



## CASE REPORT

# Vertebral Body Erosion in Geriatric Patient: Case Reports and Systematic Review of Literature

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### Abstract

Vertebral body erosion has been rarely reported in the literature. We present two geriatric patients with chronic back pain who has vertebral erosion associated with aortic aneurysm, accompanied with literature review.

### Keywords

Vertebral erosion, Aneurysm, Back pain, Geriatric patient

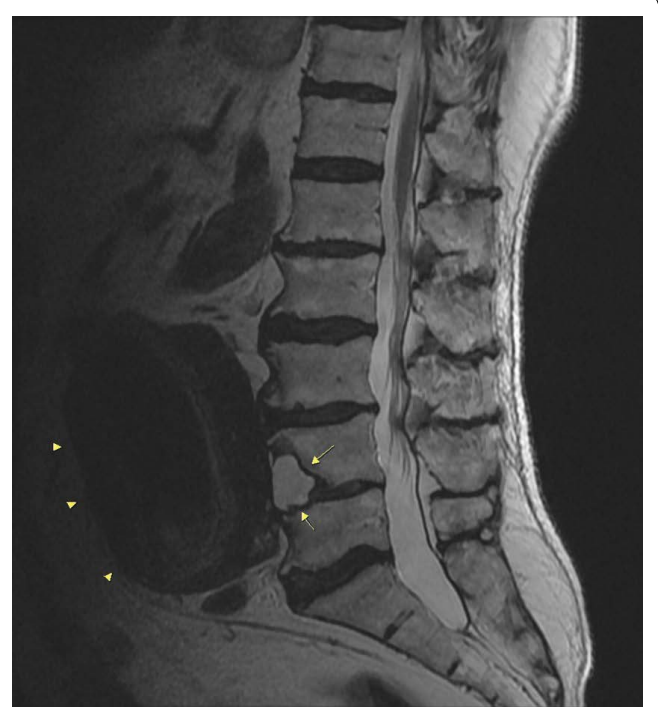
## Introduction

Vertebral body erosion is a rare vertebral pathology and often detected incidentally. Our aim is to present two geriatric patients with chronic back pain who has vertebral erosion associated with aortic aneurysm.

## Case History

**Case 1:** A 71-year-old man with low back pain for more than a year, cortical erosion and vertebral cyst formation of L4 vertebral body were diagnosed on lumbar MRI. There was no compression fracture or bone marrow edema. The fusiform unruptured aneurysmatic dilatation of abdominal aorta was seen adjacent to the vertebral cyst (Figure 1 and Figure 2). The vertebral cyst was thought to be associated with abdominal aortic aneurysm (AAA). The aortic wall defect or paraaortic hematoma was not established. After the diagnosis of AAA associated with vertebral cyst, the patient was referred to cardiovascular surgery.

**Case 2:** A 80-year-old man was under follow up assessments due to deteriorated general health status af-



**Figure 1:** A 71-year-old man, mid-sagittal T2W FSE lumbar MRI image shows sclerotic margin -nonexpansive- hyperintense cyst in L4 vertebral body (long arrows). Giant abdominal aortic aneurysm is also seen adjacent to the anterior margin of L4 vertebra (arrow head).

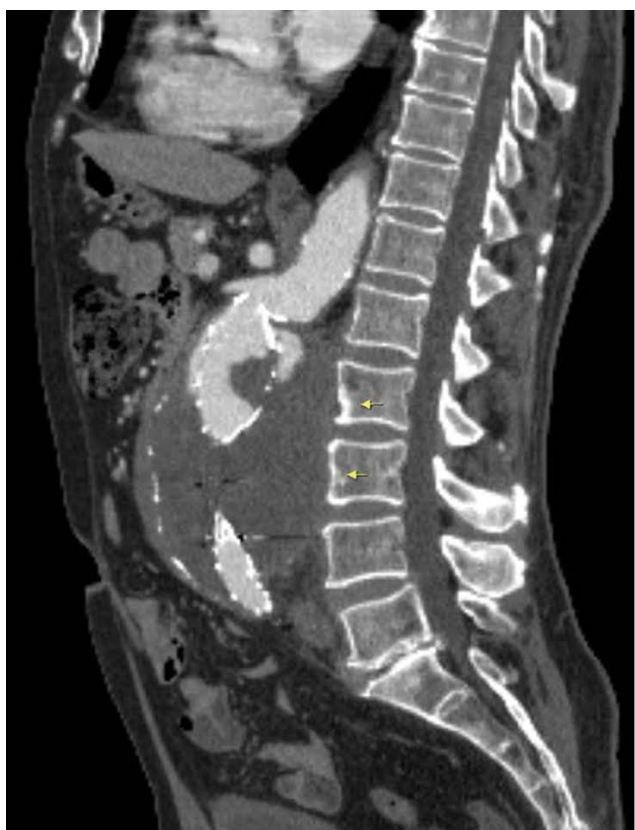
ter the failed operation for AAA. The chronic contained ruptured aortic aneurysm (CCAA) and erosion at the anterior corpus of the adjacent vertebra were established with CT (Figure 3 and Figure 4).



