

Sensitivity of Transesophageal Echocardiogram Versus Cardiac Computed Tomography in Severe Acute Aortic Regurgitation Secondary to Aortic Dissection Located in the Sinus of Valsalva

Sinüs Valsalva'yı Tutan Aort Diseksiyonuna Bağlı Şiddetli Akut Aort Yetersizliğinde Transözofageal Ekokardiyogramın Kardiyak Bilgisayarlı Tomografiye Karşı Duyarlılığı

A 70-year-old woman with a clinical history of hypertension was admitted to the hospital due to progressive dyspnea. The physical examination revealed a diastolic murmur. The transthoracic echocardiogram (TTE) displayed a dilated aortic root with severe aortic insufficiency and a normal-sized left ventricle with normal systolic function. Suspecting acute aortic dissection (AAD), a computed tomography (CT) angiography was conducted, which ruled it out. Twenty-four hours later, she presented with instability and cardiogenic shock, responding to vasoactive drugs. A subsequent ECG-synchronized CT did not show AAD. A transesophageal echocardiogram (TEE) then revealed a type I bicuspid aortic valve, with an image of intimal avulsion from the left-coronary-leaflet raphe to the ipsilateral sinus of Valsalva, suggesting localized AAD (Figure 1A-D, Videos 1 and 2). Cardiac surgery was performed with the Bentall-Bono technique. Macroscopically, intraoperatively, a detachment of the commissure between the non-coronary leaflet and left-coronary leaflet was observed. Both blood and valve cultures were negative. She experienced a satisfactory recovery.

AAD is associated with a high mortality. Clinical guidelines recommend TTE as the initial imaging test for diagnosis, followed by CT angiography (I-C recommendation) or TEE (IIA-C recommendation). In cases of hemodynamic instability, the value of TEE increases (I-C recommendation) as it can be performed at the bedside. The diagnostic accuracy of these imaging tests varies, with studies showing similar sensitivity (98–100%) and specificity (95–98%). CT has the lowest negative likelihood ratio, making it potentially the best test to rule out AAD. However, if clinical suspicion persists, TEE provides additional value in rare cases of localized AAD of the aortic root. In our case study, TEE demonstrated greater sensitivity than CT angiography.

Informed Consent: Verbal consent was obtained from the patient.

Peer-review: Internally peer-reviewed.


Author Contributions: Concept – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Design – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Supervision – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Resource – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Materials – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Data Collection and/or Processing – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Analysis and/or Interpretation – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Literature Review – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Writing – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.; Critical Review – N.L.T.E., L.A.S., M.G.T., R.D.C., A.B.R.

Conflict of interest: None of the authors have conflict of interest relevant to the subject material in this paper without financial relationships.

Funding: The authors declared that this study received no financial support.

Videos 1-2. Bicuspid aortic valve, with an image of intimal avulsion from the left-coronary-leaflet raphe to the ipsilateral sinus of Valsalva, suggesting localized AAD

CASE IMAGE OLGU GÖRÜNTÜSÜ

Nisha Lal-Trehan Estrada 
Leydimar Anmad Shihadeh 
Marta Guillén Marzo 
Ramón De Castro 
Alfredo Bardaji Ruiz 

Cardiac Imaging Unit, Department of
Cardiology, Hospital Universitario Joan XXIII,
Tarragona, Spain

Corresponding author:
Leydimar Anmad Shihadeh
✉ leydimar_12@hotmail.com

Received: February 25, 2023
Accepted: May 26, 2023

Cite this article as: Estrada NLT, Shihadeh AN, Tena MG, De Castro R, Ruiz AB. Sensitivity of transesophageal echocardiogram versus cardiac computed tomography in severe acute aortic regurgitation secondary to aortic dissection located in the sinus of Valsalva. *Turk Kardiyol Dern Ars.* 2024;52(6):468–469.

