Case Report

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Endovascular Treatment of Infrarenal Aortic Aneurism with Ovation Abdominal Stent Graft System

Ocke Reis PE[1,2], Santos LN[2], Nascimento MR[2], Sandri PA[2] and Ocke Reis IF[2]

1 Department of Specialized and General Surgery, Fluminense Federal University (UFF), Niterói, Rio de Janeiro, Brazil
2 Vascular Clinic Ocke Reis, Rio de Janeiro, Brazil

Corresponding author:
Paulo Eduardo Ocke Reis

vascular@pauloocke.com.br

Department of Specialized and General Surgery, Fluminense Federal University (UFF), Rua Visconde de Pirajá 414/1117, Ipanema, CEP 22410-002, Rio de Janeiro, Brazil.

Tel: +55 21 2629-5000

Abstract

Purpose: This case reports and describes an endovascular aneurysm repair treated with Ovation® abdominal stent graft system (Tri Vascular Inc, Santa Rosa, Calif).

A seventy-four-year-old male checked in at our hospital complaining of severe abdominal pain. On his physical exam and initial image study no gastro-intestinal anomalies were found that justified the complaint. The patient was then submitted to an abdominal-pelvic computed tomography angiography where was confirmed our previous conjecture of an infrarenal aortic aneurysm.

The patient was forwarded for endovascular treatment using endoprosthesis (current generation stent grafts) with an ultra-low-profile delivery system, with excellent conformability, and kink resistant iliac limbs. The patient's development following treatment was beyond expectations with radical clinical improvement and complete relief of symptoms. The results acquired in this case supports the viability an efficiency of abdominal aortic aneurysm endovascular treatment with the ovation stent graft system to treat a wide range of anatomies, especially in difficult anatomies, such as it is in this particular case.

Keywords: Abdominal aortic aneurysm; Endovascular aneurysm repair; Endovascular procedures; Aortic stent graft; Ovation

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Introduction

Abdominal aortic aneurysms (AAAs) are potentially life-threatening anomalies that usually remains asymptomatic until they expand, rupture or burst. At these last stated stages they may cause sudden, severe and constant lower back and abdominal pain. Endovascular aneurysm repair (EVAR) has revolutionized its treatment as well as all areas of the segment; and it is the most common and indicated treatment for AAAs, especially on elective settings [1-4].

Case Report

A seventy-four-year-old male checked in at our hospital complaining of severe abdominal pain. On his physical exam and initial image study, no gastro-intestinal anomalies were found that justified the complaint. The patient was then submitted to an abdominal-pelvic computed tomography angiography (CTA) where was confirmed our previous conjecture of an infrarenal aortic aneurysm with iliac arteries sharply tortuous with close loop and critical angulation **(Figure 1)**. Stands out on the images the following details to be attested for the accomplishment of the procedure; an aortic diameter of 24.4 mm under the lowest right renal artery and a juxtarenal angle of 30°. The aortic neck length with 35 mm, and the lowest renal to aortic bifurcation of 112 mm, iliac arteries diameter length, right and left respectively; 18×120 mm and 16×140 mm.

According to the measurements obtained with CTA we could assess the appropriate diameter and length of the stent graft to be used: one module, a main body of 29×80 mm, and two extensions for iliacs respectively right and left, ipsilateral to the main body 22×120 mm and 18×40 mm contralateral. The ovation stent graft was percutaneously implanted using a sheath 14-F outer diameter (O.D.) under general anesthesia, with total contrast of 65 ml along the procedure which lasted for 90 min, with bilateral femoral access. The endograft main body was introduced from the right side, with no specific reason (given that both iliac arteries were similarly tortuous and angled) then positioned and deployed.

