WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 13, Issue 2, 964-969. Case Study ISSN 2277–7105

LATE INFECTION OF ABDOMINAL AORTIC PROSTHESIS. CASE REPORT AND REVIEW

[1]Giovanna Piubelli Frioli, [1]Gabriela Rodrigues Sousa, [1]Mariana De Castro Pereira Padilha, [2]Henrique Amorim Santos, MD, [3]Fernando Reis Neto, MD and *[4]Jose Maria Pereira De Godoy, MD, PhD

[1]Student of Medicine School of Sao Jose Do Rio Preto-FAMERP-Brazil.
[2]Vascular Resident In Hospital De Base/Medicine School of Sao Jose Do Rio Preto-FAMERP-/FUNFARME-Brazil.
[3]Professor of Vascular Surgery Discipline In Hospital De Base/Medicine School In Sao Jose Do Rio Preto-Famerp / Funfarme –Brazil.
[4]Professor Adjunct of Cardiology Cardiovascular Surgery Department In Medicine School In Sao Jose Do Rio Preto-FAMERP; Head Vascular Surgery Discipline-FAMERP, Professor of The Undergraduate Medicine-Famerp and Cnpq (National Council For Research and Development), Brazil.

Article Received on
02 December 2023,

Revised on 23 Dec. 2023,
Accepted on 12 Jan. 2024

DOI: 10.20959/wjpr20242-30721

***Corresponding Author**

Jose Maria Pereira de Godoy, MD, PhD
Professor Adjunct of Cardiology Cardiovascular Surgery Department In Medicine School In Sao Jose Do Rio Preto-FAMERP; Head Vascular Surgery Discipline-FAMERP, Professor of The Undergraduate Medicine-Famerp And Cnpq (National Council For Research and Development), Brazil.

ABSTRACT

Infection of aortic prostheses and endoprostheses are challenges that lead to high mortality. The objective of the present study is to report the technical approach in the partial resection of an infected prosthesis in the abdominal aorta. We report the case of a 59-year-old patient, hypertensive and smoker, who sought the vascular surgery outpatient clinic in August 2019, presenting with pain in the lower limbs associated with paresthesia and necrosis in the toes for 3 months. She underwent aortobifemoral graft surgery, which was uneventful. In March 2023, she returned with the infected prosthesis and underwent surgery to resect the iliac portion of the prosthesis that was infected. She progressed during and post-operatively without signs of infection. The surgical option of the infected portion of the abdominal aortic prosthesis is a less aggressive alternative in the surgical approach to these patients.

KEYWORDS: Prostheses, endoprostheses, abdominal aorta, infection, treatment, surgery.

INTRODUCTION

Aorto-bifemoral bypass remains the gold standard for the treatment of aortoiliac occlusive disease in patients with advanced lesions, but it has significant associated morbidity and mortality.[1] Among the main etiologies for obstruction in this location, atherosclerotic plaques stand out, in addition to other aortoiliac obstructive diseases or previous aortic graft infections.[2-4]

Vascular graft/endograft infection is a rare but potentially fatal complication of cardiovascular surgery and remains a surgical challenge. Several different graft materials are available for the treatment of vascular graft/endograft infection, each with its own advantages and disadvantages.[2]

In a series of cases and literature review, it is reported that the most used therapy is surgical drainage with primary or secondary replacement of the graft with a different material. Percutaneous drainage has proven to be ineffective because it is inconclusive and has the potential to increase the risk of graft infection.[5] Prosthetic graft infection following open abdominal aorta and iliac artery reconstruction is fatal. However, because it is rare and often difficult to diagnose, robust evidence on its treatment and optimal management strategies is lacking. Partial removal of the infected graft may be an alternative in selected patients with limited extent of infection.[6] Study evaluating clinical treatment for prosthesis and endoprosthesis of infected aorta in 50 patients, of which 84% endoprosthesis detected survival in 30 days of 98%, in one year 88%, three years 79%. Of these, 48% were able to stop antibiotic treatment after a median of 16 months.[7]

Regarding diagnosis, antigranulocyte monoclonal antibody scintigraphy (anti-G mAb) provides postoperative images and differentiates between infection and general postoperative changes in areas of concern. It can be the only diagnostic test in suspected cases, assessment of therapeutic efficacy if they require long-term antibiotic treatment and assist in the decision to discontinue antibiotic therapy.[8] The objective of the present study is to report the surgical treatment of an endoprosthesis aortobifemoral.

