OPEN ACCESS

GAVIN PUBLISHERS

Annals of Case Reports

Scudieri E, et al. Ann Case Rep: ACRT-162.

Case Report

DOI: 10.29011/2574-7754/100062

Endovascular Solution of a Post-Operative Iliofemoral Pseudo-Aneurysm: Case Report

E. Scudieri[1*], R. Adornetto[1], E. Orlandelli[1], A. Disabato[1], V. Dorrucci[2]

[1]Department of Vascular Surgery, Ospedale dell'Angelo, Mestre-Venezia, Italy

[2]Chairman of Cardio-Thoracic- Vascular Surgery Department, Ospedale dell'Angelo, Mestre-Venezia, Italy

[*]**Corresponding author:** Eliodoro Scudieri, Department of Vascular Surgery, Ospedale dell'Angelo, Mestre-Venezia, Italy. Tel: + 39419657257; Email: eliodoro.scudieri@aulss3.veneto.it

Citation: Scudieri E, Adornetto R, Orlandelli E, Disabato A, Dorrucci V (2018) Endovascular Solution of a Post-Operative Iliofemoral Pseudo-Aneurysm: Case Report. Ann Case Rep: ACRT-162. DOI: 10.29011/2574-7754/100062

Received Date: 15 February, 2018; **Accepted Date:** 08 March, 2018; **Published Date:** 16 March, 2018

Abstract

We describe a case of an 88-year-old female patient with several cardiovascular risk factors presented with diameter increase of the right iliofemoral pseudoaneurysm during the follow-up, after TEA of the CFA. DUS and CTA showed a large pseudoaneurysm (approximately 3 × 5 cm) at right thighs from distal external iliac artery with DFA connection. Because the severe comorbidity and the bilateral occlusion of the superficial femoral artery (SFA), the left percutaneous femoral path was undertaken following the cross-over technique. At the beginning two nithinol self-expanding stents and subsequently other endo-stents within the proximal portion of the deep femoral artery were implanted, with the successful exclusion of the pseudoaneurismatic sac. The endografts remain patent at 12 months with clear regression of the iliofemoral pseudoaneurysm. This case demonstrates that an endovascular approach can be an excellent treatment for aneurysms of the iliofemoral artery, thereby avoiding an open surgical procedure while preserving the patency of the deep femoral artery.

Introduction

The pseudoaneurysm can be determined on any site where there is an anastomosis between a prosthesis and ad arterial vessel, but the inguinal site is the most commonly encountered.

Despite the remarkable advances in recent years for of the reconstructive vascular surgery, with the related reduction in the complications of these interventions, the formation of false aneurysms in anastomosis of arterial prostheses still remains with a significant incidence of 4-6%, as described by Szilagyi [1].

About the etiology, already in the past, a great deal of importance has been attached to the suture materials used: in fact, a degeneration secondary to phagocytosis by monocytes due to the silk sutures has been highlighted. Silk abandonment in favor of synthetic material has greatly reduced the incidence of this complication [2]. The infection is undoubtedly one of the most important etiologic factors: bacterial proteases inactivate the arterial wall and cause collapse along the anastomotic line [3-4].

Although there are considerable changes in arterial prostheses, structural reactions still occur in them determined by a reaction of the organism, thus determining the easy overlap with chronic bacterial actions. Mechanical causes play an important etiological role in the failure of anastomosis: this is demonstrated by the greater inguinal incidence where there is an active joint, especially if the prosthesis is subjected to excessive tension. Even the stiffness of the prosthesis itself may require the arterial suture, but modern materials are, however, much more soft and elastic. Still among the mechanical factors, but not least, it must be considered a bad haemodynamic flow at anastomosis level [5]. However, the most important factor in the etiology of anastomotic pseudoaneurysm is the artery degeneration in which the prosthesis is sutured [6]. The treatment of the pseudoaneurysms is mainly surgical to avoid the risk of increase in volume up to the rupture and consequent hemorrhage. The frailty of some patients has a particular negative influence on the results of major elective surgery compared to minor surgery with a percentage of complications in major surgery close to 43.5% [7]. We report an 88-year-old female with several cardiovascular risk factors who presented with a right iliofemoral pseudoaneurysm (IFPA), found 1 year after femoral endarterectomy, complicated 4 months later from a fistulous cutaneous tract, negative at each microbiological examination.

Presentation of Case

Our patient is an 88-year-old female with significant cardiac comorbidity, diabetes mellitus, hypertension, dyslipidemia, presented with diameter increase of the right iliofemoral pseudoaneurysm during the follow-up, found 1 year after a femoral endarterectomy (bovin pericard patch) complicated 4 months later from a fistulous cutaneous tract.

