

CASE REPORT

Endovascular treatment of acute type B dissection complicating graft-bypass repair for aortic coarctation

Serkan Ertugay ^{a,*}, Hakan Posacioglu ^a, Mustafa Parildar ^b, Halil Bozkaya ^b

^a Ege University Hospital, Cardiovascular Surgery Department, Izmir, 35100, Turkey

^b Ege University Hospital, Radiology Department, Izmir, 35100, Turkey

Objectives: The early dissection of the descending aorta after the repair of aortic coarctation is very rare. Herein, we present a special endovascular technique used for acute type B dissection complicating graft bypass for aortic coarctation.

Methods: The 48 year-old male patient with the diagnosis of adult type aortic coarctation had bypass procedure between the aortic arch and the descending aorta. Six weeks after the first operation, the patient was readmitted with severe back pain and had the diagnosis of acute type B dissection which involved the descending aorta at the distal part of the graft anastomosis.

Results: Two separate stent-grafts were deployed respectively 31 × 150 mm and 34 × 200 mm (C-TAG™ WL Gore&Asc., Flagstaff, AZ, USA). The previous Dacron bypass graft was used as a proximal landing zone for the first stent-graft. The distal landing zone for the second stent was the area between the celiac trunk and superior mesenteric artery. Therefore, the covered stent-graft was implanted to the celiac trunk (Viabahn™ 7 × 50 mm WL Gore&Asc, AZ, USA) to maintain its patency before the deployment of the second graft. The segment of coarctation was closed with a vascular plug (Amplatzer™ vascular plug II) to prevent persistent perfusion of aneurysmal false lumen.

Conclusion: The endovascular approach offers multiple less invasive options based on a patient-specific problem.

© 2015 The Authors. Published by Elsevier Ltd on behalf of European Society for Vascular Surgery. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Article history: Received 3 May 2015, Revised 21 May 2015, Accepted 21 June 2015,

Keywords: Aortic coarctation, Bypass graft, Endovascular, Vascular plug

CASE REPORT

The 48 year-old male patient with refractory hypertension was evaluated and computerized tomography (CT) revealed adult type aortic coarctation. Bypass procedure was performed using a 22 mm Dacron graft between the aortic arch and the descending aorta. Patient was discharged after an uneventful recovery. Six weeks after the first operation, the patient was readmitted with severe back pain. CT revealed acute type B dissection which involved the descending aorta at the distal part of the graft anastomosis (Fig. 1). The aneurysmal dilation of the false lumen (69.5 mm) and compression of the true lumen

were also noted on CT images. Intimal flap was running along the entire descending thoracic aorta and terminating at the level of the celiac trunk (Fig. 2). The endovascular repair was planned due to refractory pain and the aneurysmal dilatation of the false lumen. Two separate stent-grafts were deployed respectively 31 × 150 mm and 34 × 200 mm (C-TAG™ WL Gore&Asc., Flagstaff, AZ, USA). The previous Dacron bypass graft was used as a proximal landing zone for the first stent-graft. The distal landing zone for the second stent was the area between the celiac trunk and superior mesenteric artery because of distal re-entry tear very close to celiac artery orifice. Therefore, the covered stent-graft was implanted to the celiac trunk (Viabahn™ 7 × 50 mm WL Gore&Asc, AZ, USA) via left femoral artery to maintain its patency before the deployment of the second graft. The segment of coarctation was closed with a vascular plug (Amplatzer™ vascular plug II) to prevent persistent perfusion of aneurysmal false lumen. The control angiography

* Corresponding author. Ege Universitesi Tip Fakultesi Hastanesi, Bornova, Izmir, 35100, Turkey. Tel.: +90 232 3904048; fax: +90 232 3390002. E-mail address: serkanertugay80@gmail.com (S. Ertugay).

2405-6553/© 2015 The Authors. Published by Elsevier Ltd on behalf of European Society for Vascular Surgery. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<http://dx.doi.org/10.1016/j.ejvssr.2015.06.001>

