Letter to the Editor

Adult Cardiac Surgery

Turk J Thorac Cardiovasc Surg 2026; 34(3): 267-268

Left ventricular aneurysm formation as a complication of Takotsubo syndrome: Mechanistic and clinical implications

Kenan Yalta, Muhammet Gürdoğan, Cihan Öztürk

Department of Cardiology, Trakya University Faculty of Medicine, Edirne, Türkiye

Keywords: Clinical implications, mechanisms, Takotsubo syndrome, ventricular aneurysms.

Dear Editor,

Left ventricular (LV) aneurysm formation in the context of Takotsubo syndrome (TTS) has been regarded as an extremely rare phenomenon.[1,2] The recent report by Yılmaz et al.[1] has described an interesting case of giant apical LV aneursym formation following an emotionally-triggered TTS episode in a middle-aged male patient. Accordingly, we would like to highlight further aspects of LV aneurysm formation in the setting of TTS based on this interesting case:

First, TTS evolution, besides traditionally attributed to catecholamine toxicity at the myocardial level, may also arise due to acute LV outflow tract or midventricular obstruction (MVO) leading to supply-demand mismatch and subsequent stunning in the apical territories particularly in patients with certain myocardial conditions including hypertrophic cardiomyopathy (HCM), hypertensive heart disease or ventricular septal bulge.[2-4] This specific form of TTS was previously named as "mechanically-triggered TTS" which might usually arise in the presence of mild LV hypertrophy, and has a particular predisposition to mechanical TTS complications including LV rupture largely due to the extremely high levels of apical intraventricular pressure during the TTS course.[4]

Similarly, LV apical aneurysm formation may be particularly associated with a mechanically-triggered TTS episode presenting with a relatively persistent intraventricular obstruction.[2] In general, this form of LV aneurysms may not present with severe myocardial wall thinning and fibrosis, and is more likely to present with the persistence of TTS-related apical ballooning pattern (as in the present case).[1] In this context, we wonder whether the patient[1] had any of the aforementioned myocardial conditions presenting with a significant intraventricular gradient at rest on echocardiogram. Did the authors[1] also plan to perform advanced diagnostic tests including magnetic resonance imaging (MRI) for the evaluation of these possible myocardial conditions?

Second, intraventricular obstruction in this context may not be evident at rest, and may exclusively be provoked with certain maneuvers (including Valsalva maneuver) or provocation tests including dobutamine stress echocardiogram.[4] We wonder about the authors' attitude towards the diagnostic use of provocation tests for their patient. Management of significant intraventricular gradient (at rest or provoked) may prevent recurrent TTS episodes that might possibly be complicated with LV apical aneurysm formation or even myocardial rupture in the long-term.[4]

Finally, LV aneursym formation in the setting of TTS may also be attributable to pre-existing myocardial conditions including HCM with a chronic MVO or may arise as a consequence of co-existing acute coronary syndromes (due to spontaneous coronary artery dissection or coronary embolism originating from the myocardial territories with severe ballooning, etc.).[2,3] Of note, these LV aneurysms are characterized by significant myocardial wall thinning and fibrosis (with late gadolinium enhancement on MRI).[2] However, histopathological examination excluded these factors as potential triggers of LV aneurysm formation in the patient.[1]

In conclusion, LV apical aneursym formation following a TTS episode may potentially suggest the presence of subtle or overt intraventricular obstruction mostly arising as part of certain pre-existing myocardial conditions. Timely diagnosis and management of these myocardial conditions and associated intraventricular obstruction may prevent recurrent TTS episodes and possible complications including LV aneurysm formation.

