


TRAUMATIC PSEUDOANEURYSM THORACIC AORTA ARTERY

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ABSTRACT

Thoracic aortic trauma is a frequent injury in patients with closed chest trauma and polytrauma in general; its association with injuries in other territories adds an important morbimortality. A multislice axial tomography with intravenous contrast should be performed in patients suspected of this lesion. The correct management and treatment of this lesion constitutes an emergency. Endovascular treatment is considered a valid option in these cases. Some lesions may be susceptible to medical-conservative treatment.

Keywords: blunt chest trauma, thoracic pseudoaneurysm, polytrauma, endovascular treatment

INTRODUCCIÓN

Thoracic aortic trauma is a frequent injury in patients with closed chest trauma and polytrauma in general¹; its association with injuries in other territories adds an important morbimortality. In those patients in whom this lesion is suspected, a multislice axial tomography with intravenous contrast should be performed². The correct management and treatment constitute an urgency³⁻⁵. Endovascular treatment is considered a valid option in these cases^{6,7}. Some lesions may be susceptible to medical-conservative treatment^{8,9}.

CLINICAL CASE

Male patient of 21 years old admitted after motorcycle vs. wall trauma. Hemodynamically stable, with dyspnea, chest pain, and severe trauma to the right lower limb. Brain and thoracoabdominal CT and other relevant studies were requested. Diagnosis: absence of acute brain injuries, right hemopneumothorax,

descending thoracic aortic artery pseudoaneurysm at isthmus level, with aberrant right subclavian artery (*Figure 1*), absence of intra-abdominal solid organ injuries, right femur fracture. In the shock room, he suffered arterial hypotension, which reverted with fluid replacement and vasoactive drugs at low doses. The femur fracture was stabilized, a right pleural drainage tube was placed, and urgent treatment of the aortic lesion was indicated.

This lesion was resolved by placing two stents lined CP Stent NuMed - Braum of 24 mm diameter x 45mm length, platinum-iridium stent with ZIGS configuration, coated with PTFE. Stent with good radial strength and possible future re-expansion (*Figure 2*).

Post-surgical course in the ICU with imaging control by CT angiography at 48 hours (*Figure 3*) shows the correct positioning of the stents without filling the pseudoaneurysm sac nor the presence of leaks.

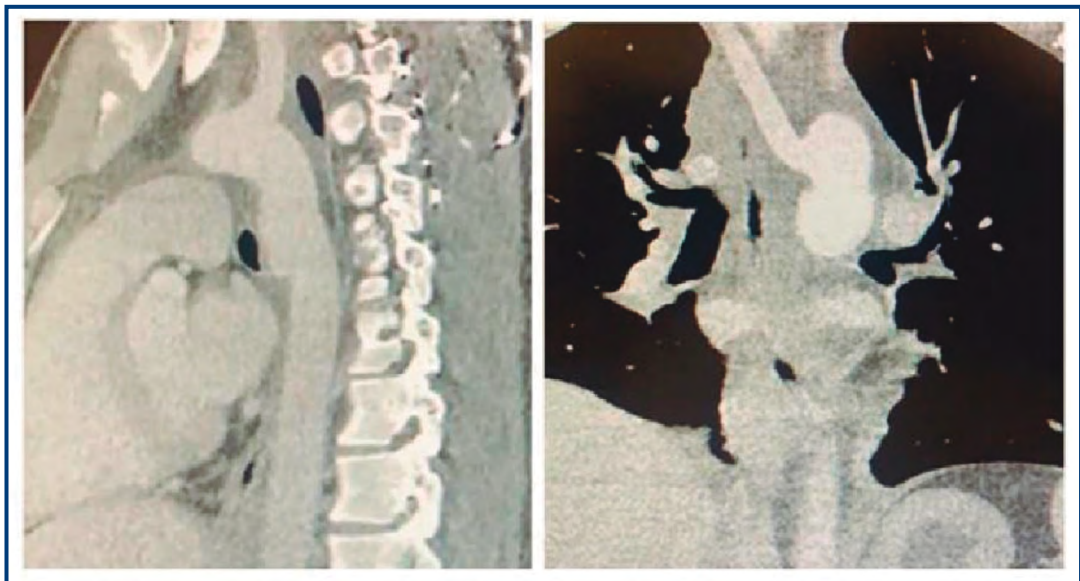


FIGURE 1. Thoracic CT showing pseudoaneurysm of the descending aorta at the level of the isthmus.

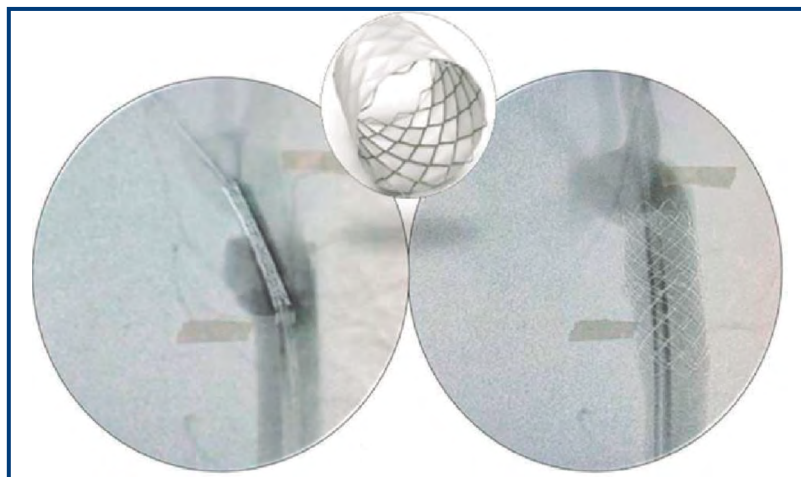


FIGURE 2. Intraoperative angiographic image, stent placement (left, positioning stent; right, open stent).