CASE REPORT

We report the case of a 59-year-old patient, hypertensive and smoker, who sought the vascular surgery outpatient clinic in August 2019, presenting with pain in the lower limbs associated with paresthesia and necrosis in the toes for 3 months. She had previously been

diagnosed with arterial insufficiency in the lower limbs and was using acetylsalicylic acid and pentoxifylline. Physical examination of the limbs revealed the following findings: edema, non-palpable anterior and posterior tibial pulses, slow capillary perfusion, scaly lesions, non-fixed cyanosis, Ankle-Brachial Index (ABI) of 0.40 on both limbs and area. of dry necrosis in the distal phalanx of the hallux. Angiotomography was performed, which showed chronic occlusion of the infrarenal abdominal aorta, in addition to clinical treatment for peripheral arterial obstructive disease, resulting in an improvement in pain complaints and cyanosis in the lower limbs.

After evaluation, the patient underwent bifemoral aortograft surgery in August 2019. The procedure was uneventful, open surgery was performed with an estimated bleeding of 500 mL, and aortobifemoral bypass was performed with a Dacron 14x7 Hemashield prosthesis with Prolene. 3-0. After the procedure, the patient evolved uneventfully, with a surgical scar in good condition, without significant bleeding and with a palpable anterior tibial pulse in the lower limbs bilaterally.

In March 2023, the patient returns for an outpatient appointment having chronically developed occlusion of the left branch of the prosthesis, presenting, for a year, with a purulent vesicle adjacent to the left inguinotomy scar with the formation of a chronic fistulous path. She attended previous consultations at other services, and several antibiotic treatments were performed without success. She was on continuous use of Simvastatin, Acetylsalicylic Acid and Cilostazol, having stopped smoking 3 years ago, in the month of the bifemoral aortograft surgery. The patient was admitted to an infirmary bed, and Tazocin and Vancomycin were started. During the following days, she continued to see purulent secretion from the left inguinal region, denying other complaints.

After evaluation, it was decided to perform exploratory laparotomy surgery with resection of the left leg using a Dacron prosthesis from the previous bifemoral graft and insertion of a new left iliac-femoral graft with tunneling through the left obturator foramen.

The surgical procedure was uneventful and the patient was sent to the ICU with a suction drain (positioned through inguinotomy and introduced into the abdominal cavity) and using antibiotics, presenting a palpable femoral, popliteal and posterior tibial pulse on physical examination of the left lower limb, ABI of 1.0, without cyanosis, coldness and trophic

lesions. She progressed well, being discharged from hospital 6 days after the procedure and is doing well post-operatively with no signs suggestive of infection.

DISCUSSION

The present study reports the surgical treatment in the treatment of aotobifemoral endoprosthesis infection. The infection was in the iliofemoral portion, which was partially resected and reconstructed using another route. The literature reports high mortality in the treatment of these infections and one of the possibilities is the partial removal of the endoprosthesis from the infected portion and replaced by another.[6] Most of the medical literature has approached these patients surgically, however[1-5], a study suggests the possibility of clinical treatment with good results.[7] Despite all the therapeutic developments over the years, these complications continue to be challenges in both therapeutic choice and approach.

Faced with this entire challenge, the alert regarding preventive aspects related to predisposing factors for graft infection, which include both risk factors for infections in general, such as chronic kidney disease, diabetes and immunosuppression; as well as factors more specifically related to abdominal aortograft infection, including congenital aortic coarctation and previous abdominal surgeries.

The pathophysiology of infection is supported by the colonization of microorganisms during or shortly after surgery, but it can also occur in the long term, through colonization of a thrombus or, even, through propagation of a primary infection in another focal site (e.g. dental infection and intestinal translocation). The gold standard for diagnosis is CT angiography and the first choice of treatment is still surgical re-approach with in-sit reconstruction. The importance of early diagnosis of this complication is highlighted, which, however, can be hampered by the non-specific clinical presentation of the condition. However, in these years diagnosis using scintigraphy of antigranulocyte monoclonal antibodies (anti-G mAb) emerged, which has become the best option at the moment and can provide more accurate information.

