

Once the diagnosis of a hydatid cyst in the heart is made, immediate surgery is the treatment of option because of the potential risk of rupture and anaphylaxis. The cysts may also rupture into the pericardial cavity and cause pericardial effusion or tamponade and the formation of daughter cysts³. In our case, the patient was operated on and received medical treatment with an antiparasitic drug.

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REFERENCES

1. Bayezid O, Ocal A, Isik O, Okay T, Yakut C. A case of cardiac hydatid cyst localized on the interventricular septum and causing pulmonary emboli. J Cardiovasc Surg (Torino). 1991;32:324–6.
2. Elorriaga A, Rubio A, Bóveda J. Quiste hidatídico pericárdico aislado como hallazgo casual. Rev Esp Cardiol. 2011;64:430–1.
3. Lainez B, Ruiz V, Berjón J, Lezaun R. Pericarditis purulenta complicada con taponamiento cardíaco secundario a quiste hidatídico hepático abscesificado. Rev Esp Cardiol. 2009;62:948–9.

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Real Time Three-Dimensional Transesophageal Echocardiography in the Anatomical Assessment of Complex Mitral Valve Regurgitation Secondary to Endocarditis

Ecocardiografía transesofágica tridimensional en tiempo real en la valoración anatómica de la regurgitación mitral compleja secundaria a endocarditis

To the Editor,

The introduction of real time three-dimensional (RT3D) echocardiography has significantly improved the visualization of cardiac

structures, particularly the mitral valve.¹ Several publications have shown that RT3D echocardiography provides additional information when assessing endocarditis in prosthetic valves,² and that RT3D transesophageal echocardiography (TEE) is superior to two-dimensional TEE (2DTEE) imaging in detecting vegetations and added complications.³

We report our experience of using RT3DTEE to diagnose “complex” mitral regurgitation (MR) in several patients from a series who underwent mitral valve repair after endocarditis.

We present the case of a 66-year-old patient who was admitted because of prolonged fever and positive blood cultures for *Streptococcus faecalis*.

