Aortic Regurgitation Due to Chronic Stanford Type a Aortic Dissection in a Hypertensive Patient

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Abstract

Case Background: Aortic regurgitation (AR) is a valvular heart disorder caused by incomplete closure of the aortic valve during diastole, resulting in backflow of blood into the left ventricle and chronic volume overload. One major cause of severe AR is ascending aortic dissection, particularly Stanford type A, which leads to dilation of the aortic root and valvular coaptation impairment. Chronic hypertension is a significant risk factor that accelerates dissection progression and contributes to left ventricular diastolic dysfunction.

Problem: A 61-year-old woman with a two-year history of uncontrolled hypertension presented with progressive dyspnea. Physical examination revealed a grade 5/6 diastolic murmur, left ventricular hypertrophy, and cardiomegaly. Echocardiography showed severe aortic regurgitation, an aortic aneurysm, and grade I diastolic dysfunction. CT angiography demonstrated dissection of the ascending aorta extending to the brachiocephalic trunk without rupture, confirming a diagnosis of chronic Stanford type A aortic dissection and stage II hypertension.

Results: The patient received pharmacologic therapy focusing on blood pressure control and afterload reduction, and was referred for surgical consultation for definitive management. The patient subsequently underwent a Bentall procedure, which was performed successfully. The primary mechanism involved dilation of the aortic root and valvular coaptation disturbance leading to regurgitation. Left ventricular adaptation maintained ejection fraction during the compensatory phase before progressing to heart failure.

Conclusion: This case highlights the importance of comprehensive diagnosis and optimal management in chronic Stanford type A aortic dissection with severe AR, especially in hypertensive patients. A multidisciplinary approach and risk factor control are crucial to prevent fatal complications and improve patient outcomes.

Keywords

Aortic regurgitation, Ascending aortic dissection, Stanford type A, Hypertension, Diastolic dysfunction, CT angiography.