Gazi Tıp Dergisi / Gazi Medical Journal

OLGU SUNUMU - CASE REPORT

2007: Cilt 18: Sayı 4: 189-190

A RARE CORONARY ARTERY ANOMALY: DOUBLE LAD WITH ATHEROSCLEROSIS

Mustafa BÜYÜKATEŞ[1], S. Aykut ALTUNKAYA[2], S. Akin TURAN[1]

ABSTRACT

Double left anterior descending (LAD) artery is a rare coronary artery anomaly. Most coronary artery anomalies are usually asymptomatic. In this case report we describe a patient with double LAD with two branches of almost equal caliber and parallel. Both of the branches had significant proximally stenosis and this condition was demonstrated intraoperatively. This normally originated double LAD may be considered interesting. We revascularized the double LAD with bypass grafting.

Key Words: Double LAD, Coronary Artery Anomaly.

NADİR BİR KORONER ARTER ANOMALİSİ: ATEROSKLEROTİK ÇİFT LAD

ÖZ

Sol ön inen arterin çift olması nadir görülen bir koroner arter anomalisidir. Koroner arter anomalilerinin çoğu asemptomatiktir. Bu yazıda, her iki dalı da yaklaşık eşit kalibrasyonda olan ve paralel seyreden çift LAD'li bir olguyu tanımlıyoruz. Her iki dalın proksimalinde anlamlı darlık mevcuttu ve bu durum intraoperatif olarak doğrulandı. Baypas greftleme uyguladığımız normal orijinli çift LAD olgusunun ilgi çekici olduğunu düşünüyoruz.

Anahtar Kelimeler: Çift LAD, Koroner Arter Anomalisi.

INTRODUCTION

An anatomic variant of the left anterior descending (LAD) artery is described, namely a double LAD artery. Double LAD artery is a rare coronary artery anomaly; in particular, complete duplication of a coronary artery is reported in 1% of cases by Morettin (1). Most coronary artery anomalies are usually asymptomatic and do not cause any complication. Some coronary artery anomalies, especially ectopically originated anomalous coronary arteries and coronary fistulas, may cause clinical syndromes (2). Double LAD artery can potentially have implications on percutaneous coronary intervention procedures in cases associated with coronary stenosis (3).

CASE REPORT:

A 57-year-old female patient was hospitalized for angina pectoris attacks worsening over the previous one month. Coronary angiography was indicated after routine examinations. The angiography revealed a double LAD coronary artery originating from the normal site. Both extended parallel to each other along the anterior interventricular sulcus (AIVS) until the apex. The first one continued on the right of the apex, and the second on the left. They were almost the same size and length. Septal branches originated from the first LAD artery, and diagonal ones from the second (Figure 1). There was a proximal stenosis of 80% in the first LAD artery and 70% in the second. The left main coronary artery, circumflex artery, and right coronary artery had normal locations without any lesion. Revascularization surgery was indicated.

Operative procedure:

The left internal thoracic artery (LITA) was harvested after median sternotomy and saphenous vein grafting was accomplished under general anesthesia. Cardiopulmonary bypass was initiated after standard aortic and venous cannulations. Both LAD arteries were visualized tracing parallel along the AIVS on the epicardial surface of the left ventricle (Figure 2). The saphenous vein was anastomosed to the LAD artery giving off the diagonal branches and LITA to the LAD artery with septal ones. Proximal anastomosing of the saphenous vein to the aorta after partial clamping was performed. The operation was successful and on the seventh day the patient was discharged without any complication.

DISCUSSION

The wide application of coronary angiography has revealed many anomalies of the coronary arteries, varying in number, origin, course, distribution, and termination. The presence of two arteries in the LAD region is referred to as double LAD, a rare coronary artery anomaly. Recognition of the presence of the addi-

[1] Departmant of Cardiovascular Surgery, Faculty of Medicine, University of Zonguldak Karaelmas, Turkey.
[2] Departmant of Thoracic Surgery, Faculty of Medicine, University of Zonguldak Karaelmas, Turkey.

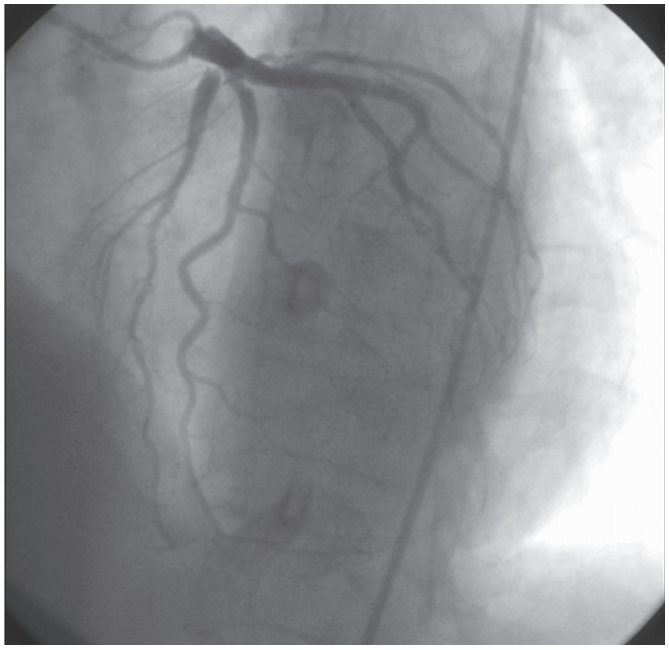

Figure 1: The AP cranial 30º position angiography shows double left anterior descending coronary arteries (LAD) originating from normal site and extending parallel to each other along anterior interventricular sulcus (AIVS) till apex.

