



Irrelevant Endoleak after Multilayer Stent Treatment for an Iliac Artery Aneurysm

Daniele Bissacco^{1,2}, Fabio Massimo Calliari¹, and Marco Piercarlo Viani¹

¹Vascular Surgery Unit, ASST Fatebenefratelli-Sacco, Milan, ²School of Vascular Surgery, University of Milan, Milan, Italy

A 69-year-old male was admitted with an approximately 3 to 4-hour history of stomachache and nausea. He had a history of hypertension, diabetes mellitus, and endovascular

repair of a left common and external iliac artery aneurysm (61 mm×45 mm) six years ago, with two combined multi-layer stents, 16 mm×100 mm and 16 mm×80 mm (Cardiatis,

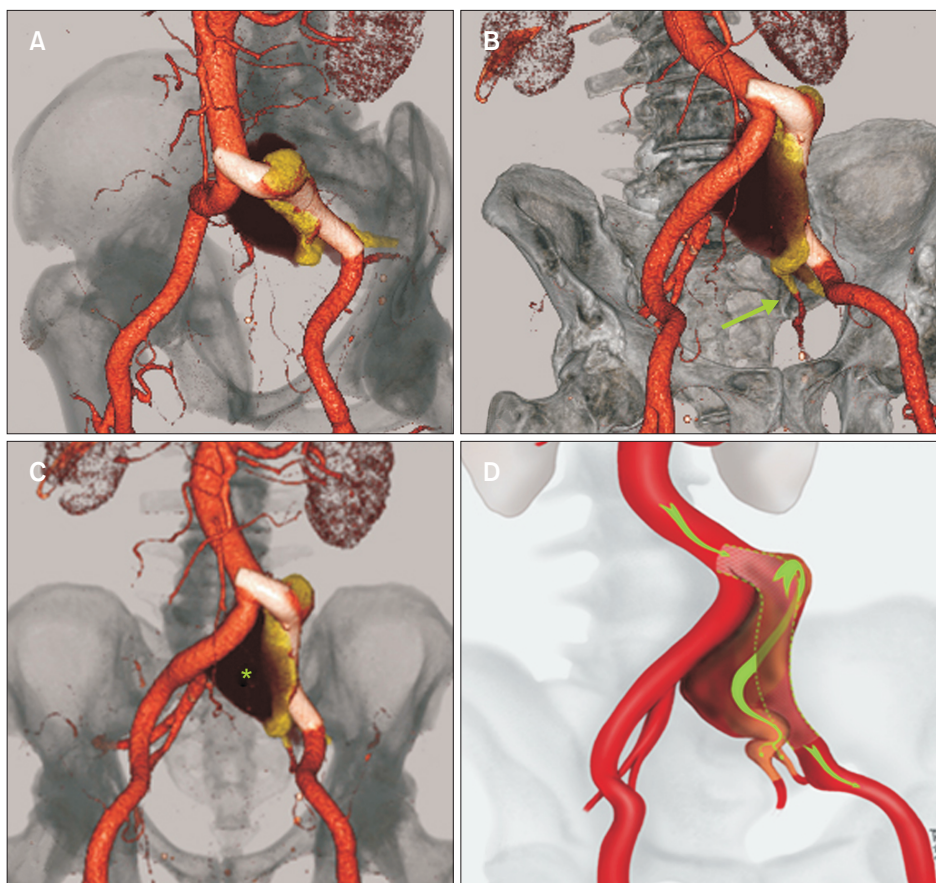


Fig. 1. Three-dimensional reconstruction overview (A-C) and schematic representation (D), demonstrating left internal iliac artery perfusion from the aneurysm sac (B, arrow) and subtotal aneurysm sac thrombosis (C, asterisk).

