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Case Reports

Nine-Year Follow-Up of Conservatively Managed Acute Type A Aortic Dissection in an Older Patient

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Abstract

Acute type A aortic dissection is a catastrophic cardiovascular event characterized by severe pain and hemodynamic instability. The standard of care is emergency surgery, which, despite its benefits, carries substantial perioperative risks. Conservative management is an alternative approach reserved for older patients with clinically significant comorbidities or for whom surgical risk is prohibitive and perioperative mortality may outweigh potential benefits. The case is presented of a 75-year-old patient who opted for conservative management and has been followed up with favorable outcomes for 9 years since the index event.

Keywords: Aortic dissection; conservative treatment; prognosis; aged, 80 and over; follow-up studies

Case Report

Presentation and Physical Examination

In 2015, a 75-year-old woman presented to the reporting institution's emergency department with a 10-day history of "paroxysmal chest tightness." The discomfort, localized bilaterally to the sternum and exacerbated by activity, was initially overlooked but recurred frequently, prompting her visit. A chest computed tomographic (CT) scan revealed ascending aortic aneurysm, and further CT angiography confirmed type A, DeBakey II classification aortic dissection; aortic atherosclerosis; and intramural hematoma in the descending aorta (Fig. 1A). The patient's ascending aorta measured 5.8 cm in diameter, with 2 dissection sites. Her vital signs and laboratory results on admission are detailed in Table I. A bedside electrocardiogram (ECG) indicated sinus rhythm and normal ECG range.

Medical History

The patient had a history of hypertension, which was managed with nitrendipine 20 mg twice daily.

Differential Diagnosis

Diagnosis of pulmonary embolism and myocardial infarction were generally excluded based on CT angiographic and ECG results.

Technique

Despite a recommendation for surgery, the patient and her family chose conservative treatment, leading to the prescription of diltiazem 30 mg twice daily and metoprolol tartrate 25 mg twice daily, aiming for a blood pressure of 110/60 to 120/70 mm Hg and a heart rate of 60/min to 80/min. After 4 days, the patient's symptoms resolved, and

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she was discharged on medication. Regular follow-up visits were conducted after discharge.

Outcome

In 2017, a follow-up chest CT scan (Fig. 1B) showed an ascending aortic diameter of 6.6 cm. By 2020 (Fig. 1C), this diameter had increased to 7.5 cm. A 2024 CT angiographic reevaluation (Fig. 1D) revealed a false lumen thrombus, with the ascending aorta measuring 8.5 cm at its widest point. Echocardiography confirmed a DeBakey type II dissection with mild valvular regurgitation and an ejection fraction of 40%. The ECG showed atrial fibrillation. Despite these findings, the patient remained asymptomatic and independent.

Latest Follow-Up

The patient is still alive and was last seen for follow-up in March 2025. In April 2025, it will have been 10 years since the discovery of the aortic dissection.

Discussion

Aortic dissection, particularly type A dissection involving the ascending aorta, is a life-threatening condition that demands swift and decisive action. It presents with a spectrum of clinical manifestations and often leads to rapid deterioration and high mortality rates if left untreated. The decision to proceed with surgery or opt for conservative management is complex and multifaceted, involving a careful assessment of the patient's overall health, comorbidities, and the potential benefits and risks of each treatment option. The case presented here is a rare instance of a patient with acute type A aortic dissection who, after a comprehensive evaluation and discussion of the risks and benefits, chose a conservative treatment pathway. This decision was made in the context of her advanced age and the potential surgical complications that could arise as a result of it. Over the course of 9 years, this patient has been closely monitored, providing a unique opportunity to evaluate the long-term outcomes of conservative management in such cases.

TABLE I. Patient Vital Signs and Laboratory Results on Hospital Admission

	Statistic	Value (reference range, if any)
Vital signs	Heart rate, /min	60
	Respiration, /min	20
	Blood pressure, mm Hg	123/87
Laboratory results	Creatinine, μmol/L	52 (35-80)
	Dimerized plasmin fragment D, nmol/L	9.76 (<2.74)
	C-reactive protein, mg/L	62 (<8)
	Hemoglobin, g/L	96 (115-150)
	Platelet count, × 10^9/L	336 (125-350)

SI conversion factor: To convert from mm Hg to kPa, multiply by 0.133.

