

## Cardiac Imaging

## Pulmonary Stenosis with Extremely High Pressure Gradient in a Young Adult

OMER UZ, OMER YIGINER, MUSTAFA APARCI, ZAFER ISILAK

Department of Cardiology, GATA Haydarpaşa Training Hospital, Istanbul, Turkey

Key words: Severe pulmonary stenosis, young adult.

Manuscript received: March 20, 2009;  
Accepted: June 7, 2009.

Address:  
Omer Uz

Department of  
Cardiology  
GATA Haydarpaşa  
Training Hospital  
34668, Kadıköy,  
Istanbul, Turkey  
e-mail:  
[homeruz@yahoo.com](mailto:homeruz@yahoo.com)

A 21-year-old male with exertional dyspnea was referred to our department. Clinical examination revealed New York Heart Association class II dyspnea. A 3/6 systolic ejection murmur at the left upper sternal border was heard on auscultation. There was no jugular venous distension, hepatosplenomegaly, or pretibial edema. The ECG showed sinus rhythm and right ventricular hypertrophy. The echocardiogram showed hypertrophy of the right ventricle and a maximal 204 mmHg pressure gradient across the stenotic dysplastic pulmonary valve and mild-to-moderate tricuspid regurgitation (Figures 1 & 2). There was no demonstrable infundibular or supra-valvular pulmonary stenosis. No patent *foramen ovale* or atrial septal defect was detectable using transthoracic contrast echocardiography. We suggested surgery, but the patient did not consent.

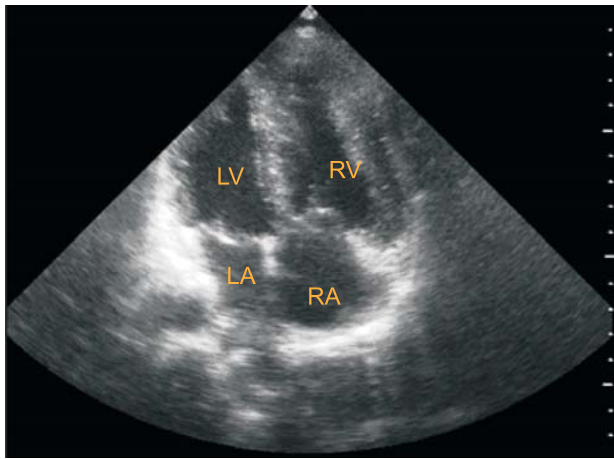
Pulmonic valvular stenosis, a relatively frequent congenital disorder, is being increasingly diagnosed in older age groups. It occurs in approximately 7-12% of subjects with congenital heart disease.<sup>1</sup> Factors that affect right ventricular preload or afterload can adversely influence the functioning of the right ventricle, causing

right ventricular failure.<sup>2</sup> The elevated afterload may increase the risk of developing right ventricular failure. However, increased right ventricular afterload had caused right ventricular hypertrophy with normal ventricular function in our patient. We think that the patient's course had been uneventful, without exertional dyspnea, because of normal right ventricular function until that point in time.

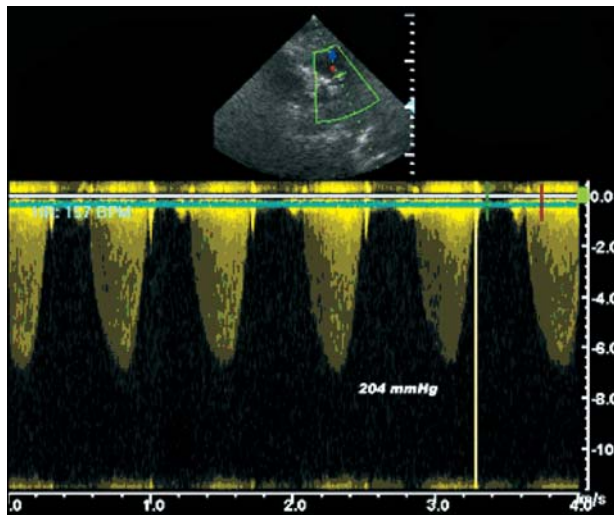
To our knowledge, this is only the second case report in the international medical literature of pulmonary valvular stenosis with an extremely high pressure gradient in a young adult.<sup>3</sup>

## References

1. Almeda FQ, Kavinsky CJ, Pophal SG, et al. Pulmonic valvular stenosis in adults: diagnosis and treatment. *Cath Card Int.* 2003; 60: 546-557.
2. Mebazaa A, Karpati P, Renaud E, et al. Acute right ventricular failure—from pathophysiology to new treatments. *Intensive Care Med.* 2004; 30: 185-196.
3. Celik T, Iyisoy A, Kurşaklıoğlu H, Turhan H, Işık E. An unusual severe pulmonic stenosis case without significant electrocardiographic changes. *Anadolu Kardiyol Derg.* 2007; 7: E1. PubMed PMID: 18065320.



**Figure 1.** Transthoracic echocardiogram, apical four-chamber view, revealing hypertrophy of the right ventricle. LA – left atrium; LV – left ventricle; RA – right atrium; RV – right ventricle.



**Figure 2.** Continuous wave Doppler revealing a 204 mmHg pressure gradient across the stenotic pulmonary valve.