

Is Valve Replacement Always Necessary in Aortic Regurgitation that is Seen Concomitantly with Proximal Aortic Dissection?: Case Report

Proksimal Aort Diseksiyonu ile Birlikte Görülen Aort Yetersizliğinde Kapak Replasmanı Her Zaman Gerekli midir?

Mutlu BÜYÜKLÜ,^a
Turan SET,^b
Ersan TATLI^c

^aClinic of Cardiology,
Erzincan Mengücek Gazi Training and
Research Hospital, Erzincan,

^bDepartment of Family Medicine,
Atatürk University Faculty of Medicine,
Erzurum,

^cClinic of Cardiology,
Private Ada Medical Hospital, Sakarya

Geliş Tarihi/Received: 19.07.2011
Kabul Tarihi/Accepted: 28.12.2011

*This case report was presented as a poster at
7th International Cardiology and Innovations in
Cardiovascular Surgery Congress,
24-27 March 2011, Antalya*

Yazışma Adresi/Correspondence:
Mutlu BÜYÜKLÜ
Erzincan Mengücek Gazi Training and
Research Hospital,
Clinic of Cardiology, Erzincan,
TÜRKİYE/TURKEY
mutlubuyuklu@gmail.com

ABSTRACT Acute aortic regurgitation is a common condition with proximal aortic dissection. Acute aortic regurgitation can develop by two mechanisms, aortic valve prolapse and prolapse of intimal flap, in proximal aortic dissection. Prolapse of intimal flap caused by proximal aortic dissection is reversible and a rare cause of acute aortic regurgitation. In such cases, if appropriate, repair of the intimal flap as a surgical method should be preferred. Preoperative echocardiographic evaluation is important in this respect in patients proximal aortic dissection with acute aortic regurgitation. In this case, we highlight surgical method relationship between etiological factor in a patient proximal aortic dissection with aortic regurgitation.

Key Words: Aortic valve regurgitation; dissection; cardiac surgical procedures

ÖZET Akut aort yetersizliği, proksimal aort diseksiyonu ile birlikte sık rastlanılan bir durumdur. Proksimal aort diseksiyonunda, aort kapak prolapsusu ve intimal flep prolapsusu şeklinde iki mekanizma ile akut aort yetersizliği gelişebilir. Proksimal aort diseksiyonunun neden olduğu intimal flep prolapsusu, akut aort yetersizliğinin geriye döndürülebilir nadir bir nedenidir. Böyle durumlarda eğer uygunsu cerrahi yöntem olarak intimal flep tamiri tercih edilmelidir. Proksimal aort diseksiyonu ile akut aort yetersizliği bulunan hastalarda cerrahi öncesi ekokardiyografik değerlendirme bu açıdan önem taşımaktadır. Bu makalede, proksimal aort diseksiyonu ile birlikte yetersizliği olan bir hastada, cerrahi yöntem ile etiyolojik faktör arasındaki ilişkiyi vurgulamak istedik.

Anahtar Kelimeler: Aort kapağı yetersizliği; diseksiyon; kardiyak cerrahi prosedürler-girişimler

Türkiye Klinikleri J Cardiovasc Sci 2013;25(2):92-4

Acute aortic regurgitation is seen the rate of 41-76% with proximal aortic dissection.¹⁻⁵ Aortic regurgitation caused by prolapse of intimal flap is rare.² Intimal flap prolapse is a reversible cause of acute aortic regurgitation. For this reason, intimal flap is repair and aortic valve replacement may be needed. We are presented the surgical repair rather than valve replacement in acute aortic regurgitation caused by prolapse of intimal flap, in this case here.

CASE REPORT

Forty-three-years-old male patient, has admitted to the emergency because of severe chest and back pain for 12 hours. He had hypertension under con-

trol with medication for 5 years. His blood pressure was 140/90 mmHg and heart rate was 110/minutes. There was no differences in pressure in both arms. We found diastolic murmur at 3/4 severity in cardiac auscultation. Electrocardiographic, telegraphic examinations and blood tests were normal. Contrast-enhanced computed tomography was performed and proximal aortic dissection (from ascending aorta to instead of the left subclavian artery) was determined. Transthoracic echocardiography (TTE) was performed urgently to assess the aortic valve. Left and right heart chambers were normal size and functions in TTE. There was no pericardial effusion. A membrane of environmental extending ventricular outflow tract during diastole and moving towards ascending aorta during systole in the aorta viewed (Figure 1,2). Color Doppler examination showed severe aortic regurgitation (Figure 3). Structure of the aortic valve and ascending aortic diameter was normal.

As a result of these evaluations, the patient received emergency surgery. During surgery, the intimal flap was seen in the ascending aorta and aortic valve showed normal structure. Dacron graft was placed from ascending aorta to the abdominal aorta in the patient. Aortic regurgitation was improved in the postoperative TTE.

DISCUSSION

Aortic regurgitation is a common occurrence with proximal aortic dissection and various mechanisms



FIGURE 1: Apical four chamber view showing diastolic prolapse of intimal flap into left ventricle (arrows)
LV: left ventricle; LA: left atrium.