Key Points

- Surgical intervention is the preferred treatment option for type A aortic dissection, but conservative treatment may also be acceptable for older patients who do not have high-risk factors for mortality.
- Older patients undergoing conservative treatment for active dissection may experience continuous widening of the ascending aorta diameter, but it does not seem to affect the patient's survival status.

Abbreviations

CT, computed tomography
ECG, electrocardiogram

The "Guideline on Diagnosis and Treatment of Aortic Aneurysm and Aortic Dissection" by the Japanese Association for Thoracic Surgery and the Japanese Society for Vascular Surgery Joint Working Group emphasizes the poor prognosis for type A aortic dissection, with mortality rates increasing by 1% to 2% per hour after onset and a 50% mortality rate within 48 hours for patients who are conservatively managed.[1] Studies suggest that surgical benefits extend to patients of all ages, except for patients older than 90 years,[2] with a preference for medical therapy in older populations.

Real-world scenarios often diverge from guidelines, especially for older patients (≥65 years) facing high surgical risks and costs. In Europe, nearly 30% of older patients with type A aortic dissection opt for conservative treatment, with most patients experiencing dissection-related mortality within 2 weeks.[3] The current patient's survival may be attributed to her clear consciousness, stable vitals, and lack of ECG abnormalities, which contrast with the typical risk factors for mortality in type A aortic dissection.[4]