DOI: 10.5543/tkda.2023.59465



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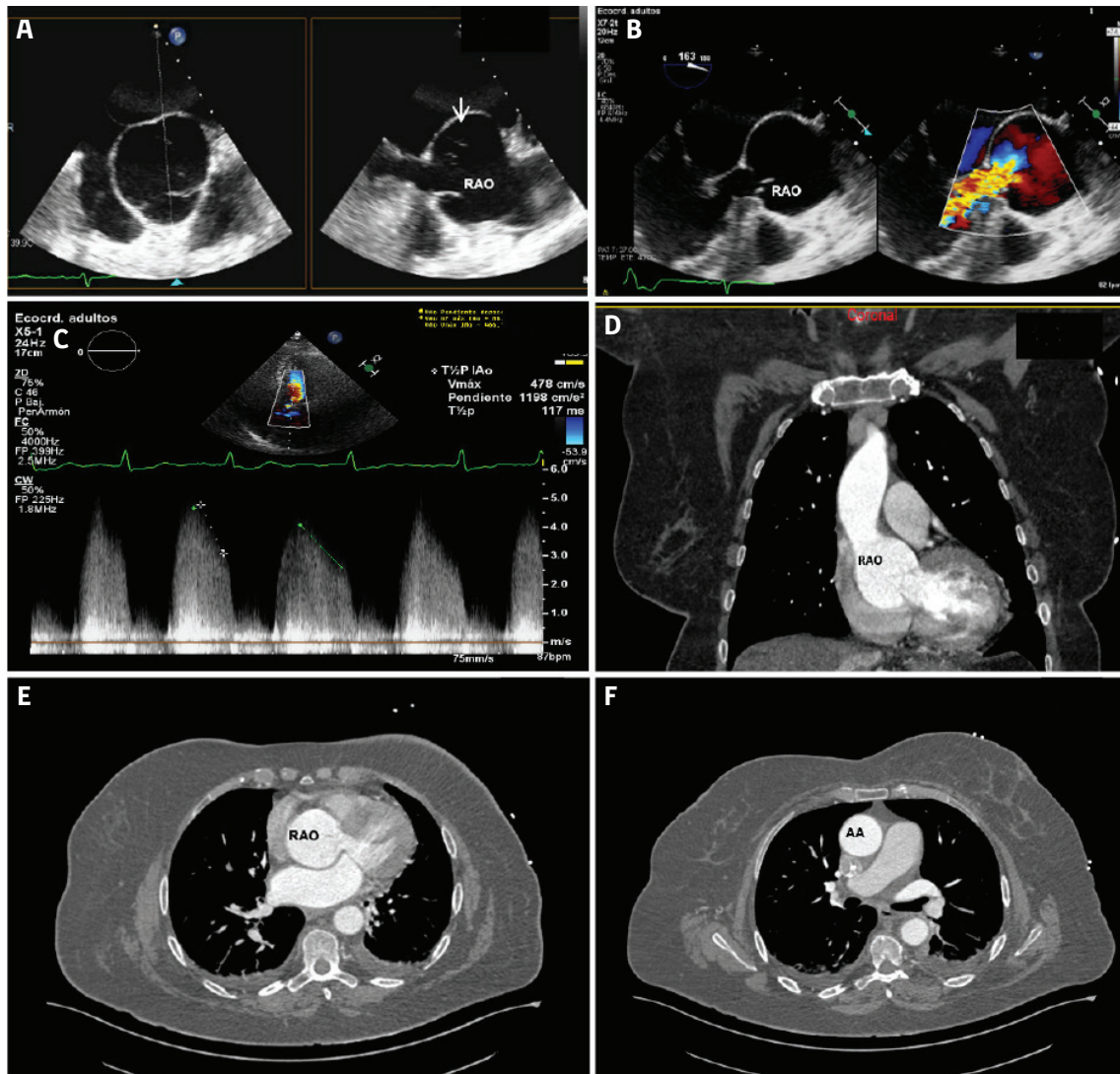


Figure 1. (A) Transesophageal echocardiogram (TEE) at 45° and 120° displays the short and long axes of the dilated aortic root (RAO) with an image of intimal detachment (white arrow). **(B)** TEE RAO with a comparative image in color Doppler illustrates a jet of aortic regurgitation with a jet diameter/left ventricular outflow tract ratio >65%. **(C)** Continuous Doppler of the aortic valve shows a half-pressure time of 117 ms. **(D-F)** Synchronized aortic CT angiography with intravenous contrast, where RAO dilation is consistent, and no double lumen or images of aortic dissection are observed at the RAO level or in the ascending aorta (AA).