Surgical treatment of aortic prostheses is one of the most suggested options in the literature, however technical and more precise details must be considered, such as the partial resection of the prosthesis performed in this study.

Conflict Interest and financial support

The authors declared no have financial support and conflict interest.

REFERENCES

1. Maldonado TS, Westin GG, Jazaeri O, Mewissen M, Reijnen MM, Dwivedi AJ, Garrett HE Jr, Dias Perera A, Shimshak T, Mantese V, Smolock CJ, Arthurs ZM. Treatment of Aortoiliac Occlusive Disease with the Endologix AFX Unibody Endograft. Eur J Vasc Endovasc Surg, 2016 Jul; 52(1): 64-74. doi: 10.1016/j.ejvs.2016.04.003. Epub 2016 May 6. PMID: 27162000.
2. Liesker DJ, Gareb B, Speijers MJ, van der Vorst JR, Salemans PB, Tutein Nolthenius RP, Zeebregts CJ, Saleem BR. Use of Omniflow® II Biosynthetic Graft for the Treatment of Vascular Graft and Endograft Infections. Ann Vasc Surg, 2023 Nov; 97: 410-418. doi: 10.1016/j.avsg.2023.05.020. Epub 2023 May 25. PMID: 37244480.
3. Antonello RM, D'Oria M, Cavallaro M, Dore F, Cova MA, Ricciardi MC, Comar M, Campisciano G, Lepidi S, De Martino RR, Chiarandini S, Luzzati R, Di Bella S. Management of abdominal aortic prosthetic graft and endograft infections. A multidisciplinary update. J Infect Chemother, 2019 Sep; 25(9): 669-680. doi: 10.1016/j.jiac.2019.05.013. Epub 2019 Jun 7. PMID: 31182331.
4. Janczak D, Bakowski W, Bakowska K, Marschollek K, Marschollek P, Malinowski M, Chabowski M, Chabowski M. Early Complications in Patients Undergoing Elective Open Surgery for Infrarenal Aortic Aneurysms. J Coll Physicians Surg Pak, 2019 Nov; 29(11): 1078-1082. doi: 10.29271/jcpsp.2019.11.1078. PMID: 31659966.
5. Bissacco D, Domanin M, Romagnoli S, Gabrielli L. Perigraft Seroma after Extra-anatomic Bypass: Case Series and Review of the Literature. Ann Vasc Surg, 2017 Oct; 44: 451-458. doi: 10.1016/j.avsg.2017.03.201. Epub 2017 May 6. PMID: 28483618.
6. Hosaka A, Kumamaru H, Usune S, Miyata H, Goto H. Surgical Repair of Abdominal Aorto-Iliac Prosthetic Graft Infections: A Nationwide Japanese Cohort Study. Eur J Vasc Endovasc Surg, 2023 Sep; 66(3): 407-416. doi: 10.1016/j.ejvs.2023.06.034. Epub 2023 Jun 28. PMID: 37391011.
7. Ljungquist O, Haidl S, Dias N, Sonesson B, Sörelius K, Trägårdh E, Ahl J. Conservative Management First Strategy in Aortic Vascular Graft and Endograft Infections. Eur J Vasc Endovasc Surg, 2023 Jun; 65(6): 896-904. doi: 10.1016/j.ejvs.2023.03.003. Epub 2023 Mar 13. PMID: 36921753.

8. Daryapeyma A, Pettersson J, Blohmé L, Franzen Röhl E, Bartholdson E, Waldén M, Hultgren R. The Role of Antigranulocyte Scintigraphy in Diagnosis of Aortic Graft Infection and Evaluation of Treatment Outcome. Ann Vasc Surg, 2023 Aug 2; S0890-5096(23)00511-3. doi:10.1016/j.avsg.2023.06.032. Epub ahead of print. PMID: 37536433.