CASE REPORT

A case report of an endovascular treatment of secondary aortoenteric fistula

Relato de caso de tratamento endovascular de fistula aorto-entérica secundária

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Abstract

Traditional treatment of secondary aortoenteric fistula is based on open surgery followed by device removal, aortic debridement, and extra-anatomic or in situ by-pass when no signs of local infection are found. Recently, some authors have been advocating endovascular treatment in unstable and high-risk patients. We present a case report of a patient who underwent initial endovascular treatment of a secondary aortoenteric fistula.

Keywords: aneurysm; vascular grafting; digestive system fistula; endovascular procedures.

Resumo

O tratamento tradicional da fistula aorto-entérica secundária baseia-se na retirada cirúrgica da prótese, desbridamento aórtico, enxerto extra-anatômico, ou in situ, nos casos em que o campo cirúrgico apresenta-se sem sinais de infecção. Recentemente, alguns autores vêm preconizando o tratamento endovascular em pacientes instáveis e com alto risco cirúrgico. Apresentamos um relato de caso de paciente portador de fistula aorto-entérica secundária tratado inicialmente por via endovascular.

Palavras-chave: aneurisma; enxerto vascular; fistula do sistema digestório; procedimentos endovasculares.

Introduction

Secondary aortoenteric fistula is an uncommon, but very serious complication, which may occur after aortic surgery. It occurs in 0.3 to 2.5% of surgical cases and less frequently after endovascular surgery. It is defined as an abnormal communication between the prosthesis and the digestive tube, and it may occur in any of its segments, being more common in the duodenum. Clinical presentation involves gastrointestinal bleeding in 70%, sepsis in 16% or both conditions in 14% of cases¹²

The most commonly used diagnostic methods are computed tomography, esophagogastroduodenoscopy and arteriography. Although the techniques applied are widely mastered, a large number of patients progress to death (35-75%)³. Thus, endovascular treatment has emerged as an alternative, especially in patients who present with hemodynamic instability. The aim of our study was to report a case of secondary aortoenteric fistula treated in

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Financial support: none
Conflict of interest: nothing to declare
Submitted on: 25.01.12. Accepted on: 21.06.12.

J Vasc Bras. 2012;11(3):236-239
our service and to perform a review of the limited existing literature comparing surgical and endovascular treatments.

Case report

Male patient, 66 years old, healthy, and very active, manifested a history of hematochezia and had blood stools after a week. He had a history of an aorto-biiliac Dacron graft due to an aorta aneurysm 11 years ago. The patient was in preparation to undergo endovascular repair of a left iliac anastomotic pseudoaneurysm. He did not report any other vascular complaints. He had history of hypertension, diabetes mellitus, dyslipidemia and former smoking. On physical examination, the patient was in good general condition, slightly pale, and afebrile. The patient demonstrated a palpable and painful abdominal mass, with no signs of peritonitis. At vascular examination, he presented palpable pulses, except the post-popliteal, which were decreased in amplitude. Laboratory tests revealed hemoglobin of 9.8 g/100 mL and hematocrit of 28%. The patient presented 12,000/mm$^3$ leukocytosis without left shift. Coagulation profile, urea, creatinine, sodium, potassium, and liver enzymes were normal.

The patient underwent another emergency tomoangiography, with arterial and venous phase when, besides the voluminous pseudoaneurysm already seen in the left iliac anastomosis, an image suggestive of bleeding and retossigmoid infection was identified, (Figure 1). Right after the exam, the patient presented profuse bleeding and severe drop in blood pressure. Our first diagnostic hypothesis was rupture of the pseudoaneurysm. As he presented unfavorable conditions for conventional open surgery, the patient was referred immediately to endovascular treatment. Infection and sigmoid lesion would be treated afterwards, when the patient had a more stable condition.

The patient underwent general anesthesia and was maintained at permissive hypotension. Both femorals were immediately dissected and punctured under direct visualization. A Gore Excluder $23 \times 120 \times 10$ stent was implanted without technical difficulties, since the anatomy was favorable for the procedure. (Figure 2).

