

# Semptomatik DeBakey Tip III Kronik Aort Diseksiyonlarında Yeni Bir Yöntem: Endovasküler Stent Greft Kullanımı

## AN EMERGING ALTERNATIVE IN SYMPTOMATIC CHRONIC DeBAKEY TYPE III AORTIC DISSECTIONS: ENDOVASCULAR STENT-GRAFT IMPLANTATION

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### Özet

Aort hastalıkları, özellikle de diseksiyonlar küratif cerrahilerinin yüksek mortalite ve morbidite ile seyretmeleri itibariyle öne çıkarlar. Hastaların sıklıkla eşlik eden başka patolojilerinin de olması bu cerrahinin risklerini arttırmaktadır. Özellikle semptomatik tip III diseksiyonlarda cerrahiye alternatif olabileceğini düşündüğümüz endovasküler stent greftlerin kronik DeBakey tip III diseksiyonlarında uygulanmasının merkezimizdeki ve ülkemizdeki ilk örneklerden biri olan olguyu sunmaktayız.

**Anahtar kelimeler:** Aort, diseksiyon, endovasküler stent greft

### Summary

*Türk Göğüs Kalp Damar Cer Derg 2005;13:65-67*

Diseases of the thoracic aorta pose a significant challenge to the surgeon because of the complexity of the disease and the characteristics of the patient population. Conventional surgical repair of dissections of thoracic aorta entails significant mortality and morbidity. Endoluminal stent graft placement offers an alternative approach with potentially less morbidity and quicker recovery.

**Keywords:** Aorta, dissection, endovascular stent grafting

*Turkish J Thorac Cardiovasc Surg 2005;13:65-67*

Geliş Tarihi: Mart 2004

Revizyon: Nisan 2004

Kabul Tarihi: 19 Nisan 2004

### Introduction

Diseases of the thoracic aorta pose a significant challenge to the surgeon because of the complexity of the disease and the characteristics of the patient population. [1]. Conventional surgical repair of dissections of thoracic aorta entails significant mortality and morbidity. Stent-graft placement offers an alternative approach with potentially less morbidity and quicker recovery [2]. We would like to introduce first of the two cases of endovascular stent-graft implantation (EVAR) for chronic DeBakey type III aortic dissections at our institution.

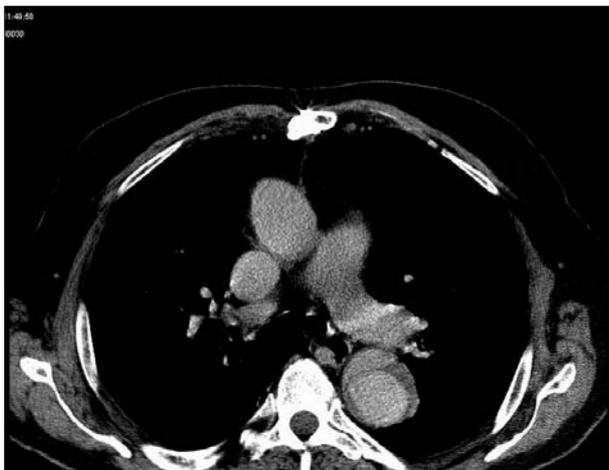
### Case Report

A 73-year-old man was admitted to emergency room of our hospital in June 2002 with chest and upper back pain for the last few hours. His medical history revealed synthetic tube graft replacement of the ascending aorta for subacute Debakey type II dissecting aneurysm of the ascending aorta two years ago. He reported he had had similar symptoms several times within the past 6 months lasting from a few hours to a couple of days without really a diagnosis. His thoracic operation and

his postoperative period was reportedly uneventful. At admission, he was found normal besides hypertensive with no signs of cardiac ischemia on ECG or organ dysfunction. His chest telegram showed a prominent descending thoracic aorta and increased CTI, but otherwise normal. His arterial blood gas analysis revealed normal pH, lactate levels and blood gas partial pressure levels. His hematocrit [Htc] was 38%. His contrast enhanced thoracoabdominal CAT scan revealed aortic dissection starting from just distal to the left subclavian artery with no visible distal tear. Distal and visceral organs were perfused by the true lumen. Proximal tube graft to the ascending aorta was intact with no proximal extension of the dissection. Proximal and distal necks were 32 and 33 mm in diameter. Proximal neck was 15 mm long. 80 mm-long aneurysm of the descending aorta had a maximal diameter of 72 mm. Within 3 hours of diagnosis, he had an aortography and coronary angiography confirming the findings on CAT scan with normal coronary anatomy. Considering that the patient was hypertensive and symptomatic having had several crises of chest and back pain, he was allocated to our EVAR program. On 6th day of admission, the patient was intubated in the catheter laboratory with monitorization of three derivation ECG, arterial pressures and oxygen saturation. His right