The O-Rings creates a circumferential seal filled with radio-opaque polymer. Before filling stent graft with radio-opaque polymer one must be cautious to retract guidewire, then polymer will fill the body of stent graft slowly. In our next step, we confirmed measurements of iliacs extensions using a marker catheter before its release. The final arteriography studies confirmed immediate radiological success of the implanted stent graft with total absence of endoleak. The patient showed clinical improvement right away on postoperative period and he was discharged in 24 h. He was oriented for outpatient return for a follow up and prescribed acetylsalicylic acid (ASA) daily. After one month, we followed with a routine CTA that confirmed the successfulness of surgery showing neither signs of endoleaks nor any undesirable alteration **(Figures 2 and 3)**.

Discussion

Advances in medical technology and new generation endoluminal stent grafts are attractive options to treat demanding anatomies [5]. In the presented case we have chosen the Ovation endograft to prevent eventual complications to the iliacs arteries in regard to the challenge encountered from the tortuosity and critical angulation of the bilateral iliac artery. Ovation stent graft system allows access in arteries with very low diameters, therefore, in narrow iliacs arteries, also minimizes vessel trauma due to its

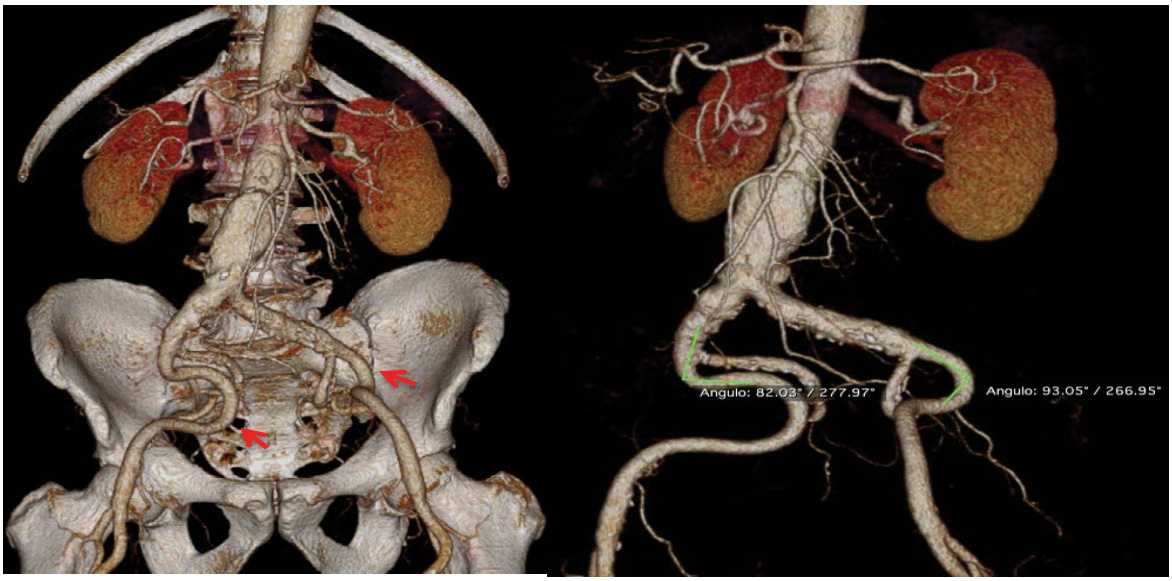

Figure 1 A mid-infrarenal aortic aneurism, iliac arteries with closed loop and angulation (red arrows).

