## Aortic Regurgitation due to Commissural Dehiscence of the Aortic Valve

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Commissural dehiscence of the aortic valve is a rare cause of aortic regurgitation. We report a 53-year-old malewho had progressive aortic regurgitation and aortic root dilatation. A flap or intimal tear of the proximal aorta wasabsent with echocardiography and computed tomography. Transesophageal echocardiography revealed prolapse of the right and left coronary cusps with no intimal flap in the ascending aorta. During the operation, there was nodissection or intramural hematoma in the ascending aorta. However, there was dehiscence of the commissurebetween the right and left coronary cusps of the aortic valve. Aortic root and ascending aortic replacements weresuccessfully performed. Commissural dehiscence of the aortic valve should be taken into account when prolapse of the aortic cusp is the cause of aortic regurgitation.

Introduction: Commissural dehiscence of the aortic valve is a rare cause of aorticregurgitation. This condition has been documented in only a few casereports [1-5]. Commissural dehiscence of the aortic valve isoccasionally found intraoperatively because preoperative diagnosis ofthis condition is difficult. We report a case of commissural dehiscence of the aortic valve that caused aortic regurgitation and aortic rootdilatation. Case A 53-year-old man was admitted to our hospital with congestiveheart failure. He had dyspnea on exertion 1 month before referral toour hospital. His symptoms improved after use of drugs.Transthoracic echocardiography diuretic demonstrated severe aorticregurgitation and mitral with moderate regurgitation ventriculardilatation (left ventricular diastolic dimension, 67 mm; left ventricularsystolic dimension, 50 Contrast-enhanced computedtomography (CT) showed dilatation of the aortic (sinus ofValsalva, 45 mm). A flap or intimal tear of the proximal aorta wasabsent with echocardiography and Transesophagealechocardiography (TEE) performed to assess the cause was aorticregurgitation. TEE revealed prolapse of the right and left coronarycusps (Figure 1) with no intimal

flap in the ascending aorta. Surgerywas planned after medical control of heart failure.Median sternotomy was performed. When the pericardium wasopened, serous effusion observed. was Moreover, adhesionbetween the ascending aorta and pulmonary artery was observed.Cardiopulmonary performed with ascending bypass was aortic andbicaval venous cannulations.Figure Transesophageal echocardiogram demonstrating prolapseof the right and left coronary cusps with no flap in the ascendingaorta. After the adhesion around the ascending aorta was dissected, anaortic clamp was applied and cardiac arrest was obtained. Mitralannuloplasty with a semi-rigid ring (size, 30 mm) was performed. Thebody temperature was decreased 25°C, systemic perfusion wastemporarily arrested, and retrograde cerebral perfusion was started. The ascending aorta was resected, and replaced with a 26-mm Triplexgraft (Vascutek Terumo, Tokyo, Japan) with one branch. Aftercompletion of distal aortic anastomosis, systemic perfusion throughthe side branch of the graft was resumed. There was no dissection orintramural hematoma in the ascending aorta. However, there wasdehiscence of the commissure between the right and left coronarycusps of the aortic valve (Figure 2). Valve leaflets were slightlyatherosclerotic, and the aortic wall was normal. We performed aorticroot replacement with a commercially available composite valvedconduit (25-28 mm; Carboseal, CarboMedics, Austin, TX). TheOkamoto and Fukui

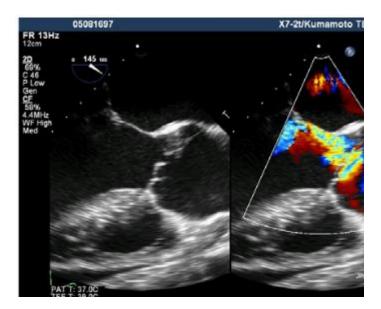


Figure 1: Transesophageal echocardiogram demonstrating prolapse of the right and left coronary cusps with no flap in the ascendingaorta

## Discussion

Commissural dehiscence of the aortic valve is a rare cause of aorticregurgitation. Aortic regurgitation sometimes occurs secondary toacute aortic dissection. Aortic leaflet prolapse occurs when dissectionextends into the aortic root, and disrupts normal attachment of leafletsto the aortic wall. In the present case, prolapse of the right and leftaortic leaflets occurred by dehiscence of the commissure between theright and left aortic cusps. This condition has been documented in onlya few case reports [1-5]. Although the cause of aortic commissuraldehiscence is unknown, hypertension is considered to be the mostlikely cause [3]. Aortic valve replacement with or without fixation of the dehiscentaortic wall is a common procedure [1-3]. Another treatment of choiceis aortic root replacement [1,4,5]. In the present case, a ortic rootreplacement with a valved conduit was performed because the aorticroot and ascending aorta were dilated. An aortic valvesparingoperation may be an alternative procedure in patients without heartfailure and other cardiac procedures (mitral valve annuloplasty and ascending aortic replacement).ln conclusion, commissural dehiscence of the aortic valve is a rarecause of aortic regurgitation. We should take this condition into account when prolapse of the aortic cusp is the cause of aorticregurgitation.