

## A Rare Case of Severe Aortic Regurgitation with Silent Ascending Aortic Dissection

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### ABSTRACT

Classically, ascending aortic dissection (AD) presents as sudden, severe chest pain that is tearing type and radiates to the back. Herein, we present a rare case of severe aortic regurgitation with silent ascending AD, which had no chest pain symptoms. The aortic valve apparatus probably masked this AD; therefore, it was not detected by echocardiography.

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### Introduction

Aortic dissection (AD) is defined as tear in the aortic intima. The most important predisposing factor is systemic hypertension. Other causes are connective tissue disorders, previous coronary artery bypass grafting surgery, previous aortic valve replacement, cocaine abuse, and trauma (1, 2). Classically, ascending AD presents as sudden, severe chest back pain that is tearing in nature.

This condition is rarely reported as painless. In an analysis of 977 patients from the International Registry of Acute Aortic Dissection, only 63 cases (6.4%) did not have any pain. Patients with painless dissection were slightly older (mean age: 67 vs. 62) and more often had a type A dissection (75% vs. 61%). A history of diabetes, aortic aneurysm, or cardiovascular surgery was more common in patients with painless dissection (3).

### Case Presentation

A 40-year-old premenopausal woman

presented to our hospital with complaints of shortness of breath on exertion. She did not have any problems before the presentation. Her medical history was significant for systemic hypertension grade I and medical renal disease. She had six children and denied any addictions. Upon presentation, she was afebrile with a pulse of 84/min and blood pressure of 180/40 mmHg.

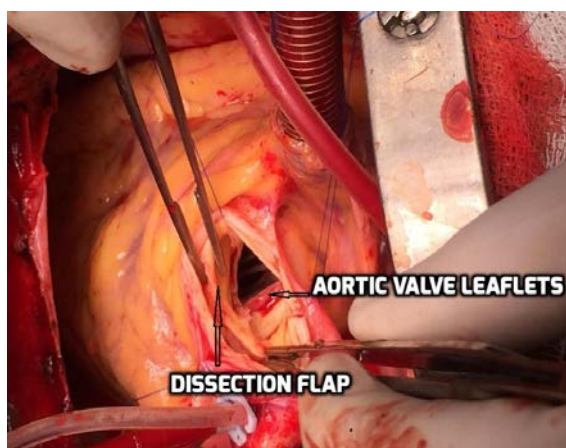
She was detected with the peripheral signs of aortic regurgitation (AR). Cardiovascular examination was suggestive of grade III/VI early diastolic murmur in the aortic area. Chest X-ray was normal, and the electrocardiogram (ECG) showed the feature of left ventricular hypertrophy. Echocardiography revealed severe AR with the aortic root of 27 mm and a good ejection fraction.

The patient was candidate for surgery (i.e., aortic valve replacement). She was subjected to aorto-right atrial cannulation, and cardiopulmonary bypass was used in this surgery. After the

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**Figure 1.** Ascending aortic dissection flap and the aortic valve

application of cross clamp and giving ostial cardioplegia, an ascending aorta dissection flap was noted just above the aortic valve cusps extending for 3-4 cm distally (Figure 1). The dissection flap was repaired with 0-5 polypropylene pledgeted sutures (Figure 2). Then, the surgery proceeded to complete the aortic valve replacement. The patient came off cardiopulmonary bypass smoothly.

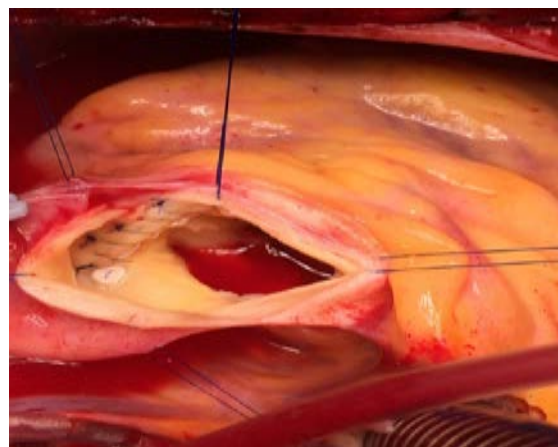
Intraoperative transesophageal echocardiogram (TEE) was suggestive of no dissection. The patient had an uneventful postoperative course. She was discharged on angiotensin-converting enzyme inhibitor, beta-blocker, and anticoagulation. A postoperative computed tomography showed no dissection.

## Discussion

Acute aortic dissection is an emergency medical condition. The immediate mortality of this condition is very high hence early diagnosis is crucial to reduce mortality. There are many causes of AD like hypertension, genetic, previous cardiac surgery. Patients present with varied symptoms ranging from chest pain radiating to the back, abdominal pain and rarely no chest pain (4, 5).

Sudden chest or back pain accompanied by pulse deficits, AR, or neurological signs should be considered as clinical manifestations to diagnose acute AD. The chest X-ray may be the first clue to the diagnosis of AD, with abnormal aortic contour or widened aortic silhouette being present in more than 80% of acute dissections (4). However, the patient's chest X-ray was normal. The ECG changes in AD are usually not conclusive; however, 1-2% of the patients have acute ST elevation. The TEE, helical CT, and MRI are reported to have the sensitivity and specificity of 99% and 95%, 100% and 98%, as well as 98% and 98%, respectively (6).

Echocardiography provides important information regarding the ejection fraction, but also about the presence of AD complications, such as



**Figure 2.** Repair of the aortic dissection flap

pericardial effusion and mediastinal hematoma (7). The AD may not be diagnosed in 38%, and 28% of patients in initial evaluation and autopsy, respectively. About 10% of ADs are painless and may present with symptoms due to its complications (8, 9).

Our patient's symptoms were suggestive of severe AR, which was corroborated on echocardiography. Furthermore, no AD was observed on TEE. Bansal et al. reported that TEE might miss small type II ADs localized in the upper portion of the ascending aorta because of image interference from the air-filled trachea (10).

Nagra et al. showed that an AD type was missed, and the dissection flap was confined to the aortic root, immediately superior to the sinuses of Valsalva and masquerading as part of the aortic valve apparatus (11). Computed tomography (CT) was not performed due to no suspicious clinical features; furthermore, echocardiography did not suggest anything about AD.

It should be noted that AD does not always manifest in the usual manner; therefore, atypical presentations should be considered. A clinician should maintain a high index of suspicion in patients with AR and monitor this condition by means of gated cardiac CT. It is noteworthy to emphasize that in a developing country, such as India, where rheumatic heart disease is so common, other causes of valvular abnormalities should also be considered.

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## Conflict of Interest

The authors declare no conflict of interest.

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