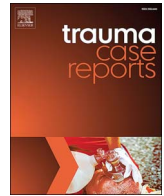




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Case Report

Initial experience with the treatment of concomitant aortic pseudoaneurysm and thoracolumbar spinal fracture: Case report

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ABSTRACT

One blunt abdominal aortic disruption (BAAD) and one blunt thoracic aortic injury (BTAI) case are presented. Both aortic injuries were combined with spinal fractures. In the BAAD case the aortic pseudoaneurysm manifested just above the lumbar fracture while in the BTAI case the aortic injury appeared several vertebrae below the thoracic fracture site, suggesting different mechanisms in the aortic wall damage. In both cases the aortic wall first was sealed, successfully, by endovascularly-placed stents, meaning the risks of open aortic reconstructive surgery could be avoided. The adjacent crucial vessel's preservation, despite the stent covering the left subclavian artery and the left common carotid artery in one of the cases was verified by post-operative computed tomography angiography (CTA) examination. In second stage those spinal fractures which were deemed unstable were stabilized by the fixateur interne (a transpedicular screw-rod system). With this treatment sequence we wanted to avoid the unnecessary risk of a possible rupture of the unsealed aortic wall during positioning for the spinal procedure and during the spinal surgery. Both patients recovered from their aortic and spinal injuries.

Introduction

Blunt injury to the thorax or to the abdomen which causes aortic injury is not uncommon, although concomitant thoracolumbar spinal fractures and blunt aortic disruption are rare. These injuries together can occur mainly as a result of accidents in which the high energy is transferred to the patient's body at the moment of impact (i.e. motor vehicle collision, fall from heights or extreme sports). Low energy impact can also cause aortic laceration, however infrequently, when fractured vertebra damages the aortic wall. In these complicated cases diagnosis and treatment options (i.e. observation, open reconstructive surgery versus endovascular stenting of a potentially life threatening aortic dissection, pseudo-aneurysm or wall rupture) need full consideration. Furthermore, in consideration of a concurrent spinal fracture, the treatment method and, should surgery be necessary, choice among surgery types are also issues. Two cases and their successful solutions are presented in this article.

This case report was approved by our Institutional Review Board.

Case I

A 31 years old female fell from an extreme height due to a malfunctioning parachute. Whole body Computed Tomography

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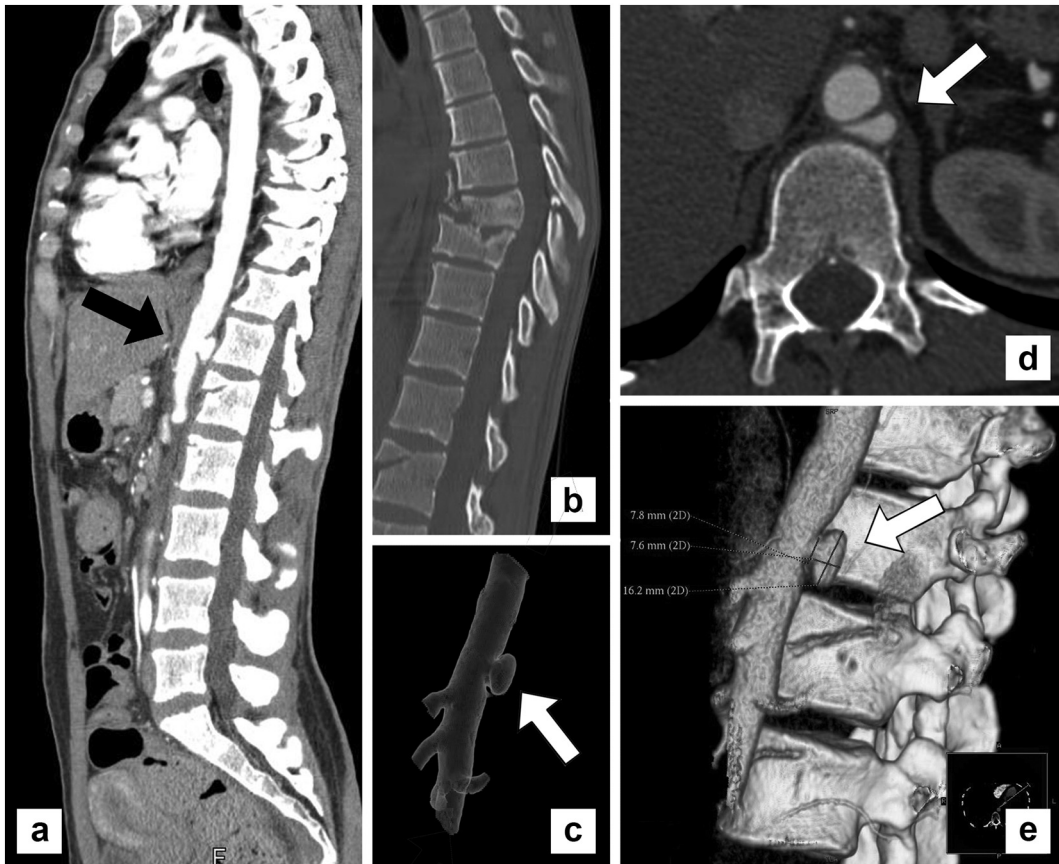


