

## Chronic Contained Rupture of an Abdominal Aortic Aneurysm with Vertebral Erosion: Report of a Case

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**A 73-year-old man had lumbago of unknown cause for several months prior to presentation. At examination prior to surgery for gastric cancer, an abdominal aortic aneurysm (AAA) of 6 cm in maximum diameter, retroperitoneal hematoma and vertebral erosion were found on abdominal computed tomography (CT). Hematological examination revealed mild anemia and stable hemodynamics. A diagnosis of chronic contained rupture of an AAA was made and knitted Dacron bifurcated graft replacement was performed. When an intraluminal thrombosis at the posterior wall was removed, a punched-out defect (3×2 cm) was discovered. When the old hematoma was removed, a destroyed vertebral body was found. After surgery, the lumbago was alleviated. The patient was transferred to the Department of Surgery and a gastrectomy was performed. The patient's postoperative course was uneventful. (*Ann Thorac Cardiovasc Surg* 2006; 12: 300–2)**

**Key words:** chronic contained rupture, abdominal aortic aneurysm, vertebral erosion

### Introduction

When an abdominal aortic aneurysm (AAA) ruptures, this is usually followed by severe abdominal pain and a rapid reduction in blood pressure. However, recently, it has been found that among patients with AAA ruptures, there are some patients in whom a retroperitoneal hematoma is gradually formed without the typical symptoms and an aneurysm is then discovered with compressive symptoms of the hematoma. Jones et al. reported this condition as chronic contained rupture.<sup>1)</sup> We report a rare case of chronic contained rupture of an AAA with vertebral erosion and a review of the literature.

### Case Report

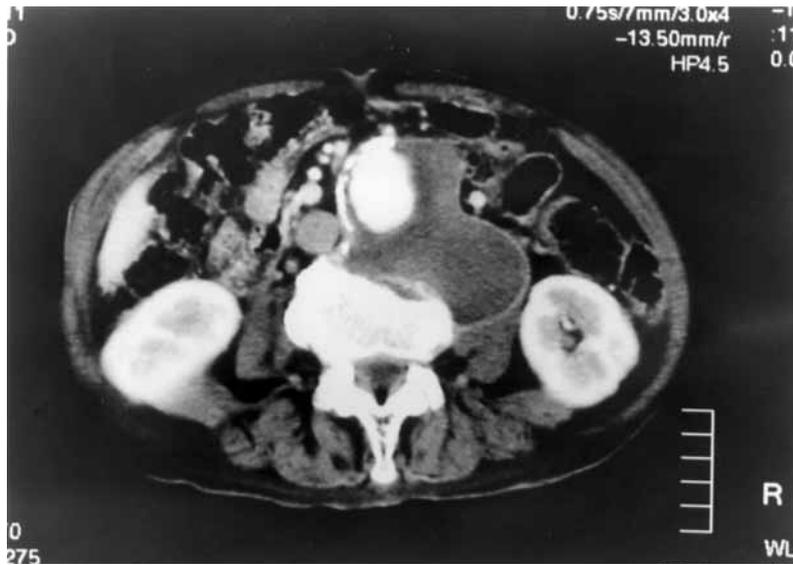
A 73-year-old man had severe lumbago without any obvious cause from April 2003. He consulted a local physi-

cian and received treatment. However, the symptoms were not alleviated. Due to a loss of appetite which dated from around the middle of July, he was hospitalized at the Department of Internal Medicine of our hospital for thorough examinations on August 11. An upper gastrointestinal endoscopic examination showed a gastric cancer in the early stage. When an abdominal computed tomography (CT) scan was conducted, an AAA was found and he was thus transferred to our department on August 27. Although he had a history of a cerebral infarction five years previously, paralysis was not present at admission. His physique and nutrition were normal and no anemia nor jaundice were found. His abdomen was flat and soft, but a pulsating mass, 6×4 cm, was felt to the left of the umbilicus. General hematological examinations showed findings of mild anemia with a hemoglobin of 12 g/dl, with no abnormalities being found on biochemical examination. The abdominal CT revealed an infrarenal AAA of 6 cm in maximum diameter and partially broken calcification of the intima (Fig. 1). A peritoneal hematoma and a vertebral erosion was also found. An emergency angiography, was performed on August 27. This showed infrarenal AAA, but no significant stenosis was found in the iliac region. However, a 75% stenosis was found at #4 on coronary angiography (CAG). From those findings,

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**Fig. 1.** Abdominal CT.  
The abdominal CT showed an infrarenal AAA, peritoneal hematoma and vertebral erosion.

we diagnosed chronic rupture of an AAA. Although the hemodynamics were stable, it was judged that the risk of a re-rupture would be high, and surgery was thus performed on August 28. A laparotomy was performed at the abdominal median site. After systemic heparinization, an aortic clamp was inserted under the renal artery and the aneurysm was incised. A punched-out defect (3×2 cm) was found at the posterior wall of the aneurysm after the removal of intraluminal thrombi. Through the punched-out defect, a large amount of old hematoma was found in the posterior peritoneal cavity. When as much hematoma was removed, the vertebral body was identified. The vertebral body was destroyed and the bone marrow was exposed (Fig. 2). A replacement was performed using a knitted Dacron bifurcated graft, 18×9 mm in size. The postoperative course was favorable and the lumbago was alleviated. The patient was then transferred to the Department of Surgery to undergo his original surgery. At present, it is 18 months after surgery, and the patient is well.

