CASE REPORT

Aorto-enteric secondary fistula, an uncommon complication

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An aorto-enteric fistula is defined as the communication between the aorta and an intestinal loop, representing a mortality of up to 90%. They can be primary as a result of aortic or digestive tract pathologies and secondary to predisposing factors, including vascular prostheses. We present herein the surgical management of a 67-year-old male patient with an aorto-enteric fistula, undergoing corrective surgery with a favorable short and long-term evolution.

Key words: **Aorto-enteric fistula; Hemorrhage; Vascular prostheses.**

Una fístula aorto-entérica se define como la comunicación entre la aorta y una asa intestinal; representando una mortalidad hasta del 90%. Pueden ser primarias a consecuencia de patologías aórticas o del tubo digestivo y secundarias a factores predisponentes, entre ellas las prótesis vasculares. Presentamos el manejo quirúrgico de un paciente masculino de 67 años de edad, con una fístula aorto-entérica, sometido a cirugía de corrección con una evolución favorable a corto y largo plazo.

Palabras clave: **Fístula aorto-entérica; Hemorragia; Prótesis vasculares.**

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An aorto-enteric fistula is defined as a pathological communication between the aorta and an intestinal loop [1-4], classified as primary when it is a consequence of conditions in the aorta (aneurysms) or in the digestive tract (inflammatory processes); and secondary, those in which predisposing factors are found as procedures of reconstruction of abdominal aorta (vascular substitutions) and very rarely by foreign bodies in the digestive tract [3,4].

The first case of an aorto-enteric fistula was made by Sir Ashley Cooper in 1817 [4,5,6]. On the other hand, Brock described in 1953 the secondary aorto-enteric fistulas (SAEF). However, it was until 1957 where he successfully operated the first case by Heberer [4,5,7]; being in the majority of the cases reported the association to large aneurysms of the abdominal aorta that compress the intestine.

The classic clinical presentation, characterized by the following triad: abdominal pain irradiated to the lumbar region, pulsatile abdominal tumor and intestinal bleeding; it occurs in less than 20% of patients [1,2]. The risk factors for primary fistulas are atherosclerotic disease and inflammatory aortitis (collagen diseases, syphilis, etc.) and for secondary ones we have: abdominal aortic aneurysm surgery with prosthesis, radiotherapy in the aorta, infected aortic prosthesis, disease gastrointestinal (diverticula, biliary lithiasis, pancreatitis and peptic ulcer), tumor invasion, trauma and perforation by a foreign body [1,2-4].

The surgical resolution of SAEF requires the surgeon to be trained in several topics of surgery such as vascular repair, intestinal resections, vascular and enteric anastomosis, anticoagulation, vascular prosthesis behavior, among others. The optimal management of patients with SAEF is controversial, so we present the following case in which graft replacement was performed with good long-term outcome.

CASE REPORT

We present a 67-year-old male patient, with a history of sedentary lifestyle, smoking and surgical correction 16 months ago of a broken abdominal aneurysm with placement of a Dacrón® bifurcated prosthesis. He was referred to our institution for presenting fever, pain and edema in the left pelvic limb; with findings in abdominal retroperitoneal gas CT (**Fig. 1**). On physical examination the chest without alterations, abdomen without data of peritoneal irritation and the

