Case Report

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# Use of Iliac Branch Device for Endovascular Treatment for Abdominal Aorta Aneurysm with Small Diameter Neck

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## Abstract

**We present the case of a 78-year-old woman with a 4.5-cm symptomatic abdominal aortic aneurysm with a small diameter (13-mm diameter) infrarenal aortic neck who underwent endovascular treatment using an iliac branch device as a bifurcated aortic stent-graft.**



## Key Words:

**Abdominal aorta aneurysm • Iliac branch device • Endovascular treatment • Elderly patients**

## Introduction

Abdominal aorta aneurysm (AAA) with a small diameter infrarenal aortic neck is a challenge for endovascular treatment, as it requires careful pre-treatment planning and familiarity with multiple devices.

## Case Presentation

A 78-year-old woman with a 4.5-cm symptomatic AAA was evaluated using multidetector computed tomography (Figure 1A). On post-processing measurement, the infrarenal aortic neck was 13 mm in diameter (Figure 1B), with a length from renal arteries to iliac bifurcation of 65.1 mm (Figure 1C). The patient was evaluated for endovascular aneurysm repair (EVAR). Due to the small diameter of the proximal neck and the short length of the abdominal aorta, we chose a Jotec E-iliac stent-graft system (proximal diameter, 16 mm; length of proximal stent from the contralateral left side branch, 65 mm) and a 10 × 57 mm Eventus covered stent as a left iliac limb.

With the patient under spinal anesthesia and with right femoral surgical accesses, the iliac branch device was introduced with its proximal stent below the left renal artery (Figure 2A) and deployed after abdominal aorta angiography. From percutaneous 7-F left femoral access, the left side branch was cannulated. Then, after angiographic confirmation, the covered stent was deployed. The proximal neck on both iliac limbs underwent molding-balloon dilatation. A final abdominal aorta angiogram confirmed correct positioning of the devices, complete exclusion of the AAA, and patency of renal arteries, abdominal aorta graft, and iliac arteries (Figure 2B). Clinical and imaging follow-up at 1 year demonstrated complete technical and clinical success (Figure 3).

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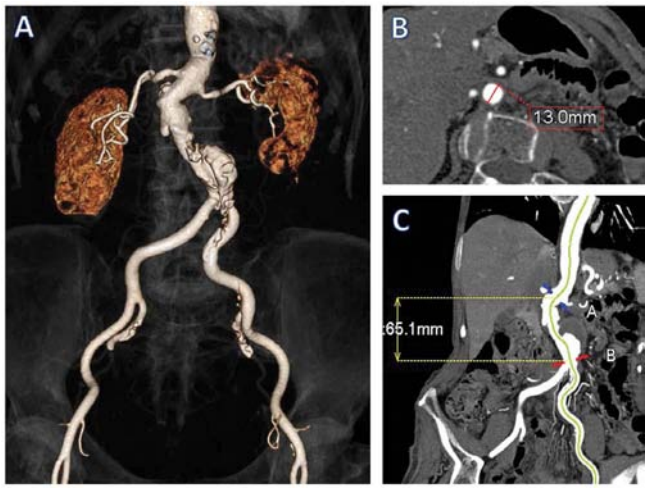


**Figure 1.** *Panel A*. Multidetector computed tomography coronal volume rendering technique demonstrating the abdominal aorta aneurysm lumen. *Panel B*. Infrarenal aortic neck 13 mm in diameter. *Panel C*. Length from renal arteries to iliac bifurcation of 65.1 mm.

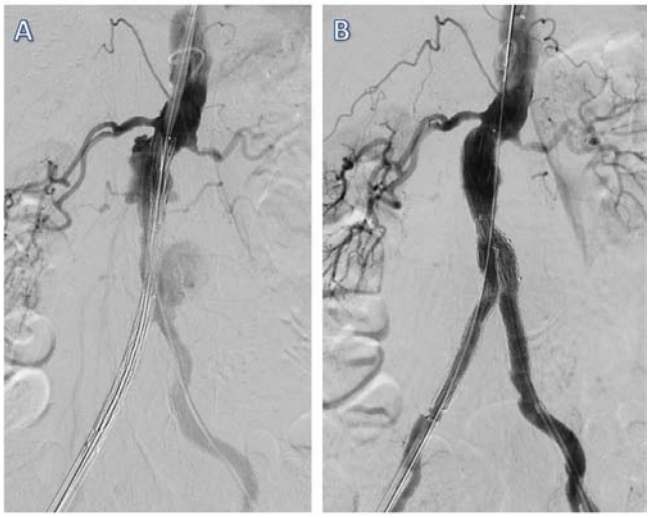


**Figure 2.** *Panel A*. Digital subtraction angiography of abdominal aorta with the iliac branch device with its proximal stent below the left renal artery. *Panel B*. Final digital subtraction angiography of the abdominal aorta confirming correct positioning of the devices.

## Discussion

Small diameter aorta neck and iliac vessels are one of the most common anatomic reasons for exclusion of AAA from EVAR [1], especially for elderly atherosclerotic patients. In these patients, other endovascular techniques have been performed, such as single EVAR limb and femoro-femoral cross-over bypass, double-barrel-covered stent, aorta-covered stent associated with double-barrel-covered stent for iliac arteries, and custom small EVAR.

To our knowledge, the treatment of AAA with small diameters using an iliac branch device as a bifurcated endoprosthesis is a new technique in the literature [2]. Endovascular appliances and techniques continue to evolve, permitting treatment of previously prohibitive anatomies [3].

**Figure 3**. Multidetector computed tomography coronal volume rendering technique at 1 year demonstrating abdominal aorta aneurysm exclusion with patency of the endograft.

## Conflict of Interest

The authors have no conflict of interest relevant to this publication.

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