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Isolated cleft posterior mitral valve leaflet

Authors:
D Rodrigo¹, U Estandia¹, C Perez¹, PM Perez¹, E Panera¹, ¹Hospital de Cruces - Baracaldo - Spain,

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Citation:
A 78-year-old man with a history of hypertension and diabetes mellitus was referred to the ER of our hospital due to an episode of shortness of breath of new onset, associated with dizziness and central thoracic pain of 5 minutes duration. Significant physical examination findings included a V/VI holosystolic murmur at fourth intercostal space with radiation to the axilla. ECG showed no significant abnormalities and cardiac enzymes were within normal ranges The TTE and 3D TOE showed dilated left atrial with normal ventricular size and function with an isolated cleft posterior mitral valve leaflet that bisected into two separate leaflets of identical morphology. Concomitant posterolateral leaflet prolapse was also present with two eccentric, posteriorly, and interatrial septum directed regurgitant jets visualized with colour flow Doppler.

Cleft mitral valve leaflet (CMVL) is an uncommon congenital cause of mitral regurgitation. Clefts are slit-like holes or defects hypothesized to be a result of incomplete expression of an endocardial cushion defect and most commonly involve the anterior mitral valve leaflet with a paediatric incidence of 1:1340. Clefts affecting only the posterior mitral valve leaflet are extremely rare. Important co-existing anomalies with either posterior and/or anterior CMVL include counterclockwise rotation of the papillary muscles, the presence of an accessory papillary muscle or mitral valve leaflet, atrial septal defects, and mitral valve prolapse. Acquired causes of clefts include infective endocarditis or trauma from surgical exploration. Regurgitation in CMVL results from blood flow directly through the cleft itself or from malcoaptation from accessory chordae with or without papillary muscle distortion. Early detection through 3D TEE echocardiography can provide accurate anatomical images of the mitral valve structure and identify associated congenital anomalies.

Conclusion

Posterior CMVL is an extremely rare cause of mitral insufficiency. 3D TEE early recognition of this rare clinical entity and co-existent anomalies can identify afflicted patients who can be closely monitored for the progression of symptoms as well as ventricular dysfunction. 3D TEE permits a personalized medicine tailoring the medical treatment to the individual characteristics of each patient.
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