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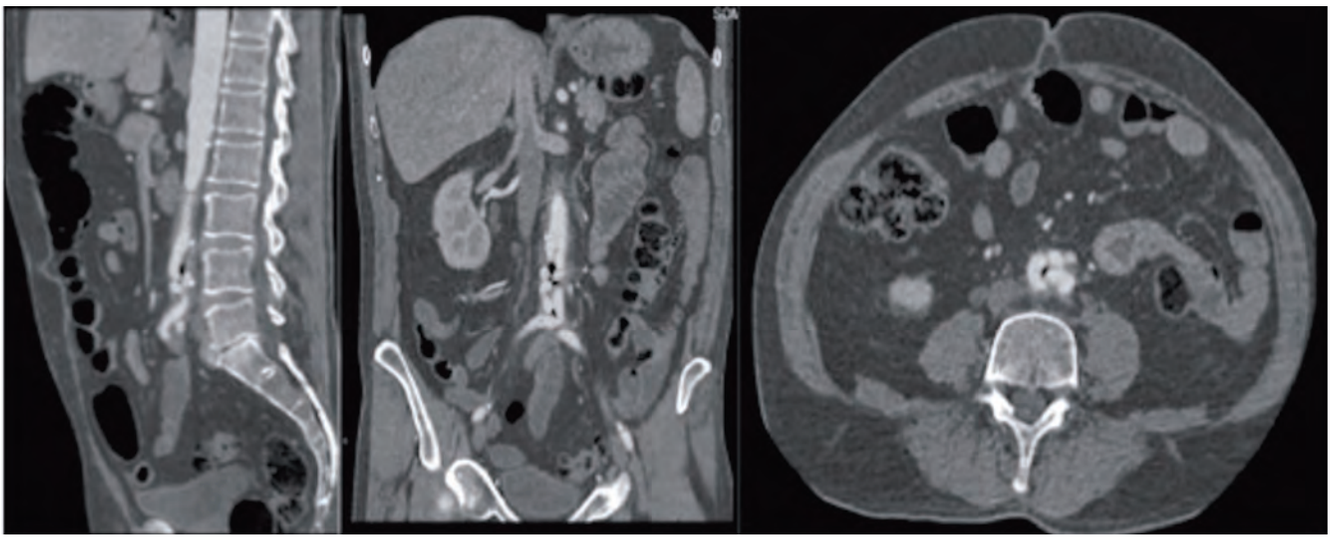

Figure 1. Abdominal CT shows aortic endoluminal gas in the region of vascular prosthesis.

left pelvic limb with edema, erythema, local temperature increase, decreased pulses, with pain to active and passive limb mobilization and signs of Hommans and Ollow positive. It is complemented with an angiotomography that reported liquid and gas adjacent to the aortoiliac bifurcation with intestinal handles in direct contact, without evidence of passage of contrast to the intestinal lumen, suggesting infected prostheses.

We decided the surgical approach by supra-infra umbilical midline, we accessed the abdominal cavity, after lysis of adhesions we dissected until we identified graft where we drained abundant purulent fluid. We identified the proximal anastomosis and the distal anastomoses by finding a redundant prosthesis, thus the left part conditioned the erosion and inclusion of the prosthesis on the antimesenteric edge of the distal ileum approximately 50 cm from the ileocecal valve (**Fig. 2**). We performed the resection of the compromised intestinal segment, with approximately 8 cm; subsequently we made a terminal-terminal anastomosis with Connell-Mayo stitch using 3-0 USP polyglactin and then reinforce the anastomosis with simple Lembert stitches with 3-0 USP silk. We pinch the infrarenal abdominal aorta and both common iliac arteries, dismantle the previous anastomosis and place a new bifurcated Dacrón® graft of 16 mm x 8 mm, check hemostasis and then place a 15 cm x 6 cm Goretex® patch corroborating the isolation of the graft with the intestinal handles (**Fig. 3**) Finally, we close the mesenteric gap and place a closed Jackson Pratt-type drain on the right parietocholic slide and the pelvic hollow, to close in a conventional manner.

