

**AORTOCAVAL FISTULA ASSOCIATED WITH ABDOMINAL AORTIC ANEURYSM:
CASE REPORT**

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Article Received on 06/03/2023

Article Revised on 26/03/2023

Article Accepted on 16/04/2023

ABSTRACT

The aortocaval fistula (ACF) related to abdominal aortic aneurysm (AAA) is a rare event. The objective of the present study is to report the approach and evolution of a patient with an aortocaval fistula. The patient, a 78-year-old male hypertensive, pain in the right iliac fossa, irradiating to the right lower limb, associated with tingling on walking and edema, and dyspnea on effort. After an abdominal CT scan, an infrarenal abdominal aortic aneurysm with an aortocaval fistula was found. On physical examination, a pulsatile abdominal mass was found. After angiotomography, the diagnosis of aneurysm was confirmed, and the patient underwent endovascular treatment with an AFX stent graft. The procedure was successful upon verification with aortography. Early imaging control was performed by angiotomography, in which the presence of a type II endoleak was found, and embolization of the inferior mesenteric artery branch was performed with ischemic colitis during clinical treatment. Although the immediate postoperative period was corrected, the patient did not return for follow-up angiotomography. In control after six months the patient sought the service again with a complaint of abdominal pain for 15 days, accompanied by the appearance of collateral circulation for 30 days. At the site of origin, an abdominal CT scan was performed that found an aortocaval fistula due to a possible type III endoleak. An endovascular procedure was indicated for the introduction of a straight stent graft for correction, which occurred successfully. Aorto caval fistula is a rare complication where the approaches suggested in the literature are open and endovascular procedures and more recently endovascular procedures have shown lower mortality where endoleaks are the most common intercurrentence.

KEYWORDS: Aneurysm, Fistula, Abdominal, Aortic, Endoleak.

INTRODUCTION

The aortocaval fistula (ACF) related to abdominal aortic aneurysm (AAA) is a rare event among the cases of AAA (1%),^[1] being more prevalent in males (98%) and at the age of 64 years.^[2] Regarding etiology, about 80% of these fistulas result from the spontaneous rupture of an atherosclerotic aneurysm in the vena cava.^[2]

Regarding clinical manifestations, the classic triad (abdominal pain, palpable abdominal mass and presence of abdominal murmur) is observed, which may be accompanied by acute heart failure, lower limb edema, acute kidney injury and acute liver failure.

As for treatment, there are two therapeutic options: conventional surgery and endovascular treatment. Complications of conventional surgery include hemorrhage and pulmonary embolism,^[2] with a mortality rate of 16 to 66%¹. Nevertheless, the importance of open surgery lies in cases in which the aortocaval fistula is an incidental finding during AAA repair. Endovascular treatment, on the other hand, although there are no well-defined protocols for patient selection,^[3] presents itself as a less invasive option, with fewer postoperative complications and lower morbidity and mortality, showing success in 96% of the cases.^[2] The objective of the present study is to report the approach and evolution of a patient with an aortocaval fistula.

Case report

The patient, a 78-year-old male hypertensive and gout patient, smoker, sought local service in September 2020 due to pain in the right iliac fossa, irradiating to the right lower limb, associated with tingling on walking and edema, and dyspnea on effort. After an abdominal CT scan, an infrarenal abdominal aortic aneurysm with an aortocaval fistula was found as an incidental finding, and the patient was referred to Hospital de Base de Rio Preto for follow-up. On physical examination, a pulsatile abdominal mass was found. After angiotomography, the diagnosis of aneurysm was confirmed, and the patient underwent endovascular treatment with an AFX stent graft. The procedure was successful upon verification with aortography.

In October 2020, early imaging control was performed by angiotomography, in which the presence of a type II

endoleak was found, and embolization of the inferior mesenteric artery branch was performed. The patient evolved with ischemic colitis during clinical treatment. Although the immediate postoperative period was corrected, the patient did not return for follow-up angiotomography.

In February 2023, the patient sought the service again with a complaint of abdominal pain for 15 days, accompanied by the appearance of collateral circulation for 30 days. At the site of origin, an abdominal CT scan was performed that found an aortocaval fistula due to a possible type III endoleak. An endovascular procedure was indicated for the introduction of a straight stent graft for correction, which occurred successfully, figures 1 to 5.

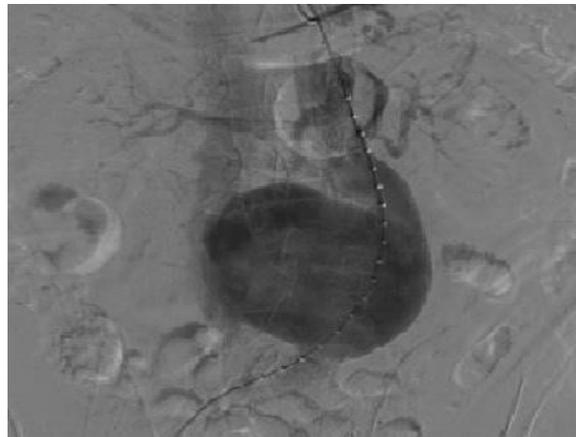


Figure 1: Aorto vena cava fistula.



Figure 2: Aorto vena cava fistula image reconstruction.

