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# Acute Proximal Aortic Intramural Hematoma: A Case Report

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## ABSTRACT

The case presented here is of a 72-year-old man with an acute proximal aortic hematoma. He was hospitalized and underwent close monitoring and blood pressure control. Typical aortic dissection developed during his hospital admission. This case emphasizes the importance of frequent follow-up imaging during medical therapy of patients with aortic intramural hematoma. However, the frequency of imaging is yet to be determined.

## INTRODUCTION

Aortic intramural hematoma (AIH), known as a variant form of aortic dissection (AD), is characterized by the absence of intimal tear and direct flow communication between true and false lumen [Vilacosta 1997]. Initial clinical studies concluded that AIH is a precursor or very early stage of AD, having a high rate of progression to overt dissection. Thus, the same treatment strategy—surgical repair if possible—has been used in patients with AIH as in those with classic dissection [Nienaber 1995; Song 2002]. For patients with AIH involving the ascending aorta, surgical intervention has been considered as a standard treatment modality. However, the natural history of proximal AIH is not yet clearly known, and most clinical studies included only small numbers of patients with proximal AIH [Nienaber 1995; Vilacosta 1997; Song 2002]. However, there are reports of favorable responses to medical treatment with complete resorption of the hematoma, without surgical intervention [Sueyoshi 1997; Sohn 2001]. AIH is different from AD in terms of the absence of continuous direct flow communication through intimal tear; however, the impact of different false lumen hemodynamics on the clinical courses has not been seriously investigated.

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Persistent flow communication between the true and the false lumen is a well-known adverse prognostic factor in patients with classic AD [Kang 1998]. We present a case of acute proximal aortic hematoma in which typical AD developed during the patient's hospital admission.

## CASE REPORT

The patient was a 72-year-old man who had an acute onset of chest pain radiating to the back and chin. On admission there was no intimal flap seen in the transthoracic echocardiography (TTE), and aortic diameter was measured as 3.4 cm. Computed tomography (CT) revealed an intramural hematoma of the ascending aorta (Figure 1). The ascending aortic diameter was 5.2 cm in CT scans. We decided to monitor the patient with effective medical treatment and TTE controls once a week or if any symptom arose. During the second week of his admission, TTE showed an intimal flap in the ascending aorta and there was a significant increase in the diameter of the aorta. Classic AD had developed in the ascending aorta. Progression of dissection and double lumen appearance was seen in the CT scan views (Figure 2). We decided to operate, and the patient was taken to the operation room. Right femoral artery incision and median sternotomy were performed after anesthesia induction. An enlarged aortic diameter and subadventicial hematoma was seen when the pericardium was opened (Figure 3). The patient was put on cardiopulmonary bypass through right femoral arterial and right atrial cannulations. A left ventricular vent was placed to the right superior pulmonary vein. Cold blood cardioplegia was given antegradely and retrogradely. The patient was cooled to 18°C and total circulatory arrest was applied. The ascending aorta was replaced with a 30-mm Dacron vascular graft. The postoperative course was complicated by acute renal failure, and the patient needed hemodialysis once on the second postoperative day. Ventilatory support was continued for 7 days. The patient was discharged on the twenty-first postoperative day.

## CONCLUSION

Intramural hematoma is recognized as a pathoanatomically distinct form of classic AD, and its natural history is not completely understood. Morphologically, it may be a

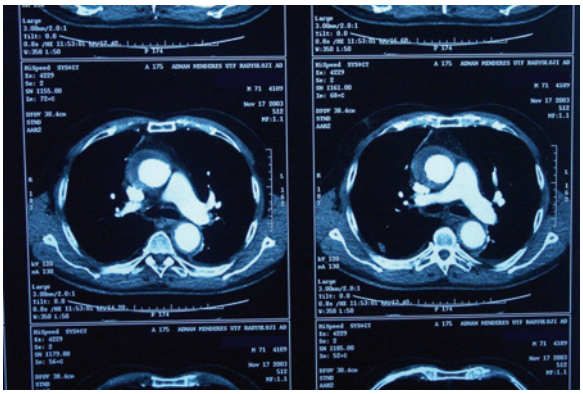

Figure 1. First computed tomography scan views.

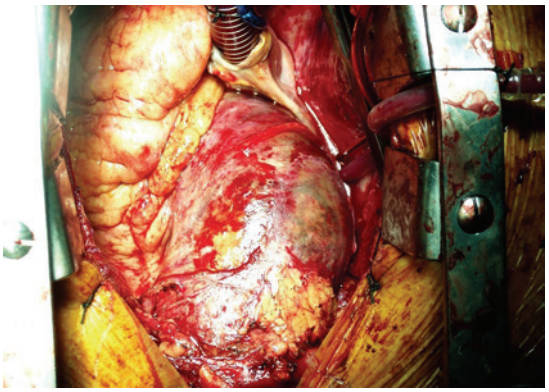

Figure 3. Enlarged ascending aorta and intramural hematoma.

reversible precursor of AD. When followed with serial imaging studies, it can have 4 possible courses: the hematoma may persist (although its thickness may change); it may be reabsorbed, so that the appearance of the aortic wall returns to normal; it may lead to an aortic aneurysm; or it may convert to a classic AD, with the development of a typical intimal flap and flow in a false lumen.

Since the mid-1990s, most treatment centers have adopted a general management strategy for AIH similar to that used for classic AD: proximal aortic involvement is surgically treated and distal aortic involvement is medically managed [O'Gara 1995]. However, several recent reports have suggested that the outcomes associated with proximal intramural hematoma may be more benign than classic AD, with a large proportion of patients surviving with medical therapy alone [Kang 1998; Shimizu 2000; Sohn 2001]. It is also reported that, with the same medical treatment, AIH involving the distal descending thoracic aorta shows a much higher rate of complete resolution of the aortic pathology than typical AD [Song 2002].

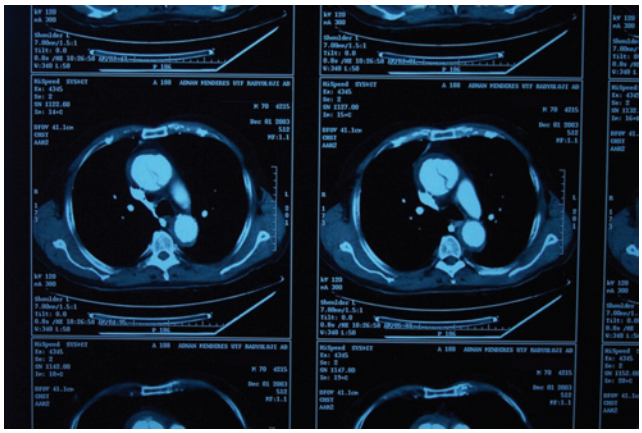

Figure 2. Progression of dissection and double lumen appearance was seen in computed tomography scan views.

Medical therapy and elective surgery could be a rational option for noncomplicated AIH (without aortic aneurysmal dilatation or pericardial leakage). The case presented here emphasizes the importance of frequent follow-up imaging during medical therapy of patients with AIH. However, the frequency of imaging is yet to be determined.

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