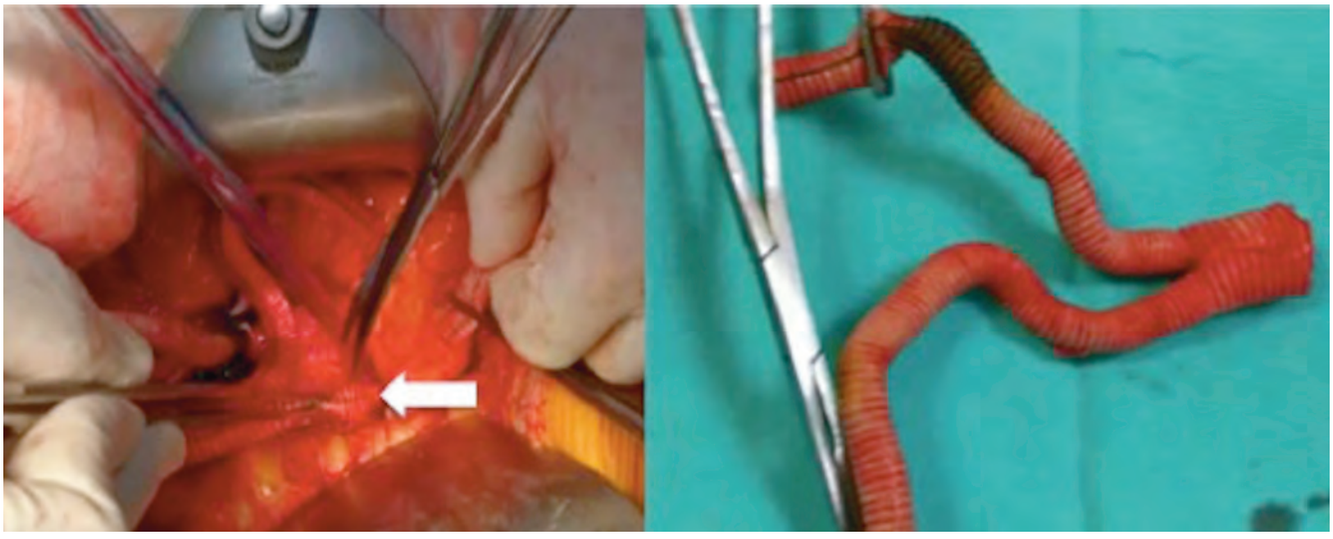

Figure 2. Previous graft included to the intestinal ileum. Externalized prosthesis.

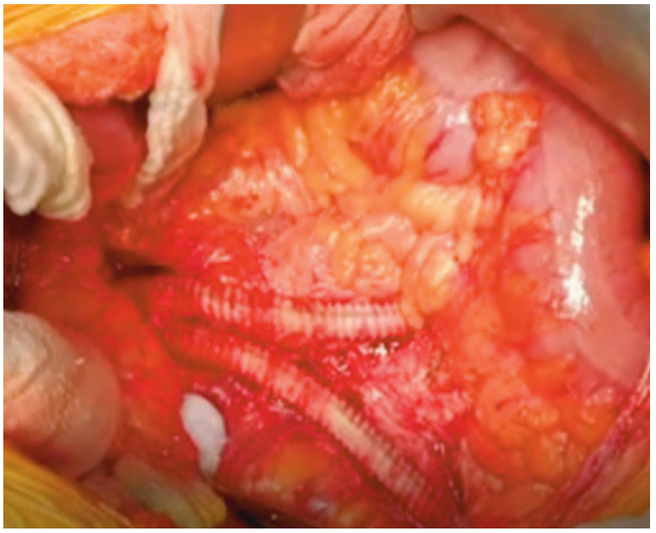

Figure 3. View at 30 cm with new anastomosis and graft located.

The patient was transferred to the intensive care unit where mechanical ventilation was progressed early and beginning the enteral diet 4 days after the surgical procedure. Extensive antibiotic coverage was required for positive cultures for Candida albicans, Escherichia coli and Enterobacter cloacae, in addition to evidence in the nuclear medicine study suggestive data of osteomyelitis and septic embolism in the lower left limb. Upon compliance with the antibiotic scheme, he was discharged with Voriconazol® for 6 months.

Currently the patient remains asymptomatic, and with its controls by external consultation (**Fig. 4**).