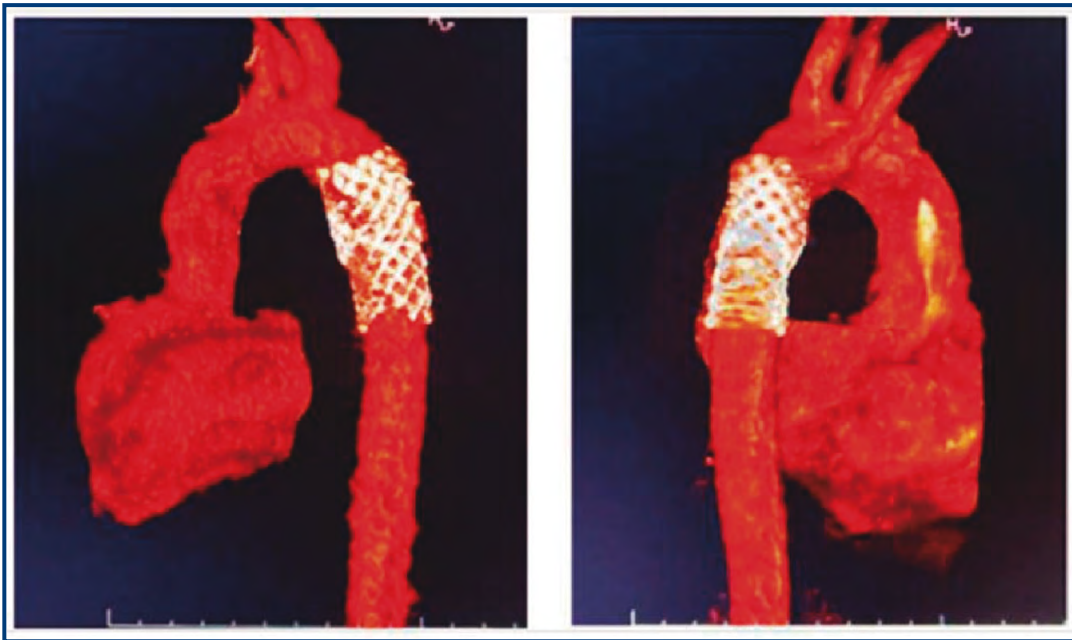


FIGURE 3. 3D thoracic CT reconstruction showing stent, without contrast leakage to the pseudoaneurysm.

CONCLUSION

In our experience, we consider that, in severe trauma, aortic lesions should be actively ruled out with a thoracoabdominal CT at admission. Aortic endoprosthesis placement should be done as soon as possible in case a major vascular lesion is found.

We believe that the most important thing in this type of trauma is to make an early diagnosis when there is a strong clinical suspicion. This will allow us to optimize the therapeutic options and times in each case and to carry out a correct follow-up of the lesions.

Declarations

The authors declare no conflict of interest.

REFERENCES

- Ortiz P, Taché A., Sirvent J.M., Bonet A., Febrer M., Andrés O. Manejo del traumatismo de aorta torácica en cinco pacientes politraumatizados. *Med. Intensiva* 2008 mayo; 32 (4) 194-197.
- American College of Radiology (ACR) Appropriateness Criteria for blunt chest trauma (suspected aortic injury) *Emerg Radiol* 2012;19:287.
- Navid F, Gleason TG. Great vessel and cardiac trauma: diagnostic and management strategies. *Semin Thorac Cardiovasc Surg.* 2008;20:31-8.
- Napal P, Mullan BF, Sen I, Saboo SS, Khandelwal A. Advances in Imaging and Management Trends of Traumatic Aortic Injuries. *Cardiovasc Intervent Radiol.* 2017; 40:643-54.
- Gupta S, Kumar A, Kaur T, Gamanagatti S, Kumar A, Gupta A, Kumar S. Current updates in acute traumatic aortic injury: radiologic diagnosis and management. *Clin Exp Emerg Med.* 2022 Jun;9(2):73-83. doi: 10.15441/ceem.22.233. Epub 2022 Jun 30. PMID: 35843607; PMCID: PMC9288877.
- Lawlor DK, Ott M, Forbes TL, Kribs S, Harris KA, De Rose - Endovascular management of traumatic thoracic aortic injuries. *Can J Surg.* 2005;48:293-7.
- Agostinelli A, Sacconi S, Borrello B, Nicolini F, Larini P, Gherli T. Immediate endovascular treatment of blunt aortic injury: our therapeutic strategy. *J Thorac Cardiovasc Surg.* 2006;131: 1053-7.
- Heneghan RE, Aarabi S, Quiroga E, Gunn ML, Singh N. Call for a new classification system and treatment strategy in blunt aortic injury. *J Vasc Surg.* 2016 ;64:171-6
- Harris DG, Rabin J, Kufera JA, Taylor BS, Sarkar R, O'Connor JV, et al. A new aortic injury score predicts early rupture more accurately than clinical assessment *J Vasc Surg.* 2015; 61:332-8.