Received September 18, 2020, Revised October 21, 2020, Accepted October 26, 2020, Published online November 19, 2020

Corresponding author: Daniele Bissacco, Vascular Surgery Unit, ASST Fatebenefratelli-Sacco, piazza Principessa Clotilde 3, Milan 20121, Italy
Tel: 39-02-6363-2400, Fax: 39-02-6363-2276, E-mail: danielbissaccodm@gmail.com, <https://orcid.org/0000-0003-0724-0237>

Copyright © 2020 The Korean Society for Vascular Surgery

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Vasc Specialist Int 2020;36(4):266-267 • <https://doi.org/10.5758/vsi.200059>

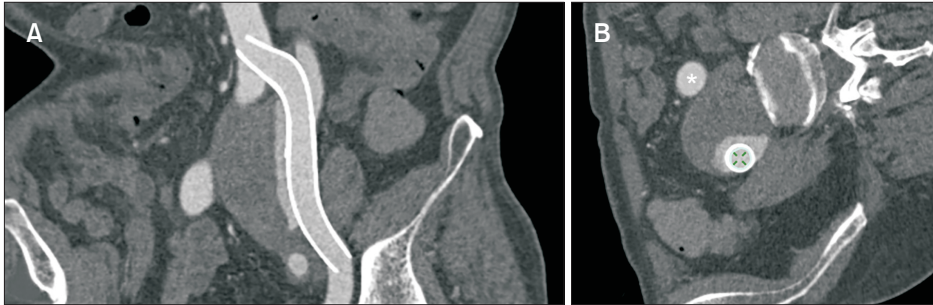


Fig. 2. Computed tomography cross-section images. (A) Graft position, (B) internal iliac artery (asterisk) and external iliac artery with endoleak.

Isnes, Belgium), that had been performed in another hospital. Computed tomography angiography (CTA) demonstrated slight shrinkage of the aneurysmal sac (54 mm×34 mm) and graft patency (Fig. 1), with contrast medium in the upper and medial graft regions (asterisk in Fig. 2B). Specifically, the contrast medium wrapped around the graft from the posterior side to the lower side, perfusing the internal iliac artery. CTA performed 3 years ago demonstrated slight shrinkage of the aneurysm sac and unmodified endoleak dimensions (56 mm×36 mm). Even at that time, the patient was not subjected to any interventional procedure.

The rationale behind utilizing multilayer stents is to create a reduction in flow velocity and turbulent flow within aneurysms, through multiple layers of braided cobalt to create sac thrombosis [1,2]. Contrarily, where patent vessel coverage occurs, they remain patent, supported by high

flow velocity and stent porosity. Patency may also be present in cases of vessels sprouting from the aneurysm sac [3]. We present a case of a multilayer stent positioned for a common iliac artery aneurysm. Aneurysm of iliac arteries may be treated using several techniques (e.g., open surgery, embolization and stent-grafting, iliac branch device), although endovascular procedures remain the gold standard [4]. Although multilayer stents have provided encouraging results in selected cases, their use in this case did not seem to be optimal. However, the stent porosity is responsible for internal iliac patency, and there was no aneurysm sac augmentation over a period of years. An endoleak was noted; however, it had no negative effects on the prognosis. In other words, the endoleak was relevant to branch circulation and irrelevant to aneurysm growth.

REFERENCES

- 1) Sfyroeras GS, Dalainas I, Giannakopoulos TG, Antonopoulos K, Kakisis JD, Liapis CD. Flow-diverting stents for the treatment of arterial aneurysms. *J Vasc Surg* 2012;56:839-846.
- 2) Zhang YX, Lu QS, Jing ZP. Multilayer stents, a new progress in the endovascular treatment of aneurysms. *Chin Med J (Engl)* 2013;126:536-541.
- 3) Ke K, Zheng H, Yang W. Is multilayer bare stent safe or effective for the treatment of aortic aneurysms? A meta-analysis with early and mid-term outcomes. *Ann Vasc Surg* 2017;40:112-119.
- 4) Wanhainen A, Verzini F, Van Herzele I, Allaire E, Bown M, Cohnert T, et al. European Society for Vascular Surgery (ESVS) 2019 clinical practice guidelines on the management of abdominal aorto-iliac artery aneurysms. *Eur J Vasc Endovasc Surg* 2019;57:8-93.