FIGURE 2: Apical four chamber view intimal flap (arrow heads) and normal structure of the aortic valves (arrows)

LV: left ventricle, LA: left atrium.

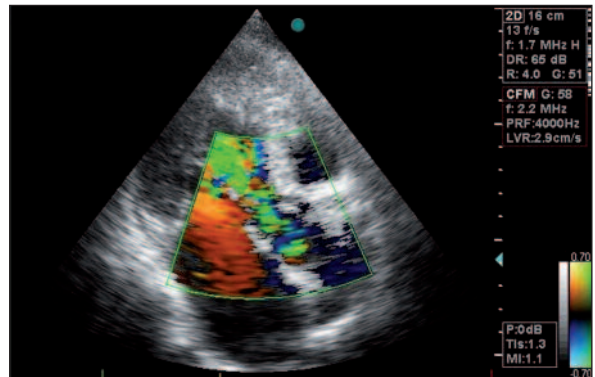


FIGURE 3: Apical four chamber view color Doppler view showing severe aortic regurgitation.

(See for colored form <http://cardiovascular.turkiyeklinikleri.com/>)

are responsible for this situation. Bicuspid aortic valve, aortic valve thickening and enlargement of the such mechanisms is not related to dissection as the primary.⁶ However, aortic valve prolapse and prolapse of intimal flap associated with proximal aortic dissection causes acute aortic regurgitation.² If intimal flap advances till the spot where an aortic valve adsorbs to aortic ring and stresses aortic valve, this valve would be prolapsed and following occlusive disorders in diastole, eccentric regurgitation occurs. If this intimal flap developed peripherally, prolapsing would occur along the occlusion route in diastole and result in central regurgitation. This event develops very rarely. The incidence rate is below 2%, and reported as a low number of event submission in the literature.⁶⁻⁹

Visual examination during surgery and transeosophagal echocardiography (TEE) should be done to fully evaluate aortic regurgitation when TTE was inefficient.^{6,10,11} Aortic regurgitation that develops due to two mechanisms related to proximal aortic dissection can be treated with surgical repair. Among them, aortic prolapsing is treated by suspending the valves and replacing to occlusion line level.² Intimal flap prolapsing is treated with flap resection.² Many

surgeons prefer aortic valve replacement rather than repair as it is an emergency and patients are unstable. However, patients on whom repair would be effective may be detected by using TEE during operation.

Subsequently, the mechanism of severe aortic regurgitation seen in patients with proximal aortic dissection must be elucidated. Thus one may confirm reversible factors and avoid unnecessary additional surgery.

REFERENCES

1. Büyüklü M, Özçelik F. [Acute aortic dissection]. *Turkiye Klinikleri J Surg Med Sci* 2007;3(46):48-54.
2. Movsowitz HD, Levine RA, Hilgenberg AD, Is-selbacher EM. Transesophageal echocardiographic description of the mechanisms of aortic regurgitation in acute type A aortic dissection: implications for aortic valve repair. *J Am Coll Cardiol* 2000;36(3):884-90.
3. Miller DC, Stinson EB, Oyer PE, Rossiter SJ, Reitz BA, Griep RB, et al. Operative treatment of aortic dissections. Experience with 125 patients over a sixteen-year period. *J Thorac Cardiovasc Surg* 1979;78(3):365-82.
4. Cachera JP, Vouhé PR, Loisançe DY, Menu P, Poulain H, Bloch G, et al. Surgical management of acute dissections involving the ascending aorta. Early and late results in 38 patients. *J Thorac Cardiovasc Surg* 1981;82(4):576-84.
5. Jex RK, Schaff HV, Piehler JM, Orszulak TA, Puga FJ, King RM, et al. Repair of ascending aortic dissection. Influence of associated aortic valve insufficiency on early and late results. *J Thorac Cardiovasc Surg* 1987;93(3):375-84.
6. Chow JL, Mariano ER, Liang D. Transesophageal echocardiography assessment of severe aortic regurgitation in type a aortic dissection caused by a prolapsed circumferential intimal flap. *J Cardiothorac Vasc Anesth* 2007;21(1):85-7.
7. Rosenzweig BP, Goldstein S, Sherrid M, Kronzon I. Aortic dissection with flap prolapse into the left ventricle. *Am J Cardiol* 1996;77(2):214-6.
8. Nohara H, Shida T, Mukohara N, Nakagiri K, Matsumori M, Ogawa K. Aortic regurgitation secondary to back-and-forth intimal flap movement of acute type A dissection. *Ann Thorac Cardiovasc Surg* 2004;10(1):54-6.
9. Geyik B, Ozeke O, Ozbakir C, Deveci B, Aras D. Aortic dissection with diastolic prolapse of intimal flap into left ventricle. *Eur J Echocardiogr* 2005;6(4):311-2.
10. Boyacı A. [Assessment of the severity of aortic regurgitation by echocardiography]. *Turkiye Klinikleri J Cardiol* 2003;16(6):464-7.
11. Kudat H, Atılğan D, Özgan M, Akkaya V, Tutar A, Sözen AB, et al. [The value of transesophageal echocardiography in diagnosis of thoracic aortic dissection]. *Turkiye Klinikleri J Cardiol* 1996;9(4):223-7.