,



**Figure 2.** A right coronary arteriogram shows the opacification of the left system by good collaterals from the right coronary artery.

our patient recovered well and had no other symptoms within a six-month follow-up period.

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