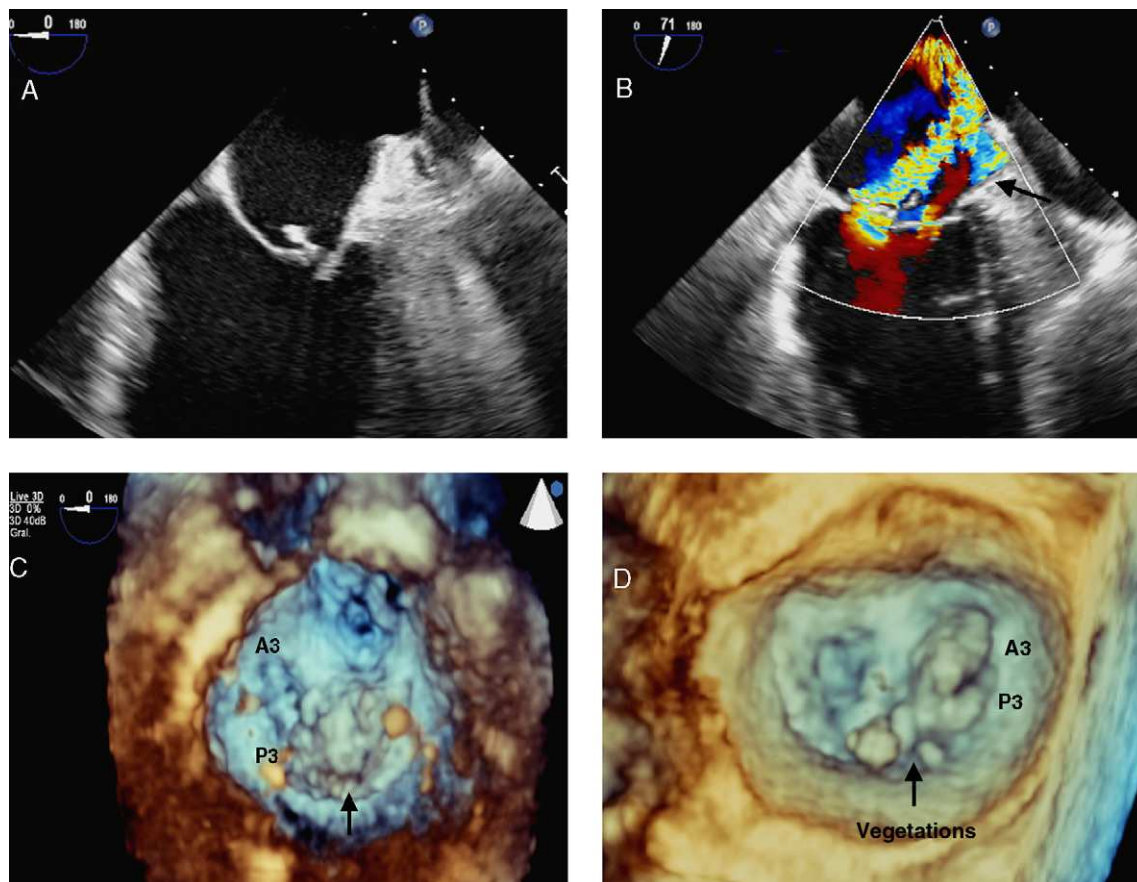


Figure 1. A, two-dimensional transesophageal echocardiography, 0°. B, two-dimensional transesophageal echocardiography, bicommissural plane 70°, Doppler color. C, three-dimensional transesophageal echocardiography of the mitral valve, ventricular perspective. D, three-dimensional transesophageal echocardiography of the mitral valve, atrial perspective.

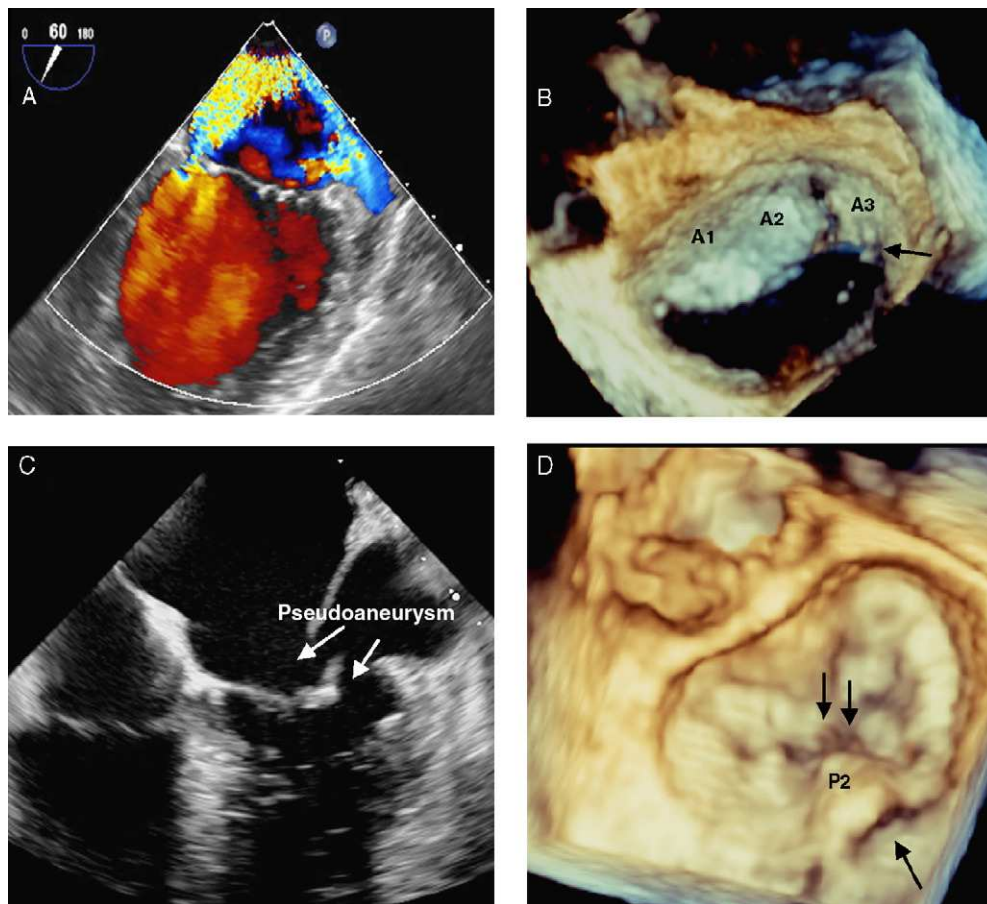


Figure 2. A, two-dimensional transesophageal echocardiography, bicommissural plane 60°, Doppler color. B, three-dimensional transesophageal echocardiography of the mitral valve, atrial perspective. C, two-dimensional transesophageal echocardiography, 0°. D, three-dimensional transesophageal echocardiography of the mitral valve, atrial perspective.

