CASE REPORTS

SURGICAL TREATMENT OF A SPONTANEOUS RUPTURE OF A MYCOTIC ANEURYSM

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Abstract

Saccular mycotic aorto-iliac aneurysms are rare but, when ruptured, they are an important life-threatening condition. We present the case of a 52 years-old male transferred from another hospital and admitted to the emergency room with a ruptured iliac artery aneurysm. He complained of persistent fever and abdominal discomfort that swiftly established as hemorrhagic shock. Image study with computed tomographic angiography revealed a ruptured left common iliac artery saccular aneurysm. The patient was instantaneously and successfully submitted to endoaneurismorraphy of the hypogastric artery, common and external iliac artery ligation and construction of an extra anatomic bypass, right to left femorofemoral bypass. Blood culture revealed a Streptococcus anginosus and the patient received appropriate targeted antibiotics. Post-operative period was uneventful and the patient discharged ten days after admission. He has now eleven months of follow up with no intercurrences. Even though surgical approach carries a relative risk of perioperative morbidity, it is a feasible and durable solution for extreme situations like the one here described..

INTRODUCTION

Firstly described by Osler in 1885, the term mycotic aneurysms (MA) was used referring to an infected aneurysm secondary to septic embolisms due to endocarditis.

MA aneurysms are rare, accounting for about 0.7% – 3.4% [6] of all aortic aneurysms. Nevertheless, they have high morbidity and mortality because of the exertion to make an early diagnosis and due to its rapid progress to the late stage, with fulminant sepsis and aneurysm rupture.

OBJECTIVE

The authors report the successful treatment of a ruptured mycotic left iliac artery aneurysm.

CASE REPORT

A 52 years-old male, without relevant medical records, was admitted at the hospital with persistent fever and abdominal discomfort that lasted for almost one week.

Upon presentation, his clinical status swiftly established as hemorrhagic shock, so he underwent computed tomographic angiography that reveled a ruptured left common iliac artery aneurysm with 90mm of maximum diameter, with extension of the aneurysmal degeneration to the internal iliac artery concomitant with a left iliopsoas abscess infiltration (Figure 1). The contact with our vascular surgery unit was established and the patient transferred.

He was admitted in the emergency room. His vital signs corroborated clinical instability: Glasgow score of 14, temperature of 38.3 Celsius, tachycardia (113 beats per minute) and hypotension (65/40 mmHg) requiring noradrenaline support.

Physical examination revealed mild left lower quadrant tenderness. Abnormal Laboratory values included a Platelets count of 57x10E3/uL and Hemoglobin of 9g/dL with normal renal function but metabolic acidosis.

We decided to perform an open surgical approach with aneurismectomy with common and external iliac artery ligation, hypogastric artery endoaneurismorraphy and concomitant ab-

scess drainage, as well as extensive debridement of the infected tissues. Subsequent extra-anatomic revascularization consisted of a right common femoral artery to left common femoral artery bypass performed with ePTFE.

Microbiology from the blood cultured demonstrated a Stretococcus anginosus and the patient received prolonged (three weeks) endo-venous antibiotic therapy (ertapenem and vancomycin), followed by oral antibiotic therapy with amoxicillin till performing six months. Despite no peri-operative vascular adverse events, the patient developed infectious colitis with Clostridium dificcille and received complementary Metronidazole with clinical resolution.

The patient has now one-year follow-up with no clinical, analytical or image signs of persistent infection. The surgical femorofemoral bypass is well functioning with bilateral, distal pulses without any kind of claudication. Postoperative computed tomographic angiography reconstruction with femorofemoral bypass is despicted in Figure 2.

DISCUSSION

MA of the aorta and iliac arteries remain a dreadful disease, with in-hospital mortality rates of 11% – 44% [7]. Aneurysm rupture and specially when associated with sepsis constitute the vast majority of deaths.

Repair of a mycotic ruptured aneurysms proved to be challenging. Ongoing infection, a hostile surgical abdomen and a frailty and instable patient further complicates the surgical approach.

Although there is still intense debate in the literature trying to define guidelines for the best treatment approach, the most definitive solution is still combining antibiotic therapy with surgical resection and extra-anatomic graft interposition. Open approach is demanding by the friable tissues with an inflammatory reaction making tissue planes difficult to demarcate, nevertheless, prosthetic material is, in general, not a viable option due to the high risk of infection and the reconstruction with a neo-aortoiliac system procedure is difficult due to the limited autogenous substitutes and reserved mainly when the infection extends to the juxtarenal or visceral segments. No studies have confirmed the superiority of rifampicin-impregnated grafts and even cryopreserved arterial homografts have lower rates of reinfection (approximately 20%), they have higher rates of aneurysmal degeneration and rupture (0% – 9%) [4].

Sorelius K et al described 1 an endovascular aortic repair for patients with mycotic aortic aneurysm. In that study, 5% of patients were converted to open repair during a mean follow-up period of 35 months, and the 5-year survival rate was 55%. Dubois M et al. [2] presented an investigation comparing the repair of MA with extra-anatomic reconstruction with an in-hospital mortality of 22.7% versus 18.9% in the in situ repair group.

