

## Blunt thoracic aortic injury - two case reports

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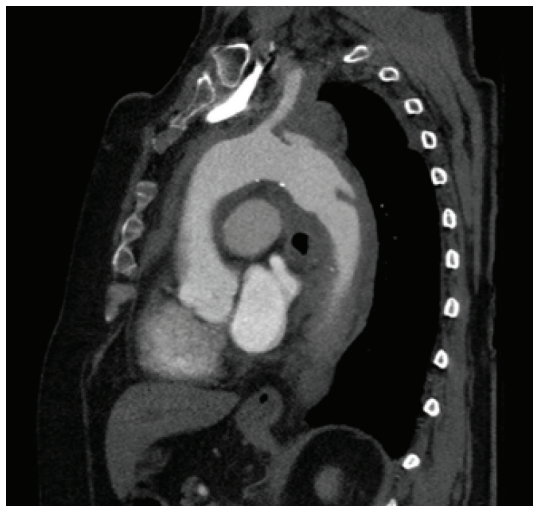
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**Introduction:** Trauma is one of the top five causes of death in Croatia according to the Croatian Institute of Public Health. Blunt thoracic aortic injury (BTAI) is the second leading cause of death in patients with blunt force injury.<sup>1</sup> Motor vehicle accidents remain the most common mechanism of aortic injury (>70%). This potentially fatal condition often has nonspecific signs and is misdiagnosed. The gold standard for diagnosing trauma patients is whole-body computed tomography. The best imaging modality for BTAI is contrast-enhanced CT.<sup>2</sup> Early diagnosis and treatment are critical for patient survival. Endovascular aortic repair techniques are a promising treatment strategy.<sup>3</sup>

**Case report:** Two patients were passengers in an accident when the vehicle suddenly left the road. 77-year-old woman had normal vital signs on arrival at the hospital with no clinical or laboratory evidence of bleeding but complained of chest pain. A second patient is a 38-year-old man who presents with polytrauma, conscious, oxygen saturation 94%, normotensive (blood pressure 115/70 mmHg), with bilateral hemothorax and pneumothorax, hemomediastinum, bilateral serial rib fractures, multifragmentary fracture of the left scapula, fracture of the seventh cervical vertebra, renal contusion, and intracerebral hemorrhage. The patient was hemodynamically stabilized and both chest were drained by placing a chest tube. In both cases, whole-body computed tomography with aortography was performed. The first patient was diagnosed with dissection (**Figure 1**) and the second patient with dissection with rupture (**Figure 2**) of the isthmic portion of the aorta, typical of BTAI. Both patients were urgently transported to the clinics for endovascular treatment of BTAI, where an endovascular graft was successfully inserted.



**FIGURE 1.** Whole-body computed tomography with aortography shows the typical location of blunt trauma aortic dissection in the first patient.



**FIGURE 2.** Whole-body computed tomography with aortography shows the typical location of blunt trauma aortic dissection with rupture in the second patient.

**Conclusion:** Whole-body computed tomography is an emergency imaging protocol often used to rapidly diagnose life-threatening injuries in polytrauma patients. Once the diagnosis is made, there are two options for aortic repair: open surgery or an endovascular procedure. Early open surgery is often characterized by high mortality and morbidity rates. Since the first reports of endovascular repair of traumatic thoracic aortic injuries, there has been a significant increase in data supporting the use of endovascular stent grafting over traditional open repair.

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### LITERATURE

1. Mouawad NJ, Paulisin J, Hofmeister S, Thomas MB. Blunt thoracic aortic injury - concepts and management. *J Cardiothorac Surg.* 2020 Apr 19;15(1):62. <https://doi.org/10.1186/s13019-020-01101-6>
2. Mazzaccaro D, Righini P, Fancoli F, Giannetta M, Modafferi A, Malacrida G, et al. Blunt Thoracic Aortic Injury. *J Clin Med.* 2023 Apr 17;12(8):2903. <https://doi.org/10.3390/jcm12082903>
3. Kim SH, Huh U, Song S, Kim MS, Kim CW, Jeon CH, et al. Open repair versus thoracic endovascular aortic repair for treating traumatic aortic injury. *Asian J Surg.* 2022 Nov;45(11):2224-2230. <https://doi.org/10.1016/j.asjsur.2021.11.040>