The patient remained in the intensive care unit for 72 hours. After a week under observation, already in the ward, period in which he remained clinically and hematologically stable, the patient presented bleeding again, this time in small quantity and without hemodynamic effects. We chose to perform immediate exploratory laparotomy because, in our opinion, this new bleeding episode, associated with radiological signs of infection, put the patient at risk for new profuse and fatal bleeding. During the surgery, we detected the presence of gross contamination by stools on the site of the pseudoaneurysm and enteric fistula. We opted for performing clamping of the aorta and iliac arteries, removal of surgical and endovascular prostheses, wide debridement of necrotic and infected tissue, and washing abdominal cavity. Loop colostomy was also performed to allow subsequent correction and axillary bifemoral graft. The patient evolved with refractory hemodynamic instability as a result of the clinical measures adopted, and death one day after surgery.
Discussion

Currently, the vast majority of patients with secondary aortoenteric fistula is treated by immediate surgical removal of the prosthesis, or stent, debridement of necrotic and infectious material, aortic suturing and clamping, and extra-anatomic, or in situ graft, with rifampicin-impregnated prosthesis, or, less commonly, with deep venous system autogenous vein. These prolonged proceedings are associated with very high rates of morbidity and mortality.\(^1,2\)

Endovascular treatment has demonstrated to be a viable treatment option, associated to minor trauma and shorter surgical time, less need for blood transfusion and lower rates of morbidity and mortality. However, this procedure is rarely performed, poorly described, and there are no randomized studies or controlled series that verified the real clinical benefit of this kind of measure.\(^3\)

In the clinical case hereby presented, despite the initial stability, the patient evolved with hemorrhagic shock during hospitalization, which was promptly reversed with the emergency implantation of a bifurcated stent, which stopped the bleeding and allowed hemodynamic stabilization. This type of treatment involves less blood loss, so it was important for the initial clinical success of this patient. In the second surgery, we detected the presence of gross infection of the prosthesis, which is why it was necessary to remove them and perform a complex and time-consuming surgery. Some authors, in the absence of sepsis, support endovascular treatment associated with prolonged antibiotic therapy and clinical follow-up,\(^4,5\) which was not possible in our case due to the presence of gross infection. The reconstruction of the intestinal tract, cleaning and debridement of the necrotic tissue seem to improve results.\(^5,6\)

Literature data indicate that, despite favorable initial results obtained with endovascular treatment, there may be recurrence of infection and bleeding. This unfavorable trend seems to affect primarily those patients with sepsis in initial presentation.\(^5,7\) In our case, although there was no sepsis as initial presentation, during the laparotomy performed after the second episode of bleeding, we could verify the presence of gross infection, including the presence of fecal content.\(^8\)

Kakkos et al. recently published a meta-analysis of the results obtained with endovascular treatment: in 59 cases described in literature, there was technical success in 93% and mortality after 30 days of follow-up in 8.5%. At late follow-up, 10 (19%) patients evolved with recurrent bleeding. Seventeen (32%) patients developed sepsis, and were clinically treated in 8 cases (7 successfully). Patients who had reconstruction of the intestinal tract evolved with lower recurrence rates (p=0.022). Mortality after 12 and 24 months of follow-up was of 15% and 19%, respectively, significantly worse when there was recurrence of bleeding (p=0.001). Prognosis was worse in the presence of preoperative sepsis, fistula with the large intestine, conventional surgical repair, no surgical correction of the digestive tract and fistula recurrence. The authors concluded that endovascular treatment presented acceptable results in the short and long terms and, currently, a lower mortality than that obtained with conventional surgical treatment.\(^9\)

There are few studies, no definitions and no consensus about which patients should be subjected to both methods of treatment. The hemorrhage caused by aortoenteric fistula, associated with sepsis or not, is always a catastrophic event, and in unstable patients the conventional surgical procedure is associated with very high mortality rates.

We conclude that the treatment of the secondary aortoenteric fistula may represent an initial alternative to conventional surgical treatment in patients without clinical and operator signs of sepsis and severe infection, especially in unstable patients and with high risk for surgery.

References


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Statistical analysis: NSA
Overall responsibility: FHR
Financial disclosure: FAJ

*All authors have read and approved the final version submitted to J Vasc Bras.