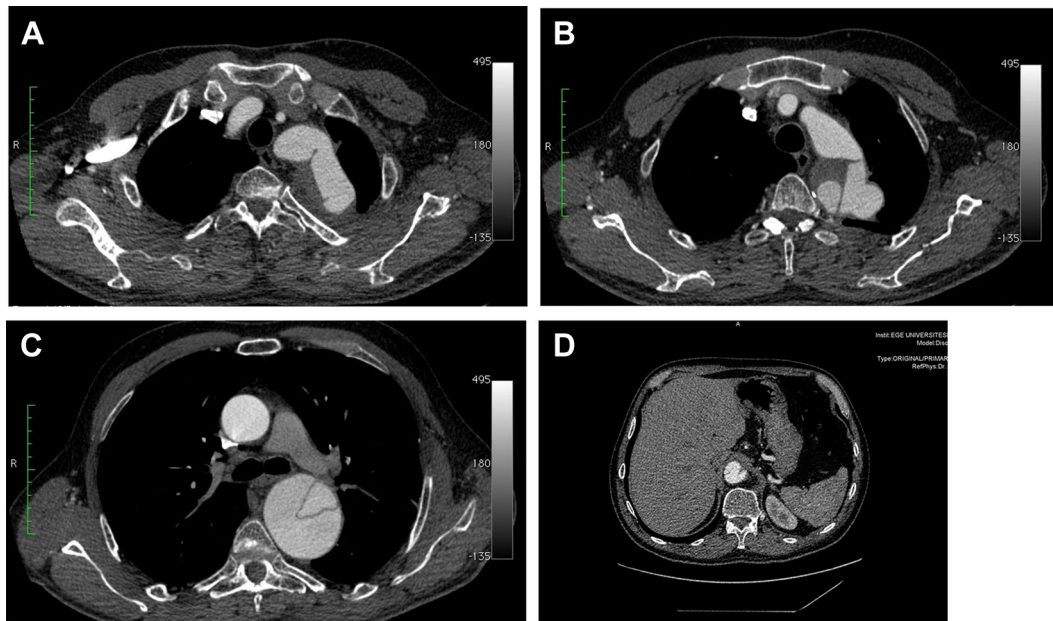


Figure 1. A: Preoperative computerized tomography scan, showing proximal anastomosis of bypass graft. B: Preoperative computerized tomography scan, showing intimal tear of dissection at the distal anastomosis. C: Preoperative computerized tomography scan, showing circumferential dissection flap. D: Preoperative computerized tomography scan, showing distal re-entry tear near celiac artery.

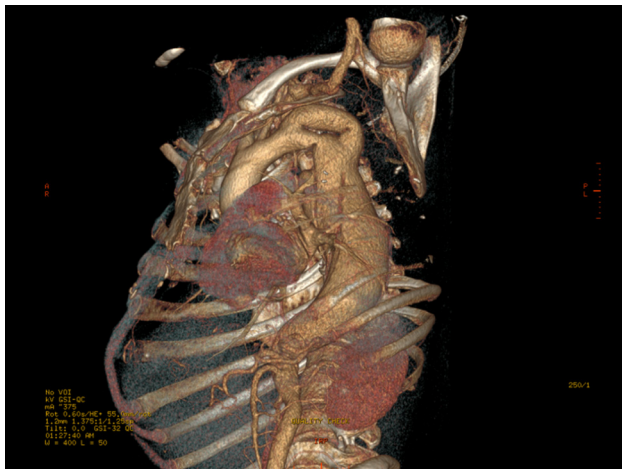


Figure 2. Computerized tomography scans showing the segment of aortic coarctation, bypass graft and aortic dissection of descending thoracic aorta.

demonstrated complete occlusion of the false lumen and good perfusion of the celiac trunk. The patient was discharged at 3rd postoperative day. The postoperative CT revealed complete thrombosis of the false lumen with no endoleak and open celiac trunk stent-graft a one month after the procedure (Fig. 3).

The early dissection of the descending aorta after the repair of aortic coarctation is very rare.^{1,2} The endovascular approach offers multiple less invasive options based on a

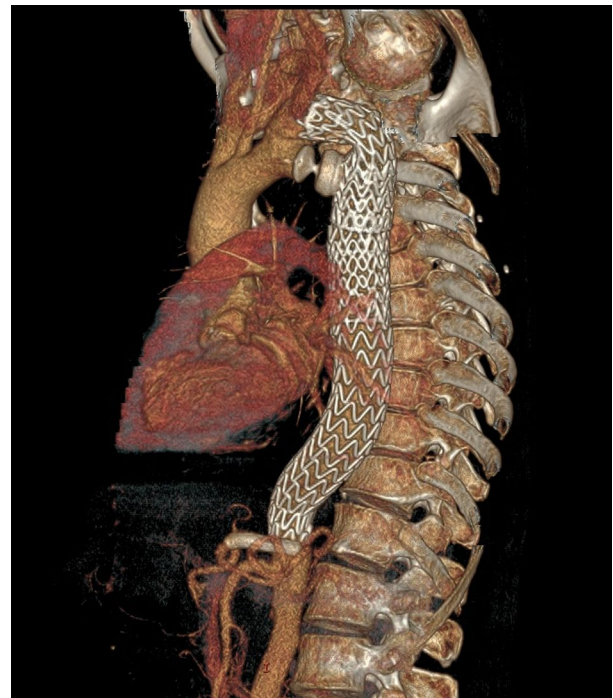


Figure 3. CT scans showing complete occlusion of the false lumen and aortic coarctation segment, patent celiac trunk.

patient-specific problem. We believe that endovascular technique including using bypass graft as a landing zone and occlusion of the coarctation segment by vascular plug make unique this case in the literature.

ACKNOWLEDGEMENT

Authors had no any financial or material support for this study.

Contributions:

Study design: Hakan Posacioglu, Data collection: Mustafa Parildar and Halil Bozkaya, Writing: Serkan Ertugay.

Authors declare no conflict of interest.

REFERENCES

- 1 Rajan L, Dougherty K, Krajcer Z. Endoluminal stent-graft repair in a patient with coarctation of the aorta and previous iatrogenic type B dissection and expanding pseudoaneurysm. *J Endovasc Ther* 2008;**15**:558–65.
- 2 Marque, Gibault-Genty G, Galuscan G, Goudot B, Georges JL, Normand JP. Acute type-B aortic dissection associated with isthmic coarctation in adult. *Ann Cardiol Angeiol* 2011;**60**:300–3.