tional LAD artery is important for diagnostic and therapeutic reasons (4).

Spindola-Franco et al. (5) defined this anomaly and classified it into four subtypes according to the origin and course of the long LAD artery as follows (types I to III are similar in their early bifurcation of the proximal LAD artery into two vessels):

Type I: the long LAD artery descends on the left ventricular side of the short LAD artery and then enters the distal AIVS.

Type II: the long LAD artery descends on the right ventricular side of the short LAD artery and enters the distal AIVS.

Type III: the long LAD artery courses deep within the interventricular septum proximally and appears on the epicardial surface in the distal part of the AIVS.

Type IV: the long LAD artery originates from the right coronary artery, traverses the right ventricular infundibulum, and enters the AIVS.

Our case resembles type I when the origin and course of both of the LAD arteries are taken into account. The vessels were almost identical in diameter and length, following a parallel course to each other until reaching the apex. These factors made us think that the case might be a variant of type I.

In our patient, this normally originated LAD artery may be considered interesting because both branches were symmetrically involved with the atherosclerotic process in their proximal segments. Symmetric involvement of double LAD artery with significant coronary stenosis is very rare and serious. Therefore, we think that myocardial revascularization procedures, such as percutaneous coronary intervention or coronary artery bypass grafting, should include both LAD arteries, when each LAD artery has severe stenosis (3, 5). In our patient, therefore, the two branches were revascularized using bypass grafting.

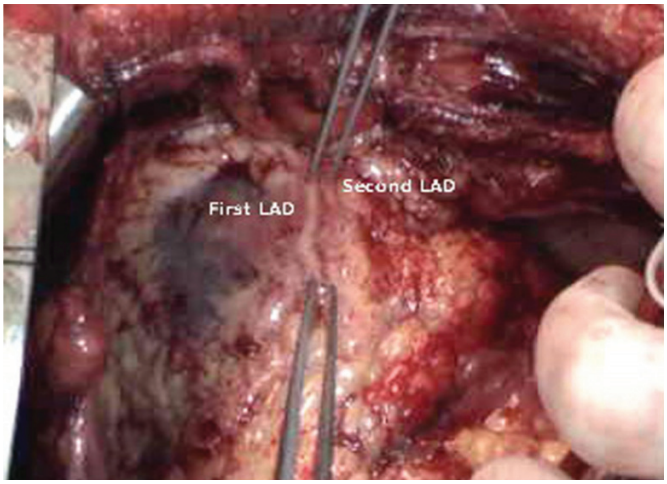

Figure 2: Operation view of both LAD arteries tracing parallel along the AIVS on the epicardial surface of the left ventricle.

In conclusion, a rare coronary artery anomaly, double LAD artery, was presented. Because the LAD artery is the most important coronary artery, cardiologists and cardiac surgeons should be aware of this rare type of coronary anomaly in patients with coronary artery disease who are undergoing either surgical revascularization or coronary angioplasty.

Correspondence Address
Mustafa Buyukates, MD
Zonguldak Karaelmas University, Faculty of Medicine
Department of Cardiovascular Surgery 67600, Kozlu / ZONGULDAK
Tel: 0372 261 0169 Fax: 0372 261 0155
Email: mustafabuyukates@yahoo.com

REFERENCES

1. Morettin LB. coronary arteriography: uncommon observations. Radiol Clin North Am 1976; 14; 189-208.
2. Yamanaka O, Hobbs RE. Coronary artery anomalies in 126,595 patints undergoing coronary arteriography. Cathet Cardiovasc Diagn 1990; 21: 28-40.
3. Sajja LR, Farooqi A, Shaik MS, Yarlagadda RB, Baruah DK, Pothineni RB. Dual left anterior descending coronary artery: surgical revascularization in 4 patients. Tex Heart Inst J 2000; 27: 292-296.
4. Turhan H, Atak R, Erbay AR, Senen K, Yetkin E. Double left anterior descending coronary artery arising from the left and right coronary arteries: a rare congenital coronary anomaly. Heart Vessels 2004; 19: 196-198.
5. Spindola-Franco H, Grose R, Solomon N. Dual left anterior descending coronary artery: angiographic description of important variants and surgical implication. Am Heart J 1983; 105: 445-455.