Cite this article as: *Yalta K, Gürdoğan M, Öztürk C. Left ventricular aneurysm formation as a complication of Takotsubo syndrome: mechanistic and clinical implications. Turk J Thorac Cardiovasc Surg. 2026; 34(3): 267-268*

Corresponding Author: *Kenan Yalta,*
e-mail: *kyalta@gmail.com, akenanyalta@trakya.edu.tr* ***ORCID:*** *orcid.org/0000-0001-5966-2488*
DOI: *10.4274/tjtcs.2026.2026-2-23*
Received: *February 12, 2026* ***Accepted:*** *March 06, 2026* ***Epub:*** *March 11, 2026* ***Publication Date:*** *July 13, 2026*

Copyright© 2026 The Author(s). Published by Galenos Publishing House on behalf of Turkish Society of Cardiovascular Surgery and Turkish Thoracic Surgery Association. This is an open access article under the Creative Commons AttributionNonCommercial 4.0 International (CC BY-NC 4.0) License.

Footnotes

Authorship Contributions

Concept: K.Y., M.G.; Design: K.Y., M.G., C.Ö.; Analysis or Interpretation: K.Y., M.G., C.Ö.; Literature Search: K.Y., M.G.; Writing: K.Y., M.G., C.Ö.

Conflict of Interest: No conflict of interest was declared by the authors.

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

References

1. Yılmaz Ü, Karaarslan M, Sarıkaya S. Non-ischemic giant left ventricular aneurysm: a complication of Takotsubo cardiomyopathy-case report. Turk Gogus Kalp Damar Cerrahisi Derg. 2026. doi: 10.4274/tjtcs.2025.27449. Epub ahead of print.
2. Yalta K, Kaya C, Yalta T. Left ventricular aneurysm formation in patients with Takotsubo syndrome: a peculiar phenomenon with subtle implications. Kardiol Pol. 2023;81:1034-5. doi: 10.33963/KP.a2023.0161.
3. Yalta K, Madias JE, Kounis NG, Y-Hassan S, Polovina M, Altay S, et al. Takotsubo syndrome: an international expert consensus report on practical challenges and specific conditions (part-1: diagnostic and therapeutic challenges). Balkan Med J. 2024;41:421-41. doi: 10.4274/balkanmedj.galenos.2024.2024-9-98.
4. Yalta K, K, Madias JE, Kounis NG, Y-Hassan S, Polovina M, Altay S, et al. Takotsubo syndrome: an international expert consensus report on practical challenges and specific conditions (part-2: specific entities, risk stratification and challenges after recovery). Balkan Med J. 2024;41:442-57. doi: 10.4274/balkanmedj.galenos.2024.2024-9-99.

Reply

We express our gratitude to the authors for their interest in our case report and their insightful comments concerning intraventricular obstruction and the application of advanced imaging techniques in the context of left ventricular aneurysm subsequent to Takotsubo syndrome.[1] In response to their initial inquiry, preoperative transthoracic echocardiography revealed no evidence of a left ventricular outflow tract or midventricular gradient at rest. The echocardiographic assessment did not indicate dynamic obstruction, systolic anterior motion, or a Doppler-derived intraventricular pressure gradient. Consequently, the preoperative findings did not support the hypothesis of a mechanically triggered Takotsubo syndrome due to resting intraventricular obstruction. Although cardiac magnetic resonance imaging was considered, it could not be conducted. The patient was in a hemodynamically precarious state with progressive clinical deterioration, necessitating urgent surgical intervention. Postponing surgery for additional imaging was deemed unsafe, and the decision for immediate operative management was based on clinical, echocardiographic, and intraoperative findings. We trust that these clarifications address the concerns raised and substantiate the individualized management strategy employed in this case. We appreciate the authors' constructive comments, which have enriched the discussion of this rare clinical entity.

Sincerely,

Üzeyir Yılmaz, Mustafa Karaarslan, Sabit Sarıkaya

Reference

1. Yılmaz Ü, Karaarslan M, Sarıkaya S. Non-ischemic giant left ventricular aneurysm: a complication of Takotsubo cardiomyopathy-case report. Turk Gogus Kalp Damar Cerrahisi Derg. 2026. doi: 10.4274/tjtcs.2025.27449. Epub ahead of print.