

The relationship between subaortic membrane and aortic cusps evaluated by three-dimensional transthoracic echocardiography

Zależność między błoną podaortalną a płatkami zastawki aortalnej zobrażowana w echokardiografii 3-D

Murat Unlu¹, Sait Demirkol², Sevket Balta², Zekeriya Arslan³

¹Beytepe Hospital Cardiology, Ankara, Turkey

²Gulhane Medical Faculty Cardiology, Ankara, Turkey

³Gelibolu Hospital Cardiology, Canakkale, Turkey

A discrete subaortic membrane is a rare cause of subaortic stenosis in adults. It may present in an isolated form as a fibrous or fibromuscular ring below the aortic valve. A 24 year-old male patient was admitted to our outpatient clinic with dyspnoea and palpitations. His physical examination was unremarkable except for an aortic 3/6 systolic murmur. Electrocardiography revealed normal sinus rhythm with signs of left ventricular (LV) hypertrophy. Two-dimensional transthoracic echocardiography demonstrated a subaortic stenosis. Full-volume three-dimensional transthoracic echocardiography (3-D TTE) showed a discrete membrane, and calcified right and non-coronary aortic cusps (Fig. 1A, B). 3-D colour TTE revealed moderate-to-severe aortic regurgitation with an eccentric jet (Fig. 1C). Full-volume 3-D TTE after cropping the left and right ventricle walls confirmed the relation between subaortic membrane and aortic valve cusps (Fig. 2). This condition may cause progressive LV outflow tract obstruction, LV hypertrophy and dysfunction, and aortic regurgitation due to damage to the aortic cusps because of the jet from the subaortic narrowing which may also render the aortic valve prone to infective endocarditis. 3-D TEE can provide visualisation of the subaortic membrane, as in this case. Detailed examination of the subaortic area can reveal the exact site and the extent of the subaortic membrane and which aortic cusps are influenced. Furthermore, the use of 3-D TEE is likely to be key in the spatial assessment of this complex lesion.

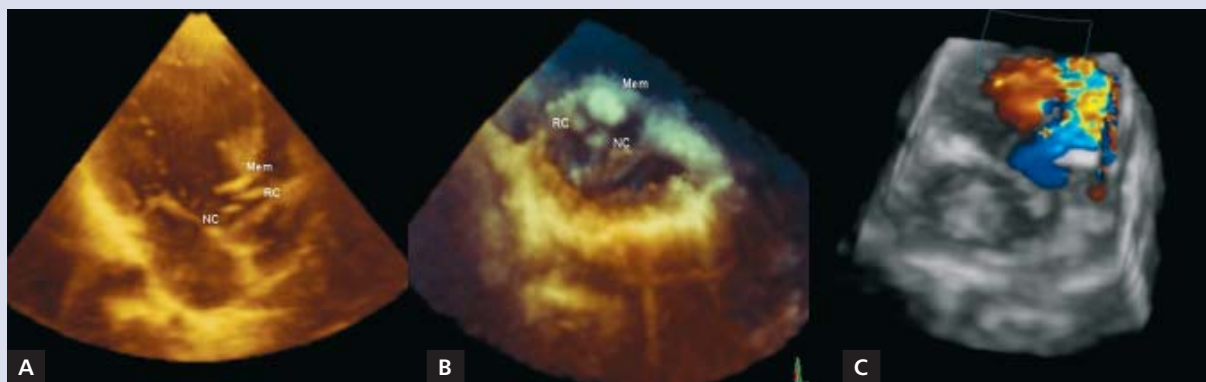


Figure 1. Full-volume 3-D TTE showing a discrete membrane, calcified right coronary aortic cusp (RC) and non-coronary aortic cusp (NC) (A, B) and 3-D colour TTE revealing aortic regurgitation with eccentric jet (C); Mem — subaortic membrane

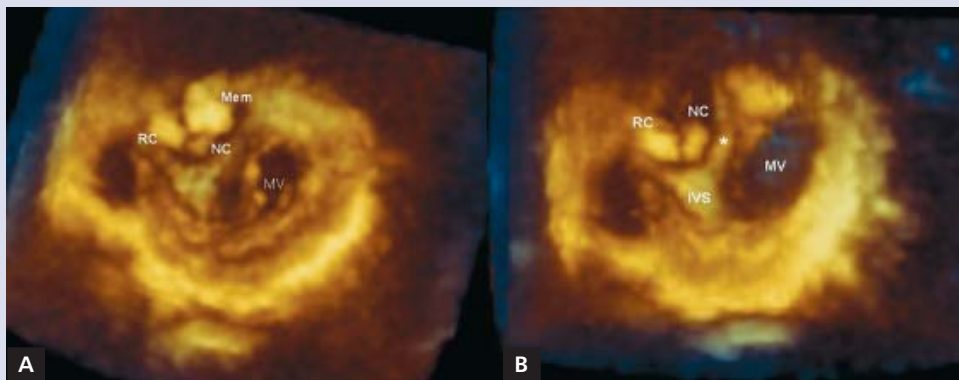


Figure 2. A, B. Full-volume 3-D TTE after cropping the left and right ventricle walls confirming the relation between subaortic membrane (Mem) and aortic valve cusps; RC — right coronary aortic cusp; NC — non-coronary cusp aorta; MV — mitral valve; IVS — intraventricular septum; asterisk — aorta mitral fibrous tissue

Address for correspondence:

Murat Unlu, MD, Department of Cardiology, Beytepe Hospital, Golbasi, 066010 Ankara, Turkey, tel: +903123011110, e-mail: drmuratunlu@gmail.com

Received: 24.06.2012 **Accepted:** 10.07.2012

Conflict of interest: none declared