Computed Tomography and Magnetic Resonance Imaging Findings of Chronic Contained Rupture of an Abdominal Aortic Aneurysm Leading to Vertebral Destruction and Total Thrombosis: A Case Report

Sercan Ozkacmaz*
Van Yuksek Ihtisas Egitim ve Arastirma Hastanesi, Van, Turkey

Abstract

Rupture is an extremely fatal complication of abdominal aortic aneurysms (AAAs), which may result in severe retroperitoneal bleeding. In certain cases, particularly in those with smaller ruptures, bleeding may be contained by surrounding tissues, such as vertebral bodies or psoas muscle. These chronic hematomas can cause vertebral destruction, leading to radicular pain and back pain. Total thrombosis of the abdominal aorta secondary to aneurysm rupture is a relatively uncommon complication, leading to numbness and vascular pain in the lower extremities, rather than back pain. Herein, we present a case of a chronic contained rupture of an AAA, leading to vertebral destruction and total thrombosis, as evidenced by contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI).

Keywords: Computed tomography; Magnetic resonance imaging; Aneurysm; Destruction; Thrombosis

Introduction

A chronic contained rupture of an abdominal aortic aneurysm (AAA) is a well-documented subtype of AAA ruptures [1]. Compressive resistance to extravasation may cause a chronic retroperitoneal hematoma. Strong retroperitoneal structures, such as vertebral bodies and the psoas muscle can tamponade the hematoma [1,2].

The majority of the patients with a ruptured AAA present with abdominal or back pain and the clinical findings of shock [1,2]. In addition, there may be no accompanying severe clinical manifestations, and this type of aneurysmal ruptures is termed as a chronic contained rupture [3].

We present a case of a chronic contained rupture of an AAA, leading to vertebral destruction and total thrombosis, as evidenced by contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI).

Case Report

A 47-year-old male patient was presented with a 10-month history of low back pain and one-month history of bilateral intermittent claudication and numbness in both lower extremities. His medical history revealed mild untreated hypertension for two years. Physical examination also revealed diminished peripheral pulses in both lower extremities. Arterial Doppler ultrasound (US) demonstrated low peak systolic velocity and flow volume in bilateral femoral, tibialis posterior and dorsalis pedis arteries. The difference in Doppler US measurements between the right and left lower extremities was non-significant. A contrast-enhanced thoracoabdominal CT angiography and MRI showed a focal (3.2 cm in size) aneurysmal dilatation of the infrarenal abdominal aorta. In addition, there was a 84 × 65 × 53 mm non-enhancing heterogeneous lesion which was compatible with a chronic contained rupture associated with the aneurysm, extending posterolaterally. The lesion caused severe erosion of the anterior parts of L2 and L3 vertebral bodies and compressed the left psoas muscle. A total thrombosis in the abdominal aorta was detected starting below the origin of the inferior mesenteric artery and the origin of aneurysm extending toward the bifurcation of the aorta and the common iliac arteries. Furthermore, bilateral internal thoracic artery-inferior epigastric artery collaterals which provided lower extremity perfusion were detected (Figures 1-9). The patient presented with clinical manifestations of arterial insufficiency rather than neurological symptoms, as the lesion did not reach the posterior parts of vertebrae and did not cause a nerve root compression. A surgical repair of the

*Corresponding author: Sercan Ozkacmaz, Van Yuksek Ihtisas Egitim ve Arastirma Hastanesi, Van, Turkey, Tel: +904322157302; E-mail: sercanozkacmaz@hotmail.com

Received September 06, 2017; Accepted October 11, 2017; Published October 17, 2017

Citation: Ozkacmaz S (2017) Computed Tomography and Magnetic Resonance Imaging Findings of Chronic Contained Rupture of an Abdominal Aortic Aneurysm Leading to Vertebral Destruction and Total Thrombosis: A Case Report. J Vasc Med Surg 5: 339. doi: 10.4172/2329-6925.1000339

Copyright: © 2017 Ozkacmaz S. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.
aneurysm was performed following anticoagulant therapy, and the patient was discharged two weeks after surgery.

**Discussion**

An AAA can be considered a dilatation of the infrarenal aorta, giving rise to a permanent vessel diameter >30 mm, while typical abdominal aortic diameter ranges from 15 to 25 mm) [4]. A chronic contained rupture of an AAA is relatively rare, including only 2.7% of...
Several authors previously described vertebral erosion associated with a chronic contained rupture of an AAA. It has been suggested that a continuously pulsating aneurysm, which is compressing the vertebral body leads to extensive bone destruction [5-7]. It is also of utmost importance to differentiate the vertebral erosion caused by a chronic contained rupture of an AAA from the infectious processes. Chronic contained ruptures of an AAA-related erosions are usually smooth, compared to those caused by a vertebral pyogenic infection, in which the bony destruction is irregular and poorly delineated [5,9].

**Conclusion**

To the best of our knowledge, our case, who presented with clinical manifestations of arterial insufficiency and back pain, is the first case of a chronic contained rupture of an AAA, leading to both vertebral erosion and total thrombosis, which was attributed to chronic compression of the distal segment of the abdominal aorta by a widened chronic contained rupture sac.

**References**

1. Sterpetti AV, Blair EA, Schultz RD, Feldhaus RJ, Cisternino S, et al. (1990) Sealed rupture of abdominal aortic aneurysm – unusually delayed onset of arterial symptoms. Cardiovasc Surg 12: 300-302.
2. Ando M, Katori E, Hirose S, Iwata K, Igari T, Yokoyama H, Satokawa H (2003) CT features of chronic contained rupture of an abdominal aortic aneurysm. Ann Thorac Cardiovasc Surg 9: 274-278.
3. Apter S, Rimon E, Konen E, Erlrich Z, Guranda L, et al. (2010) Sealed rupture of abdominal aortic aneurysm: CT features in 6 patients and a review of the literature. Abdom Imaging 35: 99-105.
4. Sealed rupture of abdominal aortic aneurysms: CT features in 6 patients and a review of the literature. Arch Surg 121: 542-546.
5. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
6. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
7. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
8. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
9. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
10. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
11. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
12. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.
13. Kapoor V, Kanal E, Dalsing MC, Glover JL (1986) Chronic contained rupture of an abdominal aortic aneurysm repair graft. AJNR Am J Neuroradiol 7: 1775-1777.