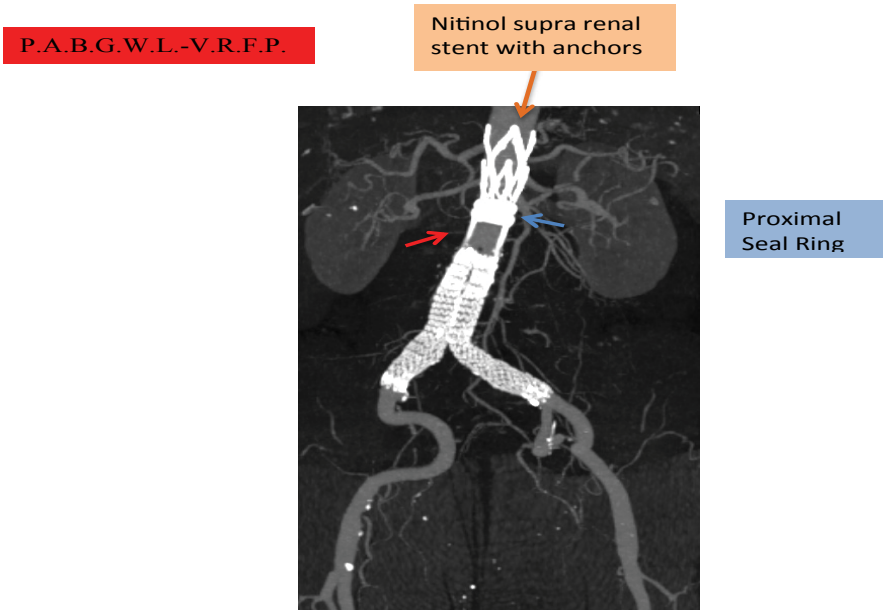

Figure 2 Maximum intensity projection (MIP) reconstruction of the CTA after deployment demonstrated ptfe aortic body graft with low-viscosity radiopaque fill polymer (PABGWL-VRFP- red arrow), proximal seal ring (HA- blue arrow), nitinol supra renal fixation (orange arrow) and bilateral nitinol and ptfe iliac stent graft.

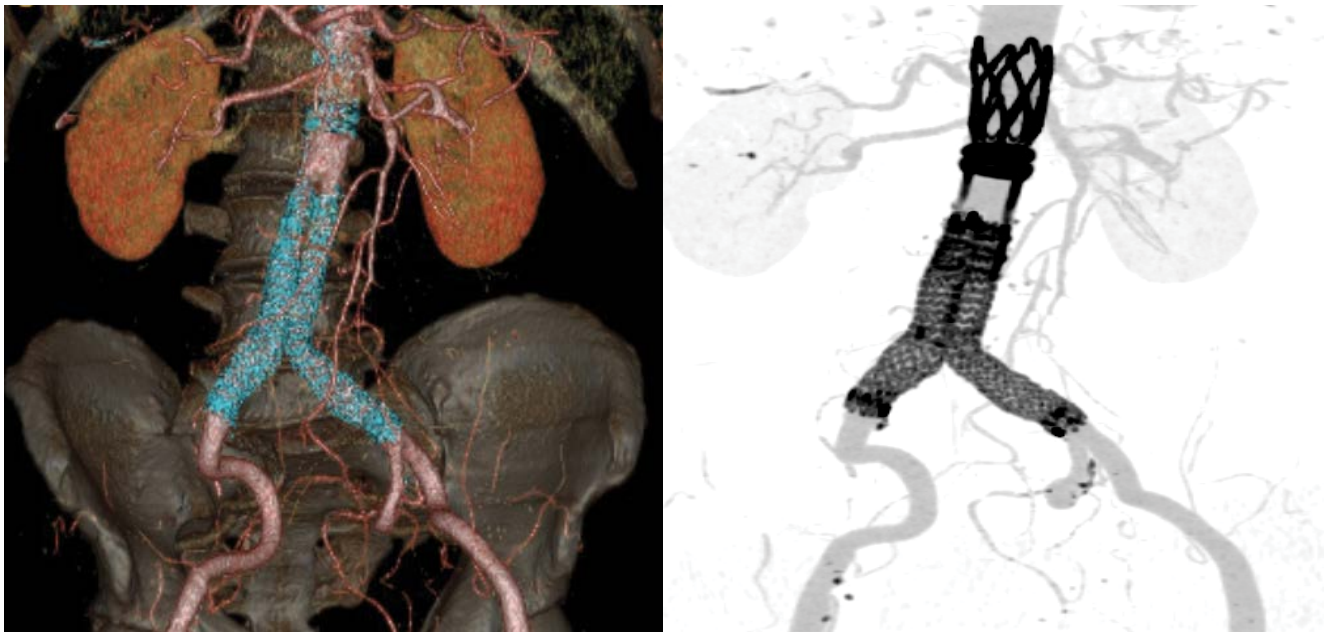

Figure 3 CTA and reverse MIP demonstrated an Ovation abdominal stent graft endoprosthesis, appropriately placed in the infrarenal aortoiliac anatomy demonstrating the final result and radiological success.

