A Christmas tree-shaped atrial myxoma causing transient ischemic attacks

Patrycja Mołek-Dziadosz[1, 2], Aleksandra Karcińska[1, 2], Marc R Dweck[3], Jadwiga Nessler[1, 2], Karolina Golińska-Grzybała[1, 2], Andrzej Gackowski[1, 2]

[1]Department of Coronary Disease and Heart Failure, John Paul II Hospital, Kraków, Poland
[2]Institute of Cardiology, Jagiellonian University Medical College, Kraków, Poland
[3]British Heart Foundation Center for Cardiovascular Science, University of Edinburgh, Edinburgh, United Kingdom

Correspondence to:
Andrzej Gackowski, MD, PhD, Jagiellonian University Medical College, Institute of Cardiology, Department of Coronary Disease and Heart Failure, Prądnicka 80, 31–202 Kraków, Poland, phone: +48 12 614 22 18, e-mail: agackowski@gmail.com

DOI: 10.33963/KP.a2023.0008

Received:
November 1, 2022

Accepted:
December 4, 2022

Early publication date:
December 27, 2022

Cardiac myxoma is a well-known primary cardiac tumor usually located in the left atrium [1]. Cardiac myxomas most commonly appear on echocardiography as a pedunculated tumor attached to the interatrial septum, with a smooth outline that does not disturb bordering structures [2, 3]. We present a unique case of a myxoma with an extremely irregular and branching structure and highly vascular phenotype that gave it the appearance of a lit Christmas tree on echocardiography.

A 55-year-old woman was admitted to the hospital after two consecutive episodes of transient ischemic attacks (TIA) that occurred within 36 hours before admission. Her past medical history did not include any previous complaints or diseases, nor did she have a significant family history. Physical examination, laboratory tests, and electrocardiography were normal. Transthoracic echocardiography showed a large, extremely mobile mass in the left atrium (Figure 1A, B).

Transesophageal echocardiography (TEE) further demonstrated irregular branching morphology of this tumor (Figure 1C, D). Color Doppler recorded with a low flow velocity scale showed multiple color dots indicating significant tumor vascularity. It gave the tumor the appearance of a colorfully lit Christmas tree moving in the wind (Supplementary materials, *Videos S1*, *S2*). Urgent coronary angiography excluded coronary artery disease but showed a pathological branch of the right coronary artery (RCA) vascularizing the mass in the left atrium (Figure 1E). The Heart Team decided to perform urgent surgical resection of the tumor. A gelatinous, extremely fragile, pedunculated, and easily fragmentable mass was excised during cardiac surgery (Figure 1F). Subsequent histopathology confirmed that it was a cardiac myxoma with no signs of malignancy. Five-year follow-up was uneventful, and the patient did not report any recurrent symptoms.

Typically, cardiac myxomas have smooth surfaces and pedunculated structures. The current case shows an extremely fragile and mobile subtype associated with multiple TIA episodes. Urgent echocardiography, including TEE and low-velocity color Doppler imaging, was able to fully characterize the mass and detect multiple small vessels, whose presence was then confirmed by coronary angiography and histopathological exam. Extensive vascularization often suggests a malignant nature of the tumor due to abnormal neovascularization and demonstrates greater enhancement than the adjacent myocardium, but as documented here, it may also exist in benign tumors [5]. The irregular fragile structure of this myxoma was associated with two recent TIA episodes in an otherwise healthy patient with no cardiovascular risk factors. The case shows that prompt diagnostic workup is essential in patients with TIA. Myxomas should be excised without delay, however, excision should be performed with the highest urgency in irregular tumors that have already led to embolic complications [1, 4]. Evidence of tumor vascularization may also lead to alterations in the resection strategy.

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/kardiologia_polska.

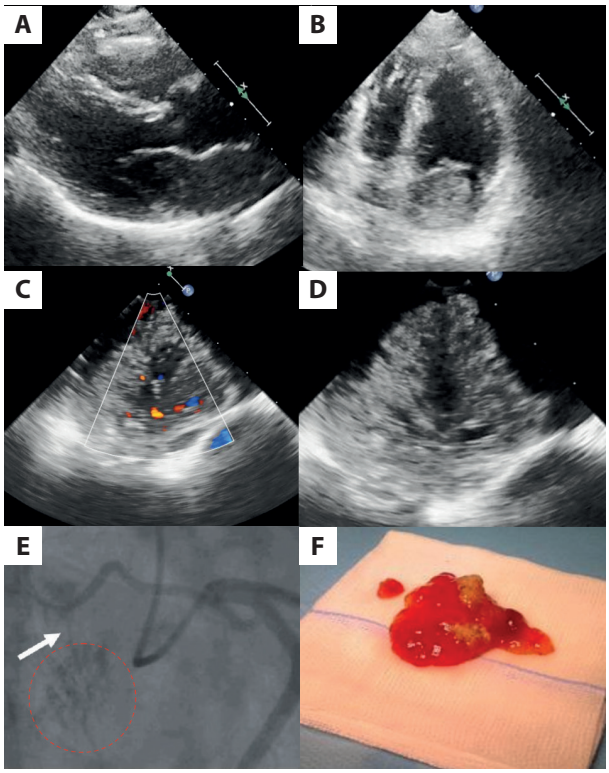

Figure 1. Extremely mobile, pedunculated tumor, visualized using transthoracic echocardiography (**A** and **B**) and transesophageal echocardiography (**C** and **D**). Coronary angiography showing tumor vascularization (circle) by a branch of the right coronary artery (arow). (**E**). Gelatinous, pedunculated, and fragile myxoma excised during cardiac surgery (**F**)

Article information

Conflict of interest: None declared.

Funding: None.

REFERENCES

1. Burke A, Tavora F. The 2015 WHO Classification of Tumors of the Heart and Pericardium. J Thorac Oncol. 2016; 11(4): 441–452, doi: 10.1016/j.jtho.2015.11.009, indexed in Pubmed: 26725181.
2. Samanidis G, Khoury M, Balanika M, et al. Current challenges in the diagnosis and treatment of cardiac myxoma. Kardiol Pol. 2020; 78(4): 269–277, doi: 10.33963/KP.15254, indexed in Pubmed: 32207702.
3. Vroomen M, Houthuizen P, Khamooshian A, et al. Long-term follow-up of 82 patients after surgical excision of atrial myxomas. Interact Cardiovasc Thorac Surg. 2015; 21(2): 183–188, doi: 10.1093/icvts/ivv125, indexed in Pubmed: 25972592.
4. Molek P, Urbańczyk-Zawadzka M, Mielnik M, et al. Right atrial lipoma: the significance of multimodality imaging. Kardiol Pol. 2021; 79(7–8): 893–894, doi: 10.33963/KP.a2021.0024, indexed in Pubmed: 34060635.
5. Tyebally S, Chen D, Bhattacharyya S, et al. Cardiac tumors: state-of-the-art review. JACC CardioOncol. 2020; 2(2): 293–311, doi: 10.1016/j.jaccao.2020.05.009, indexed in Pubmed: 34396236.