## Images in Cardiovascular Medicine

# Vertebral Erosion due to Spontaneous Thoracic Aortic False Aneurysm

Antioco Cappai, MD Fabrizio Settepani, MD Giuseppe Tarelli, MD Pietro Giorgio Malvindi, MD 78-year-old man was referred to our hospital because of his severe calcific aortic valve stenosis (mean gradient, 41 mmHg; maximum gradient, 68 mmHg) and dilation of the aortic root and ascending aorta (maximum diameter, 49 mm). Preoperative computed tomograms (CT) of the chest and abdomen revealed a contained spontaneous aortic rupture, localized at the posterior wall of the distal descending thoracic aorta and causing severe erosion of the 11th thoracic vertebra (T11) (Figs. 1A–B). These findings were confirmed with use of magnetic resonance imaging (Fig. 1C). The patient, a retired farmer, was asymptomatic for back pain and intermittent claudication, and his clinical history included no traumatic accidents or aortic surgery. A CT showed a descending thoracic aorta of normal size (Fig. 2). We speculated that a spine osteophyte was the chief cause of the contained



**Fig. 1 A**) Computed tomogram (axial view) shows an  $18 \times 14 \times 25$ -mm aortic false aneurysm at the posterior distal thoracic aorta (arrow). **B**) Computed tomogram (sagittal view) shows the aortic false aneurysm and severe erosion (>50%) of the anterior vertebral body of T11 (arrow). **C**) Magnetic resonance image (sagittal view) shows the aortic false aneurysm and erosion of T11 (arrow).



**Fig. 2** Computed tomogram (3-dimensional reconstruction) of the thoracic aorta shows the dilation of the aortic root and ascending aorta, and the normal size and tortuous course of the descending thoracic aorta. Arrow points to the aortic false aneurysm at the posterior distal thoracic aorta. The reconstruction does not show the obvious site of the aneurysm, probably because of thrombosis.

### Section Editor:

Raymond F. Stainback, MD, Department of Adult Cardiology, Texas Heart Institute, 6624 Fannin St., Suite 2480, Houston, TX 77030

From: Cardiovascular Department, Cardiac Surgery Unit, Humanitas Clinical and Research Center, 20089 Rozzano, Milan, Italy

#### Address for reprints:

Antioco Cappai, MD, Cardiac Surgery Unit Humanitas Clinical and Research Center, Via Manzoni 56, 20089 Rozzano, Milan, Italy

E-mail: antioco.cappai@humanitas.it

© 2015 by the Texas Heart® Institute, Houston



**Fig. 3** Computed tomograms. **A**) The axial view reveals the exclusion of the aortic false aneurysm (arrow). **B**) The sagittal view reveals the complete exclusion of the aortic false aneurysm and the absence of prosthetic endoleak (arrow).

aortic rupture and the development of the aortic false aneurysm. The previously planned cardiac operation was delayed, and the lesion was treated with use of a  $3 \times 10$ -cm Bolton thoracic endograft (Bolton Medical, Inc.; Sunrise, Fla) (Fig. 3).

## Comment

Vertebral erosion caused by a contained aortic rupture is a rare finding and is usually documented after previous abdominal aortic surgery, especially secondary to an aortic anastomosis, infective sequela, or disruption.<sup>1-4</sup> Vertebral spine osteophytes have been described as the main cause of aortic perforation and false-aneurysm development after traffic accidents.<sup>5.6</sup>

Our case combines 2 notable findings: a contained aortic rupture causing thoracic vertebral body erosion in the absence of previous aortic aneurysm or surgery, and a plausible atraumatic origin linked to a vertebral spine osteophyte.

## References

- Prete PE, Thorne RP, Robinson CA. Low-back pain and vertebral erosion due to aortic anastomotic false aneurysm, with documentation by computerized tomography. A case report. J Bone Joint Surg Am 1980;62(1):126-8.
- Diekerhof CH, Reedt Dortland RW, Oner FC, Verbout AJ. Severe erosion of lumbar vertebral body because of abdominal aortic false aneurysm: report of two cases. Spine 2002;27 (16):E382-4.
- 3. Mestres CA, Ninot S, Mulet J. Erosion of lumbar vertebral bodies by an anastomotic false aneurysm late after implantation of a prosthetic aortic bifurcated graft. Interact Cardiovasc Thorac Surg 2006;5(2):121-2.
- O'Donnell ME, Manshani N, McCaughey C, Soong C, Lee B. Coxiella burnetii infection of an aortic graft with multiple vertebral body erosion. J Vasc Surg 2007;45(2):399-403.
- Chtata H, Koskas F, Cluzel P, Kieffer E. Traumatic pseudoaneurysm of the descending thoracic aorta inflicted by a spinal osteophyte. Ann Vasc Surg 2005;19(2):263-6.
- Dregelid E, Jenssen G, Jonung T, Braaten A. Pseudoaneurysm of the abdominal aorta due to a needle-like osteophyte on the first lumbar vertebra. J Vasc Surg 2007;45(5):1059-61.