**Figure 2:** Axial T2W FSE lumbar MRI image: The vertebral cyst (long arrow) is seen adjacent to the aortic aneurysm (arrowhead).



**Figure 4:** Axial CT image shows that chronic contained ruptured aneurysm with bilateral paravertebral hematomas (arrow heads) and also cortical erosion (long arrow) on the contact surface of this vertebrae.



**Figure 3:** A 80-year-old man, operated abdominal aortic aneurysm. Sagittal reformate CT image: Aortic aneurysm with diameter of 85 mm and erosion at the anterior corpus of the adjacent vertebra (L2) is seen (long arrow).

## Discussion

Vertebral erosion is generally associated with tumor or infection. Aortic aneurysm also rarely causes vertebral erosion. In the systematic review of Pubmed and Google scholar for vertebral erosion associated with aortic

aneurysm, we have found that total of 32 cases by since 2000 (Table 1). This corresponds approximately to two cases per year. Among aortic aneurysms causing vertebral erosion, the most commonly defined type is chronic contained ruptured abdominal aortic aneurysm (CCAA), it has irregular posterior aortic wall and chronic stage hematoma with frequently associated with vertebral erosion [1]. Vertebral erosion is caused by the mass and pulsation effect of aneurysm and retroperitoneal hematoma can also lead to vertebral erosion [2]. Because of high risk of rupture, CCAA necessities surgical intervention. Vertebral erosion associated with aneurysm may cause low back pain. For this reason, there is a risk of misdiagnosis and hazard of delayed diagnosis. In the literature, 16 CCAA [2-17], 7 aortic aneurysms [18-21] and 1 pseudoaneurysm [19] were defined. Vertebral erosions associated with false aneurysm at prosthetic graft junction in three patients [22,23], and one patient with widespread vertebral lysis associated with *Coxiella burnetti* infection related with vascular surgery was also reported in the literature [24]. Furthermore, vertebral erosion associated with aortic aneurysms occurred in the course of Behçet's disease were present [25-28]. The most commonly affected vertebra is third lumbar vertebra (L3) and L4, L2, L1 vertebra in descending order.

## Conclusion

Vertebral body erosion is a rare pathology in geriatric patient with back pain, associated with aneurysm and infections.

## Conflict of Interest

None.

**Table 1:** In the systematic review of Pubmed and Google scholar for vertebral erosion caused by aortic aneurysm [2-28].

Researchers	Etiology	Affected vertebra
Saiki, et al. [3]	chronic contained rupture aortic aneurysm	unknown
Arici, et al. [4]	chronic contained rupture aortic aneurysm	L2-L3
Aydogan, et al. [5]	chronic contained rupture aortic aneurysm	L3-L4-L5
Caynak, et al. [2]	chronic contained rupture aortic aneurysm	L4
Bansal, et al. [6]	chronic contained rupture aortic aneurysm	unkown
Lai, et al. [7]	chronic contained rupture aortic aneurysm	L3
Lombardi, et al. [8]	chronic contained rupture aortic aneurysm	T11-T12-L1
Kapoor, et al. [9]	chronic contained rupture aortic aneurysm	L3
Erdogan, et al. [10]	chronic contained rupture aortic aneurysm	L3
Gandini, et al. [11]	chronic contained rupture aortic aneurysm	L4
Nakano, et al. [12]	chronic contained rupture aortic aneurysm	unkown
Matsunaga, et al. [13]	chronic contained rupture aortic aneurysm	T6-T7
Yuksekkaya, et al. [14]	chronic contained rupture aortic aneurysm	T11
Alshafei, et al. [15]	chronic contained rupture aortic aneurysm	L4-L5
Sakai, et al. [16]	chronic contained rupture aortic aneurysm	unkown
Jukovic, et al. [17]	chronic contained rupture aortic aneurysm	L3
Takahashi, et al. [18]	thoracic aortic aneurysm	T8-T9-T10
Gonzalez Gay, et al. [19]	4 aortic aneurysm +1 pseudoaneurysm (5 patients)	L2-L3-L4
Farhan-Alanie, et al. [20]	abdominal aortic aneurysm	unkown
Jang, et al. [21]	abdominal aortic aneurysm	L3-L4
Diekerhof, et al. [22]	postoperative false aneurysm (2 patients)	unkown
Mancini, et al. [23]	postoperative false aneurysm	L2-L3
O'Donnell, et al. [24]	postoperative aortic aneurysm with Coxiella Burnettii infection	L1-L2-L3
El Maghraoui, et al. [25]	abdominal aortic aneurysm with Behçet disease	L2
Örücü, et al. [26]	chronic contained rupture aortic aneurysm with Behçet disease	L3
Barros, et al. [27]	pseudoaneurysm with Behçet disease	L3
Ahn, et al. [28]	chronic contained rupture aortic aneurysm with Behçet disease	L3

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