The transthoracic echocardiogram showed a dilated left ventricle (LV) with a diastolic diameter of 58 mm, 58% ejection fraction, and inferobasal akinesia. The ECG showed a pattern of evolved silent inferior myocardial infarction.

The 2DTEE (Fig. 1A, Video 1) shows a restriction of posterior mitral valve leaflet mobility (PMV) and the presence of vegetation on the atrial side of anterior mitral valve leaflet (AMV). The bicommissural plane (Fig. 1B) showed a regurgitant jet at the level of the posterior commissure and a second jet (arrow) in the lateral aspect of the left atrium (LA), secondary to the functional ischemic restriction of PMV.

The ventricular perspective of the mitral valve in RT3DTEE (Fig. 1C) showed leaflet coaptation was lacking (arrow) and less echogenicity at the level of the posterior commissure. This was confirmed by the view from the atrial side, showing a broad prolapse of the A3-P3 scallops and multiple vegetations (arrow) at the level of the middle and posterior scallops of both leaflets (Fig. 1D).

Coronary angiography showed chronic occlusion of the posterolateral branch of the right coronary artery.

Surgery confirmed the RT3DTEE findings and an edge-to-edge suture of the A3-P3 was performed, together with a resection of vegetations and the implant of a rigid, no. 28 ring. MR was not detected on intraoperative TEE and mitral area after repair was 1.7 cm².

A second patient, aged 26 years, was referred from another hospital for mitral repair surgery. The patient had been diagnosed

6 months earlier with AMV perforation secondary to endocarditis from *Streptococcus mitis*. In the bicommissural plane, 2DTEE (Fig. 2A) showed a regurgitant jet located at the posterior commissure. From the atrial perspective (Fig. 2B), RT3DTEE showed a mitral recess (cleft) between the A2 and A3 scallops and the presence of broken ruptured chordae at the level of the posterior commissure (arrow).

These findings were confirmed during surgery. The cleft was sutured and annuloplasty with a no. 30 rigid ring performed. There was no residual MR.

The third patient we present was aged 60 years and had a history of multiple myeloma and a venous reservoir. Two months previously, she had developed *Staphylococcus aureus* bacteremia secondary to infection of the reservoir.

She was referred from another center with a diagnosis of posterior mitral annular abscess with fistulization to LA and LV.

The 2DTEE (Fig. 2C) showed a cavity located laterally to the posterior mitral valve leaflet and corresponding to a pseudoaneurysm with rupture at LA and PMV perforation (arrows). From the atrial perspective, the RT3DTEE (Fig. 2D, Video 2) showed a hole in the base of the PMV at the level of the P2 scallop (arrow), the presence of ruptured chordae (arrows) in the A2-P2 binding, and a prolapse of the latter scallop. Color Doppler revealed perforation of the pseudoaneurysm in LA and a second eccentric anteriorly directed jet related to the prolapsed PMV (Video 3).

During surgery, the pseudoaneurismatic cavity was obliterated and communication with LA and the PMV perforation were closed.

A prolapse of the P2-3 union and ruptured chordae in A2 were confirmed. Two neochordae were implanted, edge-to-edge anastomosis was performed in the posterior commissure, and a complete rigid no. 30 ring was placed, with good results on intraoperative TEE.

Estimates of the incidence of endocarditis in the general population range from 16 to 62 cases per million people per year. Although mitral valve replacement has been proposed for many years as the treatment for mitral endocarditis, mitral valve repair has become increasingly popular, and a recent review confirmed that it leads to good results in patients with endocarditis.⁴

Cases of large, complex mitral endocarditis occasionally present and require a thorough knowledge of the anatomy, mechanisms, and severity of valvular regurgitation.

Our initial experience with RT3DTEE shows it to be particularly useful in patients with complex MR and multiple mechanisms. We found that it improves on the findings obtained with 2DTEE and that it provides the surgeon with information of great importance for appropriate valve repair.

SUPPLEMENTARY MATERIAL



Supplementary material associated with this article can be found in the online version, available at [doi:10.1016/j.rec.2011.04.018](https://doi.org/10.1016/j.rec.2011.04.018).