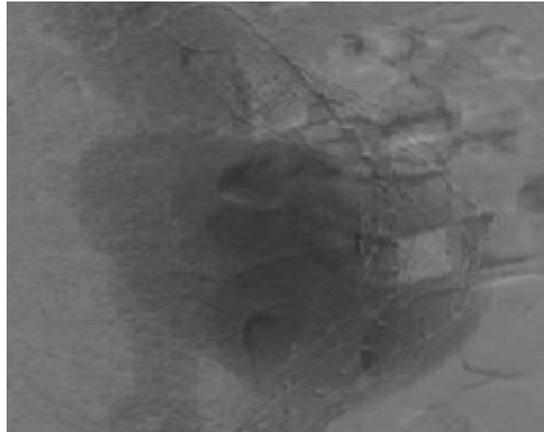


Figure 3: Intraoperative aorto vena cava fistula.

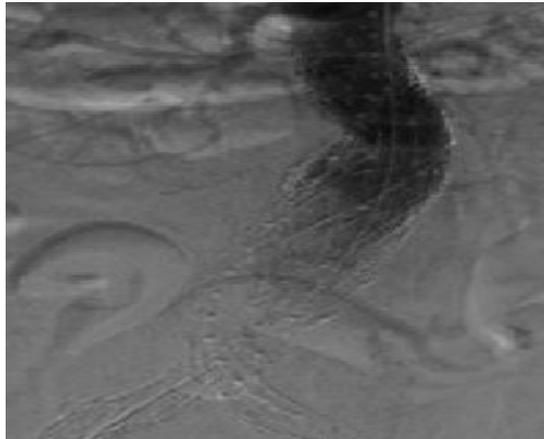


Figure 4: Proximal seal of the aneurysm.

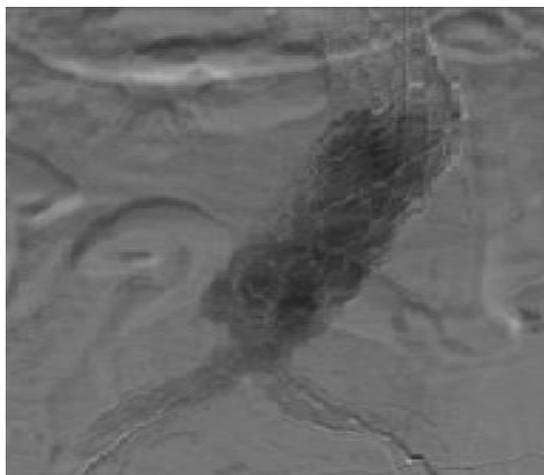


Figure 5: Distal aneurysm sealing.

DISCUSSION

Report the case of the evolution of endovascular treatment and interurrences of a patient with aortocaval fistula over a period of three years. At first the implant of an endoprosthesis was immediately successful, but in the evaluation of one month he presented endoleak type II and was corrected with immediate success, but the patient did not return to the controls in the suggested times and only after three years with symptoms again. The literature reports similar clinical picture to the study

patient as abdominal pain, lower limb edema and presence of pulsatile abdominal mass 1. Aorto-cava fistula (ACF) is a rare cause of high output heart failure (HOHF). Early diagnosis and treatment are crucial to prevent progression to HOHF 6.

According to review article from 1999 to 2014 conventional and endovascular surgical treatment was performed in 67 patients with 46% complications in endovascular and 36 in open. The mortality rate in

endovascular treatment was 19% and in open treatment 12%, but without statistical significance. This is an older study and perhaps the new technologies present better results. Endoleaks occurred in about 50% in that review article, which was the main complication in the present study 4. Among the most common technical obstacles of the endovascular procedure, according to the study 1, is the type II endoleak through the inferior mesenteric artery or lumbar artery.

Another review study until 2013 on 48 articles, totaling 54 patients performed aortic stent grafts 78% of patients, with technical success was 94% and intraoperative mortality of 0% in 90 days. Intraoperative mortality was 0% and at 90 days 10%, half of which was unrelated to primary pathology. Of the successful procedures, 12% of the patients had major complications 5. What is observed in the two review articles show a very large discrepancy in the results regarding morbidity and complications, mainly related to endoleaks.

A review article from 2000 to 2022 in 110 case studies, incorporating 196 patients, open surgical repair was applied in 78% (153/196) with 99% of success and 100% (43/43) in endovascular repair. Open and endovascular repair demonstrated 87.5% (126/144) and 97.6% (42/43) 30-day survival, respectively. Type II endoleak was the most frequent with a rate of 32.5% (14/43). The reintervention rates were 2.5% (4/151) and 35.7% (15/42) for open and endovascular repair, respectively 7. Mortality was higher in open compared to surgical procedures, suggesting an improvement in materials and implantation techniques.

As it was possible to observe in the reported case, the endovascular therapy was chosen because it is less invasive, with fewer postoperative complications and morbidity and mortality. Despite this, the patient underwent a secondary intervention due to the appearance of endoleak type II in the first reoperation, the most common technical complication to be found.

CONCLUSION

Aorto caval fistula is a rare complication where the approaches suggested in the literature are open and endovascular procedures and more recently endovascular procedures have shown lower mortality where endoleaks are the most common intercurrent and that was observed in the present study.

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