



Thoracic endovascular aortic repair: an unusual approach on post-traumatic thoracic aorta aneurysm

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INTRODUCTION

Aneurysms are defined as permanent and localized arterial dilations, exceeding at least 50% of their normal diameter.^{1,2} They are formed with the weakening of blood vessels' walls, which can cause their dilation or enlargement, and most frequently occur in the aorta.

Here we describe a case of a post-traumatic thoracic aorta aneurysm, an uncommon etiology for this condition, which was managed with a thoracic endovascular aortic repair (TEVAR), an approach that, despite not being considered the current standard treatment, here presented with positive responses, thus corroborating with recent literature that reassures TEVAR as a pertinent alternative for open surgery.

CASE PRESENTATION

A 36-year-old man presented to the Emergency Department (ED) in March 2021 with an intermittent stabbing chest pain radiating to the dorsum. The patient reported that sometimes wakes up at night because of the pain. His personal background included a chest trauma in April 2020 which required hemithorax drainage and a chest angiotomography (CT) in November 2020 that revealed post-traumatic thoracic aortic aneurysm.

In February 2021, a new chest angioCT was performed, reporting an increase of the aneurysm. At the admission, initial conduct involved analgesia, collection of laboratory tests and a whole-aorta computed tomography angiography was requested. Two weeks after the admission, thoracic endovascular aortic repair (TEVAR) was performed. Three weeks after admission the patient was discharged.

DISCUSSION

TEVAR involves placing an endovascular stent graft into the thoracic aorta from a remote peripheral location under imaging guidance. Open surgery, which is a more invasive method, involves a high posterolateral thoracotomy with or without cardiopulmonary bypass.³ Patients undergoing open repair are usually younger and with less comorbidities than patients receiving TEVAR. Duration of intensive care and total hospital stay are much shorter in endovascular patients, although the rate of vascular complications and operative mortality are higher. One and five-years mortality showed no significant difference between endovascular and open repair. However, knowing that the population TEVAR group of patients are older and worse in condition, the early or even the mid survival benefit of TEVAR could in fact be underestimated.⁴

This case describes a post-traumatic thoracic aorta aneurysm, an uncommon but significant etiology for this condition. It enhances the importance of detailed clinical history and suspicion of thoracic trauma as a cause of the aortic aneurysm. Also demonstrates the relevance of sequential follow-up in preventing the occurrence of serious complications of the TAA. Finally, it shows that, at least in a short term, TEVAR can present promising results in young age patients. However, we think there is still a need for more studies with a longer follow-up time frame to delineates if there are survival benefits in TEVAR over open surgery.

REFERENCES

- [1] Salameh MJ, Black JH, Ratchford EV. Thoracic aortic aneurysm. *Vascular Medicine*. 2018;23(6):573-578.
- [2] Goldfinger, JZ, Halperin JL, Marin, ML, Stewart, AS, Eagle KA, Fuster V. Thoracic Aortic Aneurysm and Dissection. *Am Coll Cardiol* 2014;64:1725-39.
- [3] S. Miller, P. Kumar, R. V. den Bosch, A. Khafer, "Chronic Thoracic Aortic Aneurysm Presenting 29 Years following Trauma", *Case Reports in Surgery*, vol. 2015, Article ID 470917, 4 pages, 2015.
- [4] Harky A, Kai Chan JS, Ming Wong CH, Al Nasiri R, Bashir M, Open vs Endovascular repair of descending thoracic aortic aneurysm disease: a systematic review and metaanalysis, *Annals of Vascular Surgery* (2018).