Duplex Sonography (DUS) showed a large pseudoaneurysm (approximately 3 × 5 cm) at right thighs from distal external iliac artery with DFA connection; no clinical and laboratory signs of infection were detected by bacteriological culture.

Computer Tomographic Angiography (CTA) showed an iliac-femoral-pseudoaneurysm (IFPA) bilobed starting after a tight stenosis at the distal external iliac artery (EI) and about 6 cm to the deep femoral artery (DFA) origin.

Due to the severe comorbidity and the bilateral occlusion of the SFA, the left percutaneous femoral path was undertaken following the cross-over technique under local anesthesia (Figure 1), with prior deployment of two nitinol self-expanding stents 6mmx4cm and 6mmx6cm (Boston Scientific Innova™ Over-the-Wire Self-Expanding Stent System) for greater stabilization and the presence of tortuosity on the ileoprofunda axis, and then with subsequent use of two 6mmx10cm and 6mmx5cm peripheral endografts (Viabahn; W.L. Gore & Associates, Flagstaff, AZ) via the left limb into the proximal right deep femoral artery, with successful exclusion of the pseudoaneurysm (Figure 2). The endografts remain patent at 6 and 12 months at the ultrasound check, with regression noted in the pseudoaneurysm itself.

Arteriography

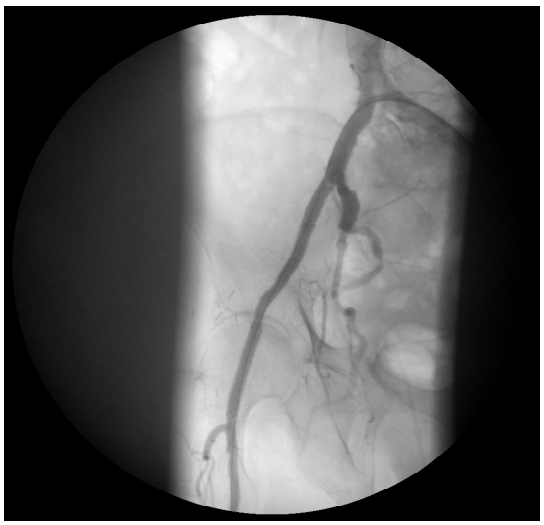

Figure 1: The left percutaneous femoral path was undertaken following the cross-over technique under local anesthesia.

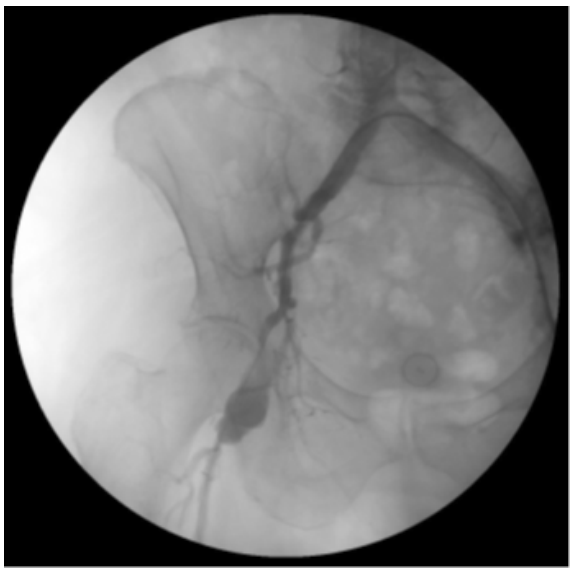

Figure 2: Successful exclusion of the pseudoaneurysm.

Discussion

Arterial reconstructions including primary suture closure or by-pass surgery with venous or prosthetic grafts may lead to a Para-Anastomotic Aneurysm (PAAs) as a late and rare but challenging complication [8]. As already mentioned, PAAs are often related to graft infection, but they may be caused by sterile degenerative processes [9]. They can have some life-threatening consequences, such as erosion of adjacent tissues, distal embolization from mural thrombus and rupture of the aneurysmal sac [10].

In recent studies the incidence of femoral aneurysms has been reported as 0.1-5% after groin procedures such as cardiac catheterization [11] and 1-10% after vascular reconstructions [12]. The etiology of the anastomotic aneurysms includes prosthetic graft infection, an ongoing previous dilatation process [13] or peripheral occlusive disorders [14].

In our case, femoral reconstruction (TEA) was sterile and by taking information from previous imaging studies, the growth of aneurysmatic sac was shown during the follow up.