COMMENT

The advances achieved by important surgeons such as Carrel, Voorhees, Blackmore, Edwards, De Bakey, Cooley and Crawford, over the past century in the field of vascular anastomosis, have allowed synthetic vascular techniques and prostheses to be available today. of adequate quality, which

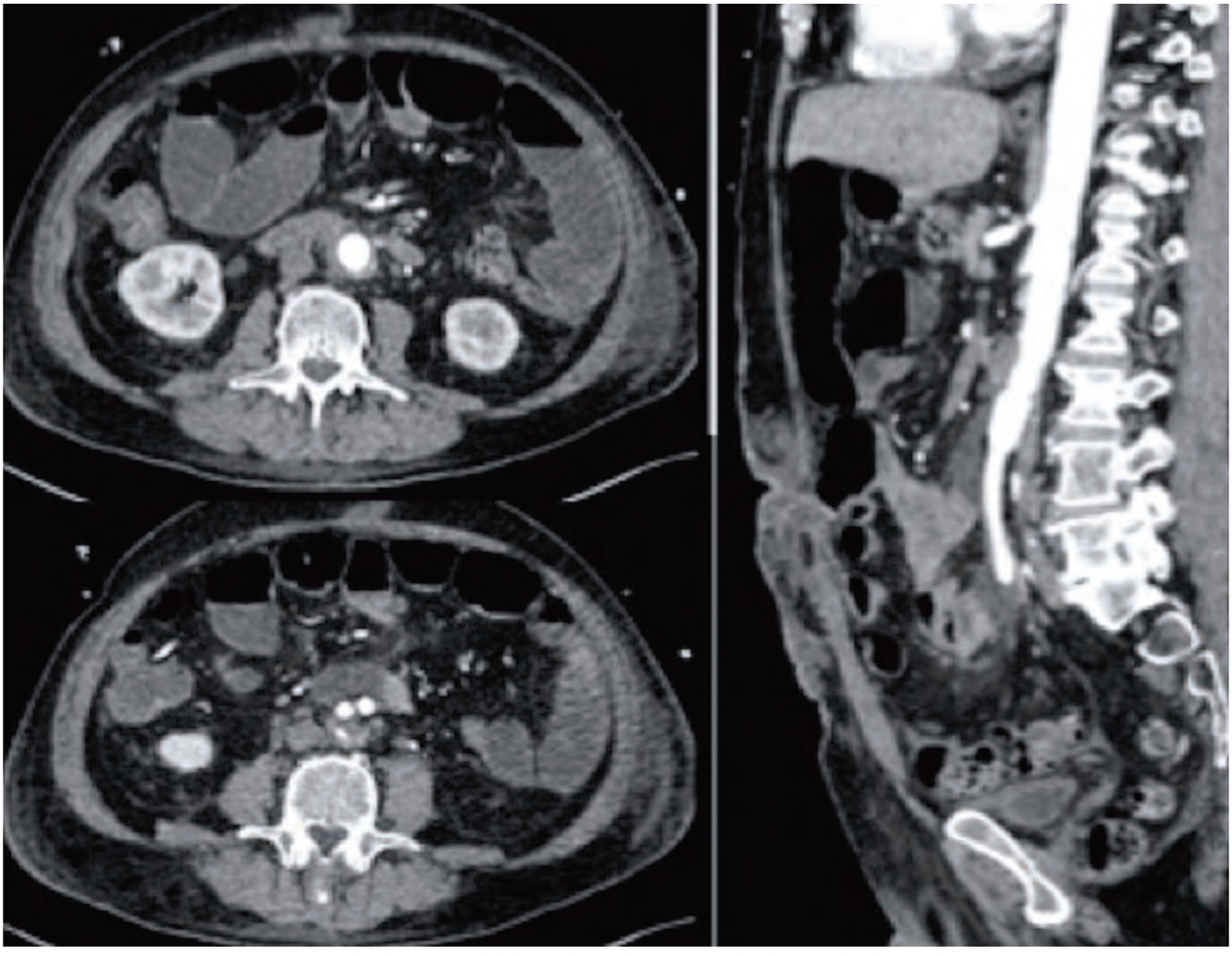

Figure 4. Control with contrasted abdominal CT where it is visualized in axial and sagittal sections.

