Images in Cardiovascular Disease

Non Visualization of the Cardiac Structures during Transesophageal Echocardiogram: Think Outside the Heart

Jorge Cedano , MD¹, Nirmal Guragai , MD², Faye Shamoon , MD^{2,3}, and Raja Pullatt , MD³

¹Department of Medicine, Trinitas Regional Medical Center, Rutgers New Jersey Medical School, Elizabeth, NJ, USA

²Department of Cardiology, St Joseph Regional Medical Center, Paterson, NJ, USA

³Department of Cardiology, Trinitas Regional Medical Center, Rutgers New Jersey Medical School, Elizabeth, NJ, USA

Received: May 3, 2020

Revised: Jun 10, 2020

Accepted: Jun 14, 2020

Address for Correspondence:

Jorge Cedano, MD

Department of Medicine, Trinitas Regional Medical Center, Rutgers New Jersey Medical School, 225 Williamson St, Elizabeth, NJ 07202, USA.

E-mail: jorgea91@gmail.com

Copyright © 2021 Korean Society of Echocardiography

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ORCID iDs

Jorge Cedano

<https://orcid.org/0000-0001-7579-9556>

Nirmal Guragai

<https://orcid.org/0000-0002-6477-7789>

Faye Shamoon

<https://orcid.org/0000-0003-0857-7739>

Raja Pullatt

<https://orcid.org/0000-0003-2647-5605>

Conflict of Interest

The authors have no financial conflicts of interest.

Figure 1. (A) Midesophageal zero degree view with inability to visualize cardiac structures. (B) Chest X-ray showing a left retro cardiac opacity with AF that could represent HH. (C) CT scan chest sagittal view showing large HH between the ES and the cardiac structures. (D) CT scan chest axial view again showing the HH behind LV and RV. AF: air fluid level, CT: computed tomography, ES: esophagus, HH: hiatal hernia, IVS: interventricular septum, LA: left atrium, LV: left ventricle, PT: pulmonary trunk, RV: right ventricle.

A 73-year-old female with multiple medical conditions, presented with transient bilateral visual loss, which raised the concern for transient ischemic attack. Patient underwent transesophageal echocardiogram (TEE) to rule out cardio-embolic source. Esophageal intubation of TEE probe was performed and adequate oxygen saturation was recorded. No cardiac imaging windows were available in both mid-esophageal and trans-gastric views by TEE. Patient was thought to have either retro cardiac mass or hiatal hernia and the procedure was suspended (**Figure 1A**). Subsequently, chest X-ray and chest computed tomography (CT) scan (**Figure 1B, C, D**) showed a large gastric hiatal hernia with nearly the entire stomach in the thorax, without evidence of obstruction. A cardiac CT angiogram was offered as an alternate modality to the patient to rule out cardio embolic source, but patient refused further evaluation.

Hiatal hernias can create a posterior mediastinal mass that juxtaposes between the esophagus and the left atrium making the visualization of the cardiac structures challenging during TEE. Symptomatic hiatal hernia is considered as one of the relative contraindications for TEE.¹⁾ A distended hiatal hernia sac incorporates not only air but also retained fluid which interferes with ultrasonic transmission resulting in poor acoustic windows. Failure to obtain meaningful images during TEE should raise the suspicion of hiatal hernia and we suggest using other imaging modalities such as cardiac CT angiogram or cardiac magnetic resonance imaging to best answer the clinical question at hand.

REFERENCES

1. O'Rourke MC, Mendenhall BR. Transesophageal Echocardiogram (TEE). In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK430685/>. Accessed September 17 2019