ultra-low profile flexible 14-F OD system, additionally enhancing deliverability. Authors published that less than 2% of patients that undergo this procedure with the ovation stent grafts, with in a studied period of a year, was required because iliac limb stenosis or occlusions [6].

Ovation is definitely a device that should surpass the limitations of other prosthesis currently available and is to be considered especially on unusual anatomies eventually found on preoperative studies that will define the planning and conduction to follow. There are significant benefits on the two most important issues of EVAR: access and sealing [6-8].

The mechanism O-Ring circumferential seal allows sealing in infrarenal necks as short as 7 mm, which makes this device ideal to treat aneurysms with aortic neck <10 mm [7-10]. The infra renal neck in our patient was >10 mm and was not challenging in this specific case. Since it was our first experience with ovation device, we chose general anesthesia; however we agreed upon the reading that could be advantageous the use of local anesthesia; being that is a percutaneous procedure [5,7].

Conclusion

The clinical and immediate radiological success of this case suggests that Ovation abdominal stent graft is a promissory option for treatment of abdominal aortic aneurysm with challenging anatomy.

References

1 Criado FJ (2010) EVAR at 20: The unfolding of a revolutionary new technique that changed everything. J Endovasc Ther 17: 789–796.

2 Paravastu SC, Jayarajasingam R, Cottam R (2014) Endovascular repair of abdominal aortic aneurysm. Cochrane Database Syst Rev 1: CD004178.

3 Lovegrove RE, Javid M, Magee TR (2008) A meta - analysis of 21,178 patients undergoing open or endovascular repair of abdominal aortic aneurysm. Br J Surg 95: 677-684.

4 Greenhalgh RM (2007) Commentary: Impact of EVAR and DREAM trials on clinical practice. J Endovasc Ther 14: 541–543 .

5 Ioannou CV, Tsetis DK (2016) Going beyond Current AAA Neck Angulation Limitations of the Ovation Ultra-low Profile Polymer-filled Stent Graft. Eur J Vasc Endovasc Surg 52: 172.

6 Mehta M, Valdés FE, Nolte T (2014) A Pivotal Clinical Study to Evaluate the Safety and Effectiveness of the Ovation Abdominal Stent Graft System Investigators. One-year outcomes from an international study of the Ovation abdominal stent graft system for endovascular aneurysm repair. J Vasc Surg 59: 65-73.

7 Ierardi AM, Tsetis D, Ioannou C (2015) Ultra-low profile polymer-filled stent graft for abdominal aortic aneurysm treatment: a two-year follow-up. Radiol Med 120: 542-548.

8 Ioannou CV, Kontopodis N, Kehagias E, Papaioannou A, Kafetzakis A, et al. (2015) Endovascular aneurysm repair with the Ovation TriVascular Stent Graft System utilizing a predominantly percutaneous approach under local anaesthesia. Br J Radiol 88: 20140735.

9 Moulakakis KG, Dalainas I, Kakisis J, Giannakopoulos TG, Liapis CD (2012) Current knowledge on EVAR with the ultra-low profile Ovation Abdominal Stent-graft System. J Cardiovasc Surg 53: 427-432.

10 de Donato G, Setacci F, Sirignano P, Galzerano G, Borrelli MP, et al. (2014) Ultra-low profile Ovation device: is it the definitive solution for EVAR? J Cardiovasc Surg 55: 33-40 .