Fig. 1. Sagittal CT image shows the aortic wall damage, and the contrast agent leaving the lumen. Black arrow indicates the location (a). CT image presents Th8-9 and L1 vertebral fractures (b). 3D CT reconstruction image of the aorta highlights the vessel injury (c). Axial CT slice shows the same pathology (d). 3D CT reconstruction image demonstrates the aortic wall disruption and its location compared to the L1 fracture (e). White arrow points at the aortic lesion (c,d,e).

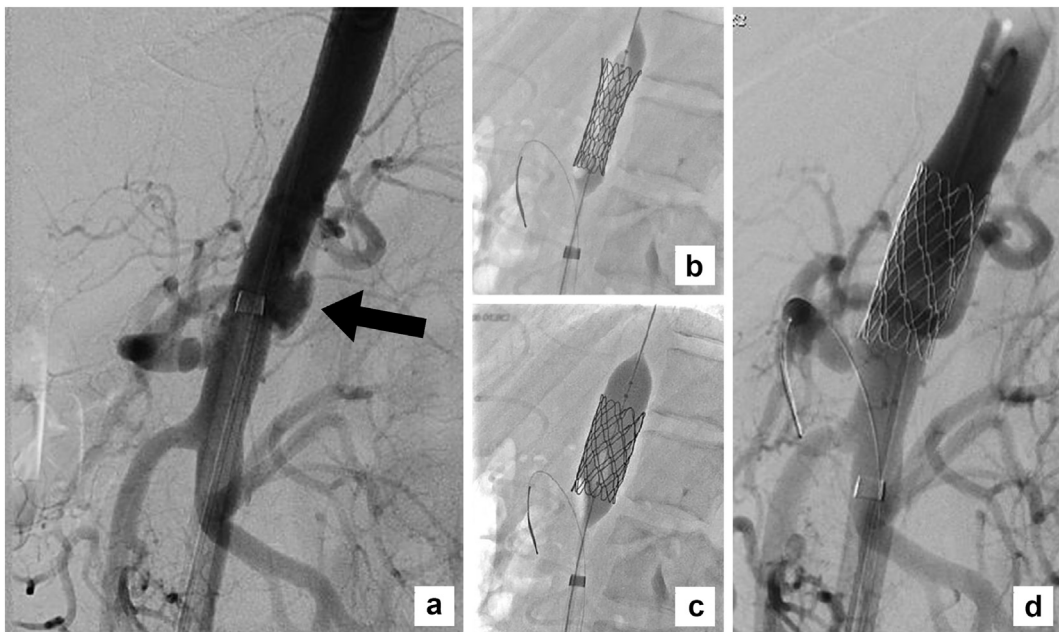


Fig. 2. Endovascular intraoperative images are presented. The black arrow indicates the site where contrast agent leaves the lumen of the aorta (a). Stenting is shown (b,c). After stenting the control image verifies the closed aortic wall with preserved celiac axis (d).

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