**Sunulduğu Kongre:** 16. Akdeniz Kardiyoloji ve Kalp Cerrahisi Derneği Kongresi, 26-29 Eylül 2004, Bodrum

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**Figure 1.** Chronic DeBakey Type III dissection prior to EVAR.



**Figure 2.** Closure of the false lumen by EVAR at 3 month control. Note that the stent-graft placed properly and no endoleak is seen.

femoral artery and branches were prepped surgically for the delivery of the system. Through this route, tube shaped self-expandible 38 mm x 100 mm Talent Endoluminal Stent-Graft (World Medical Manufacturing, Sunrise, Fla) was delivered. A 10-12% oversizing was estimated. After successful endovascular implantation, he was discharged to CICU with an uneventful postoperative period and was extubated at postoperative 1st hour. He had intravenous sodium nitroprusside infusion during the first 6 hours in the CICU to keep normotensive. He was given oral aspirin after 6 hours of extubation. On day one, he was discharged to ward where he remained normotensive and symptom-free. We observed "the post-implantation syndrome" on the postoperative day 2 characterized by malaise, mild fever and backache and leucocytosis with the highest level of 13100/cm<sup>3</sup>. This phenomenon resolved in 3 days with oral nonsteroid anti-inflammatory agents. On postoperative day 6, he was discharged without any problems leaving the hospital on oral antihypertensive and 300 mg/day aspirin. On outpatient

followups, he showed no symptoms or signs related to the initial pathology or the stent-graft implantation. CAT scans taken at 1st, 3rd, 6th and 12th months revealed total thrombosis of the false lumen with compression by the stent-graft without any signs of endoleaks or graft migration. Proximal attachment site just distal to left subclavian artery was perfectly in place. Both grafts including the tube graft in the proximal ascending position and the stent-graft in the descending thoracic position were patent.

## Discussion

Aortic dissection is one of the most catastrophic events affecting aorta. The treatment strategy usually involves medical approach for dissections not involving the ascending aorta and when uncomplicated. Approximately 20% of the patients with uncomplicated Stanford type B dissections display aneurysmal dilatation in spite of the strict antihypertensive medication. This raises the concern about aortic rupture or redissections in these patients. The mortality rates for Stanford type B dissections can be more than 50% when complicated by preoperative end-organ ischemia [1-3]. For elderly patients and those with previous operations, obesity or other comorbidities, such a procedure entails significant mortality or morbidities including respiratory failure, renal failure, spinal ischemia [2,3]. Paraplegia occurs in 2.9% of patients that undergo surgery for chronic type B dissections. EVAR for the treatment of patients with aortic dissection is emerging as an alternative to conventional operations [3]. The purpose of stent-graft placement is to seal the intimal tear to decompress the false lumen and decrease the risk of rupture [4]. Induction of false lumen thrombosis by sealing of the entry site also precludes unwanted remodelling and expansion of the aortic wall. Several authors report chronic aortic dissections treated in endovascular fashion with safety and effectiveness [5,6]. It is reported that aorta-related events such as aneurysmal degeneration at the sites of attachment can occur during and after the implantation. These events are more likely to occur in acute cases, rather than the chronic ones. Several complications like stent-graft migration, delayed obliteration of the false lumen, endoleaks, endarteritis/graft infection are the potential risks for stent-graft implantation [3]. We have not seen such complications in our short and intermediate-term followups. Our patient was discharged from CICU to the ward and from the hospital on postoperative days 1 and 6, respectively. It would have been possible to discharge the patient on day 4 if he had not developed a post-implantation syndrome. We agree with Nienaber CA, et al and believe that as more experience and long-term results become available, not only mortality and morbidity of stent-graft implantation for aortic dissections will decrease, but also costs for such patients will be significantly less when compared to surgery. We suggest that the shorter CICU and the hospital stay with earlier mobilization make EVAR more preferable for patients, especially those with comorbidities.

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