Hyo-Hyun Kim et al also presented an article with MA patients submitted to in situ repair with an in-hospital mortality rate of 10.5% and a 5-year survival rate of 74.9% ± 11.5% during the 43.2-month follow-up period3. Han K et al described a cumulative survival of 100%, 100%, 83%, and 83% at 3 months, 1 year, 3 years, and 5 years regarding the treatment of six mycotic abdominal aortic and iliac aneurysm with hybrid (endovascular and open surgery) approach.

We believe that, despite other available and viable interventions described in the literature, open surgery allows for a better operative control of a septic patient with not only proceeding with total aneurysmectomy but also resection of all surrounding necrotic or infected tissues. Axilobifemoral or femorofemoral bypass is the method of reconstruction that despite, at first sight, seem like not an attractive option, it is of great usefulness in older and more debilitated patients.

Despite all that, we still agree that the decision for an open surgical approach will always be based on several factors, including the type and location of the aneurysm, the form of presentation, the patient's comorbidities, the microorganism that is isolated, the type and duration of antibiotic therapy, and the type of surgery.

Figure 1 *Postoperative computed tomographic angiography reconstruction with femorofemoral bypass.*

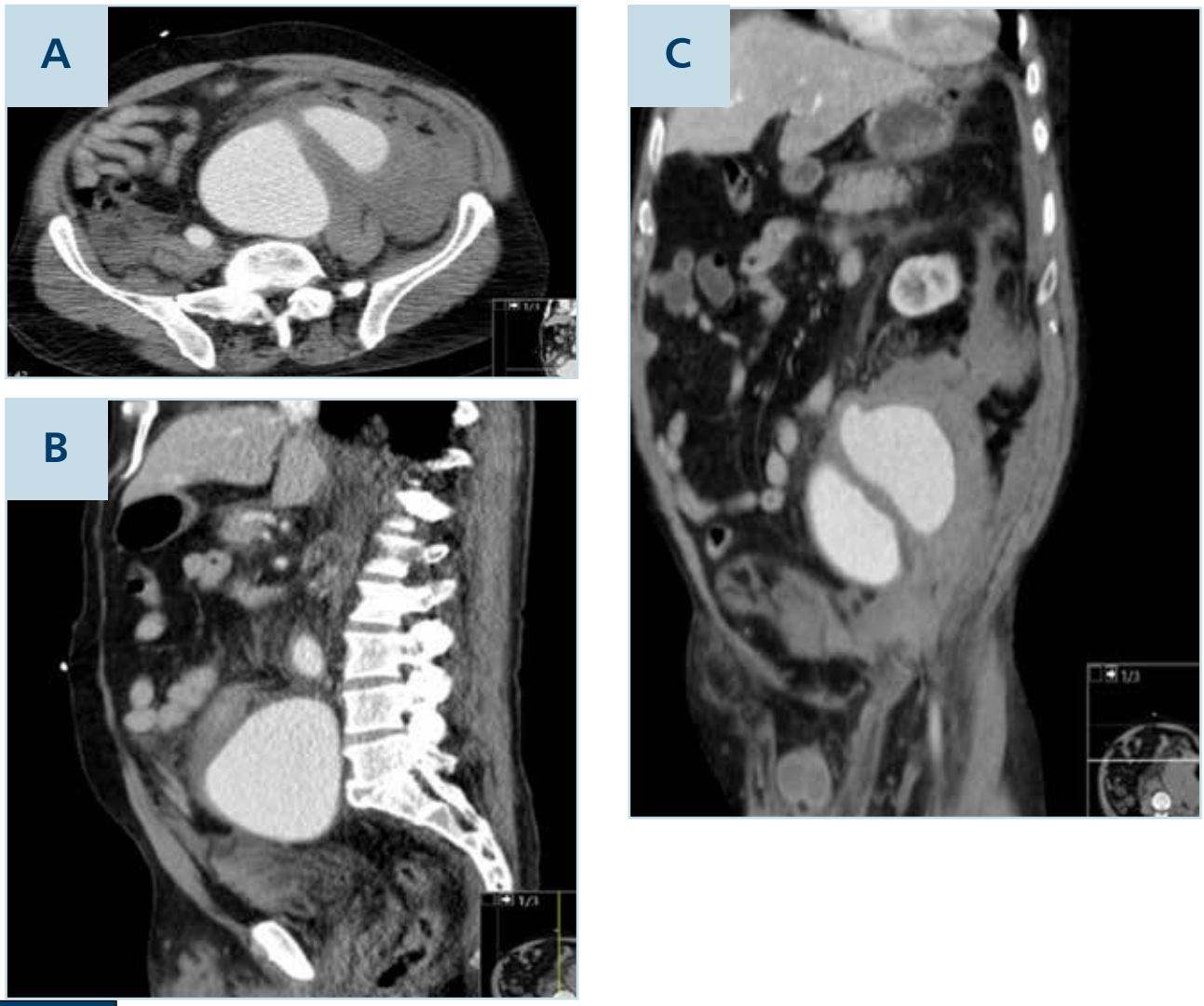

Figure 2 *Computed tomographic angiography at admission showing a mycotic aneurysm of the common iliac artery with rupture in axial (A), sagittal (B) and coronal (C) planes.*

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