make it possible to make vascular substitutions with good long-term results [8]. These prostheses have allowed modifying the "natural history of the disease" of life-threatening pathologies such as abdominal aneurysms, in which timely surgical intervention with the placement of a vascular graft has shown good results, avoiding fatal outcomes [2,4,5,9]. However, the increasing number of vascular substitutions for synthetic prostheses has also caused complications associated with them that represent a real surgical challenge [5,9].

Currently, one of the most commonly used vascular prostheses are those of Dacron®, a polyester textile fiber that, among the most frequent complications, is thrombosis, followed by the formation of aneurysms, infections, rupture at the level of anastomosis, hemorrhage. , distal embolization and fistulas or erosions [9,10,11].

In this sense, the appearance of complications represents a real surgical challenge, so SAEF is a very rare entity, but it is an urgent diagnosis and treatment. The patient must undergo upper or lower digestive endoscopy and eventually angiotomography to confirm the diagnosis, however these studies show certain limitations depending on the volume of bleeding, for example in the presence of severe bleeding [1,2,4,9]. Digestive endoscopy may not be conclusive and when bleeding is slow, angiotomography may not identify the site of bleeding [1,2].

We consider contrasted tomography key in the diagnosis of SAEF; In our case, it allowed us to visualize anatomical relationships, showed the graft condition and the presence of periprosthetic gas. The Italian group [10] reviewed the findings of the tomography, particularly the signs of extravasation of the contrast medium retrospectively from 13 cases, just the signs found were the soft tissue and fluid involvement around the prosthesis with thickening of the intestinal wall; only in 6 patients, extravasation of the contrast medium from the aortic graft to the small intestine was detected.

The surgical treatment of SAEF is bleak, with high mortalities ranging between 60 and 90%, precisely the German group [4,11] reported in a retrospective study of 19 cases in 4 years to 8 patients who underwent graft replacement in 42% of cases, extraanatomic repair in 26% and proximal anastomotic reconstruction in 26% with a perioperative mortality of 13 patients (68%) and complications in 83%. During the follow-up, two other patients died suddenly, with an overall mortality of 79%. Experience in Belgium [12] reported the management of 8 patients who were in shock, and 5 with systemic signs of infection, highlighting in this series endovascular sealing as a promising technique, which provided time to treat shock, local infection and Systemic and comorbidity. This option creates a better situation to perform open repairs in the future, concluding that the endovascular seal should be seen as a bridge for surgery. The surgical intervention basically consists in the removal of the infected aortic graft, resection of the intestinal defect and intravenous antibiotic therapy. One of the surgical alternatives described for SAEFs is the construction of extra anatomical bridges such as axilo-femoral; however, we consider the removal of the aortic prosthesis necessary, since as most of the reviews support it, the graft is infected and the blood culture is positive in up to 85% of cases [4,5,9-12], because The complications reported with the greatest number with this technique are amputations of lower limbs that reach 10% and the persistence of septic process if the graft is not removed [11,12].

In conclusion, SAEF is a rare disease and merits strong clinical suspicion, with the support of images in a fundamental way (tomography and angiotomography), depending on the speed of bleeding and the hemodynamic stability of the patient.

Therefore, these patients should be operated in specialized centers by surgeons with experience in the digestive tract as well as in vascular surgery and whenever possible, a radical approach should be used for the surgical correction of secondary fistulas; with the removal of the prosthesis and the isolation of the intestinal handles to avoid as far as possible the contact with the graft. Although the surgical correction entails high mortality and morbidity, complying with the aforementioned recommendations allows good long-term results.

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