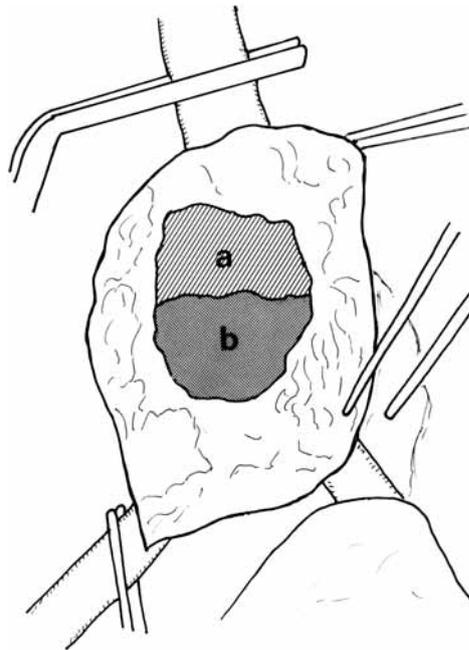
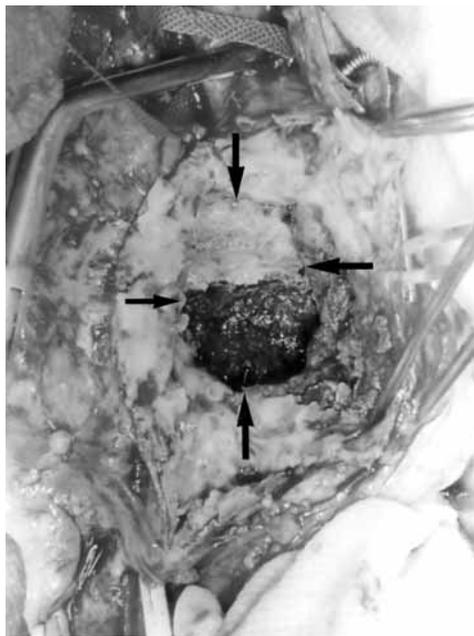
## Discussion

It is believed that the rupture of an AAA causes severe pain and hemodynamic and the prognosis is poor,<sup>2)</sup> recently it has been found that there are some cases which turn to a chronic condition. Jones et al. reported this condition as chronic contained rupture.<sup>1)</sup> Characteristic findings of these conditions are: (1) the presence of an AAA; (2) previous symptoms of pain; (3) a patient whose condition is stable and whose hematocrit is normal; (4) CT

showing retroperitoneal hematoma and; (5) pathological confirmation of organized hematoma. Other symptoms reported include femoral disorders and obturator neuropathy,<sup>3)</sup> lumbago,<sup>4,5)</sup> obstructive jaundice<sup>6)</sup> or a symptomatic inguinal hernia.<sup>7)</sup> A vertebral erosion corresponding to the form of an aneurysm is a characteristic seen on imaging diagnoses.<sup>5)</sup> Ando et al. examined about 115 reported chronic contained ruptured AAA since 1961 in the English literature, and they stated that erosion complicated in about 25% of cases,<sup>5)</sup> and is considered to cause the lumbago.

Chronic contained rupture is a condition in which a rupture occurs once, but then is stopped by the surrounding tissues. Because a re-rupture may occur, once it is detected, it is necessary to perform surgery. However, because coronary arterial lesions are complicated in about half of all AAA cases,<sup>8)</sup> a CAG should be done to prevent myocardial infarction at the perisurgical period. In the treatment policy for coronary artery stenosis needing immediate treatment, the attendant risk of a re-rupture of an aneurysm and the need to obtain favorable results of simultaneous coronary artery bypass grafting (CABG) and AAA surgeries through the recent improvement of off-pump CABG techniques have been reported.<sup>9,10)</sup>

Regarding the diagnosis of chronic contained rupture, because various symptoms are exhibited,<sup>3-7)</sup> its detection is sometimes delayed. Due to the characteristics of this disease, it is important to detect it at the early stage and treat it promptly. Older people, presenting with lumbago, need to have this diagnosis considered. Ortho-



**Fig. 2.**

**A:** Operative findings.

A 3×2 cm punched-out defect (arrows) was found on posterior wall of the aneurysm and through the punched-out defect, destroyed vertebral body and bone marrow was discovered.

**B:** Operating schema.

**a,** vertebral body;  
**b,** bone marrow.

paediatric surgeons and physicians need to be aware of this entity.

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