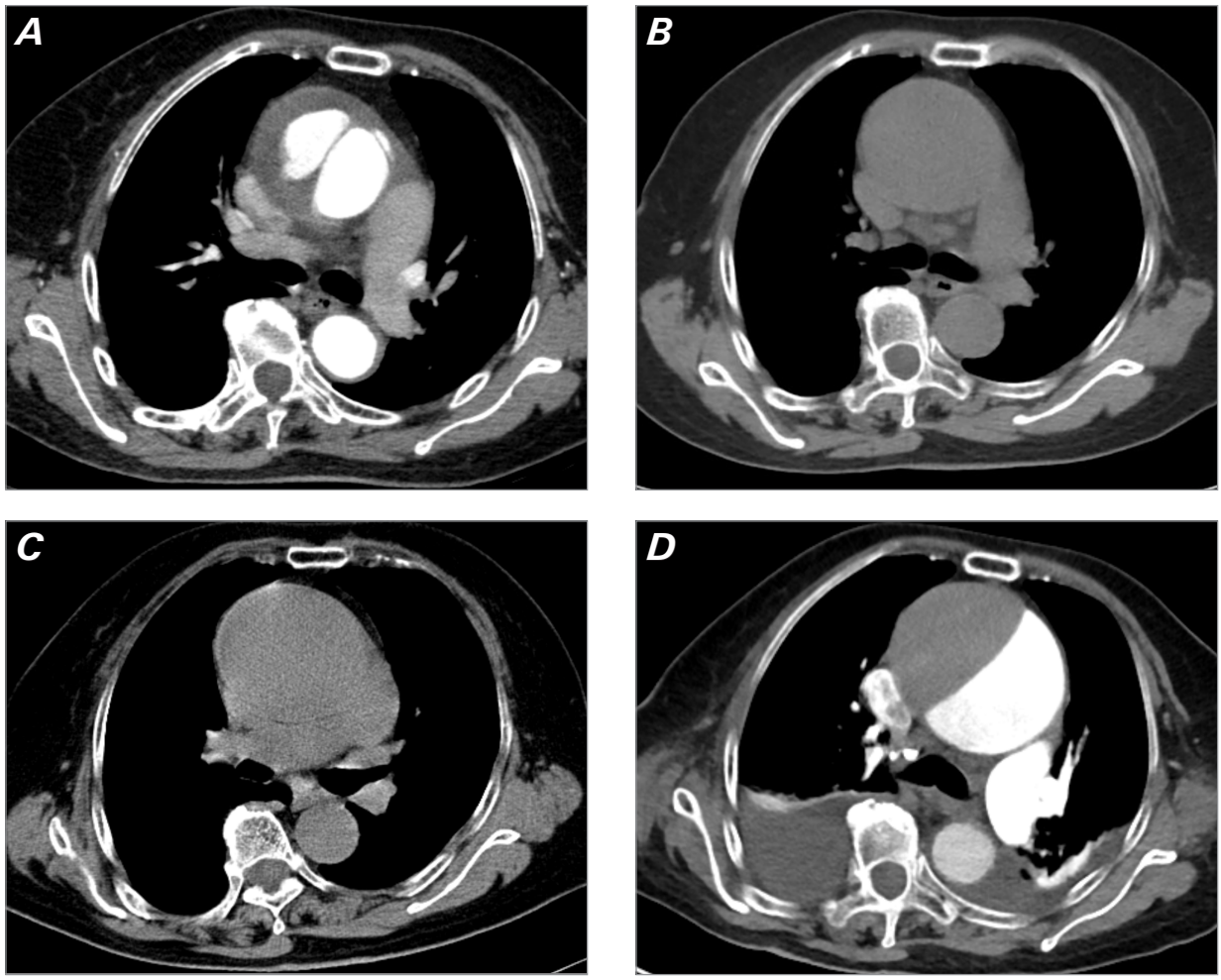

Fig. 1 Serial imaging studies from 2015 to 2024 demonstrate the progression of acute type A aortic dissection under conservative management. (**A**) In 2015, a CT angiogram taken at initial presentation reveals a type A aortic dissection (DeBakey II classification), with 2 dissection flaps in the ascending aorta (maximum diameter: 5.8 cm). (**B**) In 2017, a follow-up chest CT without contrast at 2 years after diagnosis demonstrates progressive dilatation of the ascending aorta to 6.6 cm without evidence of rupture or pericardial effusion. (**C**) In 2020, a chest CT without contrast at 5 years after diagnosis shows further enlargement of the ascending aorta to 7.5 cm. (**D**) In 2024, a CT angiogram at 9 years after diagnosis reveals a fully thrombosed false lumen in the ascending aorta, which now measures 8.5 cm at its widest dimension. No active contrast extravasation or new branch vessel involvement is observed.

CT, computed tomography.

Autopsy studies have shown that DeBakey type II dissection is more lethal than DeBakey type I dissection, with a shorter time to death and a higher prevalence in older patients with severe aortic atherosclerosis.[4] This patient's survival past the peak mortality period for DeBakey type II dissection suggests a potential critical period for type A aortic dissection after which survival may not differ substantially from that of the general population.

The patient's 9-year follow-up revealed a continuous increase in ascending aortic diameter, despite thrombus formation. The possible reasons for further dilation of the ascending aorta include poor blood pressure control during conservative treatment and decreased aortic elasticity after aortic atherosclerosis. Aortic valve disease can also lead to secondary aortic dilation, but the patient's recent echocardiogram has not shown valve disease, so this reason is not considered. Based on the patient's follow-up results, the first consideration is therefore the

possibility of aortic dilation caused by decreased aortic elasticity. Domestic research indicates that aortic dissection progression is related to nerve growth factors and neurochemicals,[5] suggesting that conservative treatment focusing solely on blood pressure and heart rate control may be insufficient.

Although earlier literature suggested that conservative management of acute type A aortic dissection in older patients was associated with nearly universal mortality within weeks,[6] recent studies have indicated that discharge rates for conservative treatment are only half those of surgical intervention.[7] Remarkably, this patient's decade-long survival challenges conventional prognostic expectations, positioning her case as an extreme outlier. Potential explanations for this anomaly include the absence of critical risk factors (eg, malperfusion, hypotension) at presentation and the stabilization of the false lumen by way of thrombus formation, which may have mitigated aortic rupture risk, despite progressive dilation.

Statistics from the American Medical Association show a 26% in-hospital mortality rate for surgical patients with type A aortic dissection compared with a 58% mortality rate for patients undergoing conservative disease management.[6] Japanese studies reveal no significant difference in the 6-year survival rate between conservative and surgical groups of patients older than 80 years of age,[7] and a European study found no significant 5-year survival difference after surgery.[8] These findings suggest that conservative drug therapy remains a viable option for older patients, despite surgery being the standard of care.

Conservative treatment was effective in this case, but because of individual differences among patients, a broad conclusion regarding use of conservative treatment cannot be drawn.

Conclusion

This report aims to detail the clinical course, treatment strategies, and outcomes of the current patient, offering insights into the potential for conservative treatment in select patients with acute type A aortic dissection. It also seeks to contribute to the ongoing discourse on the management of aortic dissection, particularly in older patients, for whom the decision between surgery and conservative treatment is often a delicate balance between life-saving intervention and the preservation of quality of life.

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