

REPAIR OF RUPTURED ABDOMINAL AORTIC ANEURYSM AFTER CARDIAC ARREST: A CASE REPORT

Sofia Branco Ribeiro¹, Luís Bento²

¹ Serviço de Medicina Intensiva, Hospital de Faro, Centro Hospitalar Universitário do Algarve, Faro, Portugal

² Coordenador da Unidade de Urgência Médica - Hospital de São José, Centro Hospitalar Universitário de Lisboa Central, Lisboa, Portugal

* Corresponding author: apribeiro@ch Algarve.min-saude.pt

Abstract

The management of abdominal aortic aneurysms, especially ruptured abdominal aortic aneurysms, continues to challenge vascular surgeons. A ruptured abdominal aortic aneurysm is associated with a high mortality rate. If cardiopulmonary resuscitation is required before surgical repair, mortality rates are said to be even higher. However, cardiac arrest in patients with ruptured abdominal aortic aneurysm does not accurately predict a nonsalvageable state or preclude functional survival. In these cases, aggressive management may be the only hope for survival, and cardiac arrest should not as such contraindicate repair. The objective of this study is to present a successful case of repair of ruptured abdominal aortic aneurysm after cardiac arrest.

Keywords: Abdominal aortic aneurysms, cardiac arrest, aortic repair

INTRODUCTION

Cardiac arrest in patients with ruptured abdominal aortic aneurysm is not uncommon and associated with significantly increased mortality, but it should not constitute an absolute contraindication to aortic repair.

CASE REPORT

A 62-year-old man with medical history of hypertension presented to the Emergency Department with lower back pain and vomiting. On examination, the patient was in a pre-shock condition with tachycardia and low blood pressure, and a pulsatile epigastric mass was palpable. An acute CT scan revealed a contained ruptured infrarenal abdominal aortic aneurysm (Figure 1). During transfer to the

operating room, the patient suffered cardiac arrest; cardiopulmonary resuscitation (CPR) was initiated, with return of spontaneous circulation after 10 minutes. An emergent open surgical repair with aorto-aortic inlay interposition of a vascular 22 mm diameter straight Dacron graft was performed. The patient had a blood loss of approximately 1000 mL during the intervention, and was transfused with a total of 2 units of packed red blood cells and 2 units of fresh frozen plasma. The intervention was otherwise uneventful, and he was then admitted in the intensive care unit. Immediate postoperative evolution was favorable, with possibility of extubation from mechanical ventilation within 24 hours of admission, hemodynamic stability and preserved diuresis. The patient was discharged to the vascular surgery ward on the 3rd postoperative day, where he recovered quickly and was discharged home on day 7 of admission. Six months later, on evaluation at a follow-up

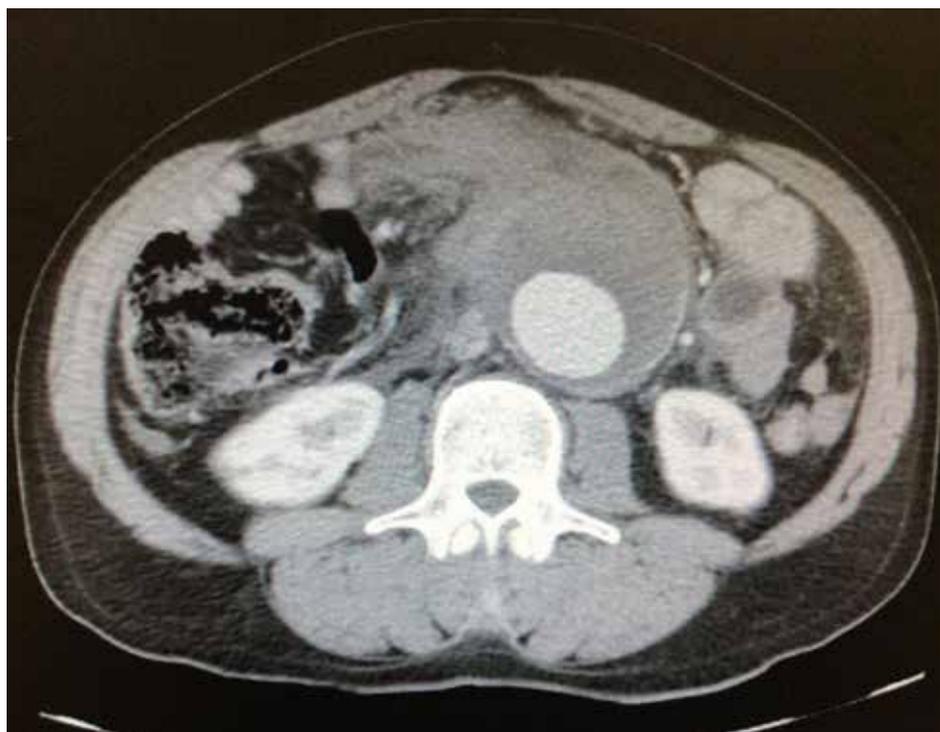


Figure 1

Contrast-enhanced axial CT of the abdomen and pelvis image showing a large infrarenal abdominal aortic aneurysm.

appointment, he complained of intermittent claudication of the left lower limb (Fontaine Stage IIb), being otherwise well.

DISCUSSION

Despite dramatic changes in aortic aneurysm treatment and perioperative critical care, mortality in the setting of ruptured abdominal aortic aneurysm (rAAA) remains exceedingly high (1). Rapid institution of surgical therapy and intense postoperative care undoubtedly saved the lives of many patients who had rAAA. Situations exist, however, in which it may be considered futile or even unethical to perform surgery or to continue treatment in patients who have insurmountable risk, such as advanced age patients (> 80 years old) and those needing CPR before surgical repair (2). Preoperative cardiac arrest is relatively common among patients with rAAA and is a marker of advanced cardiovascular collapse. Although it has been suggested as a contraindication to aortic repair, cardiac arrest by itself is a poor predictor of subsequent short- and long-term outcomes, and it does not appear to impair long-term survival or functional status among patients (3). According to the recently published National Institute for Health and Care Excellence (NICE) Abdominal Aortic Aneurysm Guidelines, it is recommended not to use any single symptom, sign or patient-related risk factor to determine whether aneurysm repair is suitable for a person with a rAAA (4). Furthermore, despite different scoring systems and algorithms have been tested

to predict futility of surgical treatment and select patients for palliation, to date, none has proven significantly accurate, and they should therefore not be used (2,4). Clearly, some patients with cardiac arrest are recoverable with resuscitation and surgery, whereas others are not. As such, aortic repair should not be withheld from patients who are otherwise reasonable candidates for intervention, provided resources for emergent aortic repair are available.

REFERENCES

1. Broos et al, A ruptured abdominal aortic aneurysm that requires preoperative cardiopulmonary resuscitation is not necessarily lethal, *J Vasc Surg* 2016 Jan; 63(1): 49-54
2. Wanhainen A, et al., European Society for Vascular Surgery (ESVS) 2019 Clinical Practice Guidelines on the Management of Abdominal Aorto-iliac Artery Aneurysms, *European Journal of Vascular and Endovascular Surgery* (2018), <https://doi.org/10.1016/j.ejvs.2018.09.020>
3. Harris DG et al, Repair of ruptured abdominal aortic aneurysm after cardiac arrest, *J Vasc Surg* 2016 Nov;64(5):1497-1502, <https://doi.org/10.1016/j.jvs.2016.05.085>
4. National Institute for Health and Care Excellence. (2020). Abdominal aortic aneurysm: diagnosis and management [NICE Guideline No. 156].