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REFERENCES

1. Sugent L, Sheman SK, Weinert L, Shook D, Raman J, Jeevanandam V, et al. Real-time three-dimensional transesophageal echocardiography in valve disease: comparison with surgical findings and evaluation of prosthetic valves. *J Am Soc Echocardiogr*. 2008;21:1347–54.
2. Tsang W, Weinert L, Kronzon I, Lang RM. Ecocardiografía tridimensional en la evaluación de las válvulas protésicas. *Rev Esp Cardiol*. 2011;64:1–7.
3. Hansalia S, Biswas M, Dutta R, Hage FG, Hsiung M, Nanda NC, et al. The value of live/real time three-dimensional transesophageal echocardiography in the assessment of valvular vegetations. *Echocardiography*. 2009;26:1264–73.
4. Feringa HH, Shaw LJ, Poldermans D, Hoeks S, Van der Wall EE, Dion RA, et al. Mitral valve repair and replacement in endocarditis: a systematic review of literature. *Ann Thorac Surg*. 2007;83:564–71.

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Outflow Tract Right Ventricular Pacing in Patients With a Persistent Left Superior Vena Cava

Estimulación en el tracto de salida de ventrículo derecho en pacientes con persistencia de vena cava superior izquierda

To the Editor,

Persistent left superior vena cava (LSVC) is a relatively common congenital anomaly, with an estimated prevalence of around 0.5%. In patients with congenital heart disease, the figure reaches almost 5% and in 10% there is no right superior vena cava. There are numerous case reports in the literature and a few small series in which pacemakers or defibrillators have been implanted through the LSVC. All describe specific techniques used to place electrical stimulation leads at a stable site;^{1–3} some also propose techniques to locate the electrode lead in the right ventricular apex (RVA).⁴ To date, however, there have been few reports on the possibility of or the techniques used to implant leads in the region of the right ventricle outflow tract (RVOT).⁵

We present 2 cases in which the electrode lead was implanted in the RVOT via the LSVC. The first case was a 72-year-old female with a history of obesity and hypertension who was admitted for clinical fatigue of several weeks duration. In the electrocardiogram (ECG) and subsequent ECG monitoring, we documented alternation between an atrioventricular (AV) junctional rhythm at 45 bpm and sinus bradycardia with left anterior hemiblock. Echocardiography was performed and revealed slight concentric left ventricular hypertrophy with preserved systolic function. The electrophysiological study showed an HV interval of 60 ms and a slightly prolonged (600 ms) corrected sinus node recovery time, with significant secondary breaks (2800 ms).

A dual chamber permanent pacemaker was implanted via the left axillary vein. However, the guidewire route led to a suspicion of LSVC persistence which was confirmed by venography. It was

decided to implant the leads through the LSVC. In the first place, a 58 cm active fixation lead (Medtronic CapSure Fix 5076) with a distal electrode was inserted in the RVOT. This was done using a manually preformed stylet with a 180° curve approximately 4 cm from the tip. A 52 cm active fixation lead (Medtronic CapSure Fix 5076) with a distal electrode was then implanted on the upper side of the right atrium (RA), using a manually preformed stylet with a 60° curve approximately 3 cm from the tip. Both showed optimum electrical parameters, so the procedure was completed. No dislocations or changes in the stimulation parameters were observed during follow-up (Figs. 1 and 2).

The next case was an 82-year-old male with a history of hypertension, hyperlipidemia, ischemic heart disease (acute

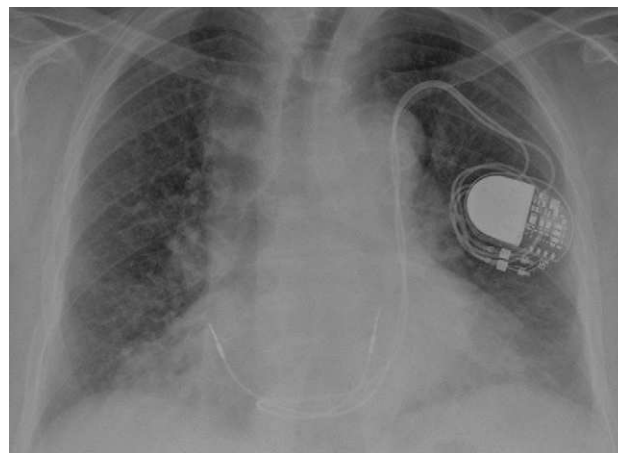


Figure 1. Posteroanterior chest radiograph, with leads inserted through the left superior vena cava. Distal ventricular electrode anchored in the right ventricular outflow tract.