

# Endovascular treatment of a giant splenic aneurysm: a case report

## Abstract

The aim of the present study is to report the endovascular treatment of a giant splenic aneurysm. Female patient, 56 years old, during an outpatient investigation of complaints of sporadic nausea, without associated abdominal pain, a contrast-enhanced tomography was performed, showing two saccular splenic artery aneurysms, one in the proximal third with a diameter of 6.2x4.5cm and one in the middle-distal third of 5.1x4.4cm. Procedure performed in three stages: initially with arteriography of the celiac trunk for therapeutic planning; in a second moment, embolization was performed with splenic artery coils, in a portion distal to the aneurysms, with success; and in a third moment, embolization of the proximal portion of the splenic artery was performed, with a 12mm vascular plug, without intercurrences. Patient with good evolution, discharged in the first postoperative period and in outpatient follow-up. Endovascular treatment is the first choice for correction of LAAs, and advances in methods and materials available allow it to be used as an option in cases of complex anatomy.

**Keywords:** Endovascular treatment, giant splenic aneurysm, diagnostic

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## Introduction

Splenic artery aneurysm (SAA) is the third most common type of abdominal aneurysm and the main one among visceral aneurysms.<sup>1,2</sup> Although most are asymptomatic, rupture can occur in 2 to 10% of cases, which is a catastrophic complication and potentially fatal.<sup>2,3</sup> Endovascular repair is the least invasive therapeutic option with less morbidity when compared to surgical treatment.<sup>3</sup> AAEs have an estimated prevalence of 0.8% in the population, with predominance of females (4:1) and in the age group of 50 to 60 years, as reported in the case reported. Among the main risk factors for the development or rupture of AAEs are atherosclerotic disease, cirrhosis and portal hypertension. When it has a diameter  $\geq 5$  cm (giant aneurysm), the estimated risk of rupture is 28%.<sup>3,4</sup> Most cases have multiple aneurysms (20%), saccular and located in the distal (75%) or middle (20%). The aim of the present study is to report the endovascular treatment of a giant splenic aneurysm.

## Case report

Female patient, 56 years old, cirrhotic due to NASH (nonalcoholic steatohepatitis), diabetic, asthmatic, former smoker and with a personal history of already treated breast cancer. During an outpatient investigation of complaints of sporadic nausea, without associated abdominal pain, a contrast-enhanced tomography was performed, showing two saccular splenic artery aneurysms, one in the proximal third with a diameter of 6.2x4.5cm and one in the middle-distal third of 5.1x4.4cm, Figures 1&2 Due to the patient's comorbidities and complications (coagulopathy and thrombocytopenia), endovascular treatment with embolization was indicated. Procedure performed in three stages: initially with arteriography of the celiac trunk for therapeutic planning; in a second moment, embolization was performed with splenic artery coils, figure 3, in a portion distal to the aneurysms, with success; and in a third moment, embolization

of the proximal portion of the splenic artery was performed, with a 12mm vascular plug, without intercurrences, figure 4. Patient with good evolution, discharged in the first postoperative period and in outpatient follow-up.

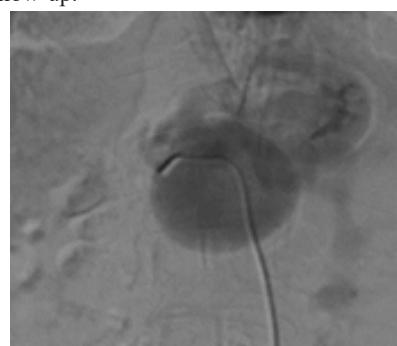
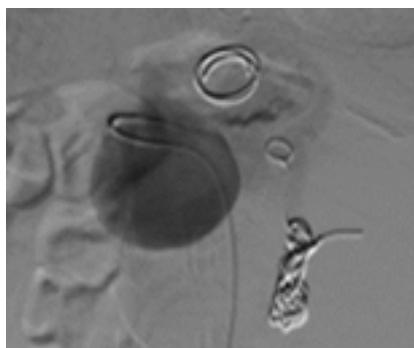


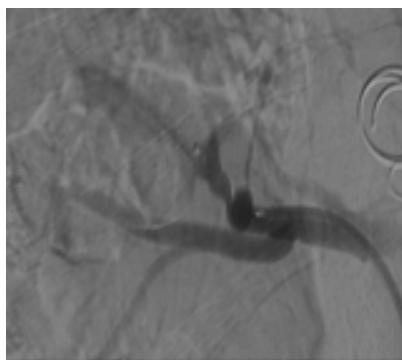
Figure 1 Initial arteriography of splenic artery aneurysm.



Figure 2 Reconstructed image of the splenic artery aneurysm.



**Figure 3** illustrates control after implantation of distal coils.



**Figure 4** Shows control after implantation of a splenic artery plug.

## Discussion

The present study reports the endovascular approach in the treatment of giant splenic artery aneurysm where the patient's comorbidities were significant and the surgical risk had higher mortality. The reported case presents an unfavorable anatomy for endovascular treatment, but due to the patient's comorbidities and clinical situation, embolization was chosen. The benefits of endovascular repair are the reduction of surgical trauma, the possibility of performing it under local anesthesia and faster postoperative recovery, with a shorter hospital stay.

Splenic artery aneurysm is usually an occasional finding, as observed in the present study. The size of the aneurysm is another important aspect, resulting in a higher probability of rupture and mortality. The literature reports a rupture risk of around 28% and a significant mortality.<sup>3</sup> Thus, the endovascular procedure becomes the main therapeutic option. Elective treatment options are surgical or endovascular, however emergency surgery is associated with a higher mortality rate. Endovascular treatment by covered endoprostheses or selective embolization has been reported as an option to be analyzed in each patient.

In emergencies, endovascular treatment has become a viable alternative, but it requires specialized vascular-interventional units.<sup>5</sup> The improvement of materials is another aspect that allows intervention in more complex anatomical situations and thus expanding its indication.

## Conclusion

Endovascular treatment is the first choice for correction of LAAs, and advances in methods and materials available allow it to be used as an option in cases of complex anatomy.

## Conflict Interest and funding study

The authors declared no have financial support and no have conflict interest.

## Data Availability statement

The data used to support the findings of this study are included within the article.

## Author's contribution

**Design and conduct of the study:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

**Collection data:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

**Management:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

**Analysis and interpretation of the data:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

**Preparation:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

**Review:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

**Approval of the manuscript:** Moreno BC, Brandi VM, Soares MML, Miquelin D, Godoy JMP;

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## References

1. Akbulut S, Otan E. Management of giant splenic artery aneurysm: comprehensive literature review. *Medicine (Baltimore)*. 2015;94:e1016.
2. Al-Habbal Y, Christophi C, Muralidharan V. Aneurysms of the splenic artery - a review. *Surgeon*. 2010;8:223–231.
3. Chaer RA, Abularragge CJ, Coleman DM, Eslami MH, Kashyap VS, et al. The Society for Vascular Surgery clinical practice guidelines on the management of visceral aneurysms. *J Vasc Surg*. 2020;72:3S–39S.
4. Chen WC, Wang TH, Yuan D, Zhao JC. Multiple Splenic Artery Aneurysms: A Case Report and Review of the Literature. *Front Surg*. 2022;8:763890.
5. Talwar A, Knight G, Al Asadi A, Entezari P, Chen R, et al. Post-embolization outcomes of splenic artery pseudoaneurysms: A single-center experience. *Clin Imaging*. 2021;80:160–166.