The achievement of a greater support for the endografts (Viabahn; W.L. Gore & Associates, Flagstaff, AZ) due to the preliminary deployment of two nitinol self-expanding stents (Boston Scientific Innova™ Over-the-Wire Self-Expanding Stent System) associated with dilatation of upstream stenosis it was the goal of the procedure. One of the main reasons for using this type of peripheral endografts (GORE® VIABAHN®) in our case is because it effectively covers and seals off diseased tissue, enabling high potencies regardless of lesion length, as well as being made of nitinol, a flexible and very resistant metal especially at the flexions of the inguinal region.

During the procedure, we routinely used an intra-arterial bolus of 5,000 IU of unfractionated heparin which attenuates within one hour (dose that can be adjusted from 30 to 80 IU/kg depending on the patient's body weight).

The dual antiplatelet therapy, constituted from ASA in combination with clopidogrel or ticlopidine, used in most studies [15], was maintained for at least 3 months. We recommend ASA as a therapy periprocedural and maintenance therapy depending on the concomitant clinical condition of the patients.

Intravascular therapy using stent grafts is a highly effective choice for the treatment of the anastomotic aneurysms. However, it has some important limitations, such as aneurysms located in the close vicinity of major arterial orifices [16]. In this case, the orifice of the DFA was included in the aneurysmal segment.

This procedure demonstrates that an endovascular approach can be an excellent treatment for aneurysms of the iliofemoral artery, thereby avoiding an open surgical therapy while preserving the patency of the DFA.

The treatment of complications should be based on the least possible invasiveness, but at the same time, at maximum effectiveness, avoiding the complication of the complication, especially in elderly patients.

References

1. Szilagyi DE, Smith RF, Elliott JP (1975) Anastomotic aneurysms after vascular reconstruction: problems of incidence, etiology and treatment. Surgery 78: 800-816.
2. Moore WS, Hall AD (1970) Late suture failure in the pathogenesis of anastomotic false aneurysms. Am Surg 172: 1064-1068.
3. Agoitoglio G, Costantini S, Zanetta M, Castelli P (1979) Infections and anastomotic false aneurysms in recontructive vascular surgery. J Cardiov Surg 20: 25-32.
4. Nunn DB, Narasimha R, Andre R (1975) Anastomotic aneurysms. Am Surg 40: 281.
5. Malan E, Noseda G, Longo T (1969) Approach to fluid dynamic problems in reconstructive vascular surgery. Surgery 66: 994.
6. Hollier LH, Batson RC, Cohn I Jr (1980) Femoral anastomotic aneurysms. Ann S Aurg 191: 715-720.
7. Makary MA, Segev DL, Pronovost PJ, Syin D, Bandeen-Roche K, et al. (2010) Frailty as a predictor of Surgical Outcomes in older patients. J Am Coll Surg 210: 901-908.
8. Yuan J, Marin M, Veith F, Ohki T, Sanchez LA, et al. (1997) Endovascular grafts for noninfected aortoiliac anastomotic aneurysms. J Vasc Surg 26: 210-221.
9. Odero A, Arici V, Canale S (2004) [Proximal abdominal aortic aneurysms after infrarenal aortic reconstruction]. Ann Ital Chir 75: 211-221.
10. Mulder EJ, van Bockel JH, Maas J, van den Akker PJ, Hermans J (1998) Morbidity and mortality of reconstructive surgery of noninfected false aneurysms detected long after aortic prosthetic reconstruction. Arch Surg 133: 45-49.
11. Kim D, Orron DE, Skillman JJ, Kent KC, Porter DH, et al. (1992) Role of superficial femoral artery puncture in the development of pseudoaneurysm and arteriovenous fistula complicating percutaneous transfemoral cardiac catheterization. Cathet Cardiovasc Diagn 25: 91-97.
12. Agarwal BB, Gupta MK, Agarwal S, Mahajan KC (2008) Spontaneous rupture of iatrogenic (postinguinal herniorrhaphy) venovenous malformation managed endoscopically. J Laparoendosc Adv Surg Tech A 18: 80-83.
13. Pogorzelski R, Fiszer P, Toutounchi S, Krajewska E, Szostek MM, et al. (2013) Anastomotic aneurysms–20-years of experience from one center. Pol Przegl Chir 85: 181-191.
14. Giugliano G, Laurenzano E, Rengo C, De Rosa G, Brevetti L, et al. (2012) Abdominal aortic aneurysm in patients affected by intermittent claudication: prevalence and clinical predictors. BMC Surg 12: S17.
15. Altenburg A, Haage P (2012) Antiplatelet and anticoagulant drugs in interventional radiology. Cardiovasc Intervent Radiol 35: 30-42.
16. Verhoeven EL, Muhs BE, Zeebregts CJ, Tielliu IF, Prins TR, et al. (2007) Fenestrated and branched stent-grafting after previous surgery provides a good alternative to open redo surgery. Eur J Vasc Endovasc Surg 33: 84-90.