Pericardial effusion: what to blame - electrical cardioversion, drug-drug interactions or something else?

Filipa Grljušić[1]*, Vlatka Rešković Lukšić[2], Blanka Glavaš Konja[2], Jadranka Šeparović Hanževački[2], Marija Brestovac[2], Sandra Jakšić Jurinjak[2]

[1]General Hospital "Dr. Josip Benčević" Slavonski Brod, Slavonski Brod, Croatia
[2]University of Zagreb, School of Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

KEYWORDS: pericardial effusion, electrocardioversion, dabigatran, amiodarone, pericarditis.

CITATION: Cardiol Croat. 2025;20(5-6):132-3. | https://doi.org/10.15836/ccar2025.132

***ADDRESS FOR CORRESPONDENCE:** Filipa Grljušić, Opća bolnica „Dr. Josip Benčević", Slavonski Brod, Andrije Štampara 42, HR-35000 Slavonski Brod, Croatia. / Phone: +385-98-199-3321 / E-mail: filipa.grljusic@gmail.com

ORCID: Filipa Grljušić, https://orcid.org/0009-0009-8221-0549 • Vlatka Rešković Lukšić, https://orcid.org/0000-0002-4721-3236 Blanka Glavaš Konja, https://orcid.org/0000-0003-1134-4856 • Jadranka Šeparović Hanževački, https://orcid.org/0000-0002-3437-6407 Marija Brestovac, https://orcid.org/0000-0003-1542-2890 • Sandra Jakšić Jurinjak, https://orcid.org/0000-0002-7349-6137

Introduction: Pericardial effusion is an abnormal amount of pericardial fluid for various reasons. When it accumulates slowly, there can be a large pericardial effusion without cardiac tamponade.[1] In most cases, atrial arrhythmias require antiarrhythmics, electrocardioversion, and catheter ablation to restore and sustain sinus rhythm, in addition to anticoagulant therapy to prevent thromboembolic incidents.[2] Occasionally, these treatments can contribute to the development of pericardial effusion.[2,3]

Case report: 62-year-old female patient presented with shortness of breath following minimal effort a month and a half ago. She had a past medical history of paroxysmal atrial flutter with successful direct-current electrical cardioversion 2 months ago. She was prescribed oral amiodarone 100 mg once daily and dabigatran 150 mg twice daily. She was hemodynamically stable on admission. The ECG showed sinus rhythm with diffuse microvoltage. Laboratory tests revealed mild normocytic anemia, hypoproteinemia, and slightly elevated inflammatory markers. Echocardiography revealed a large pericardial effusion with fibrin deposits measuring up to 50 mm next to the right atrium and ventricle in the subcostal view, while other findings were normal (**Figure 1**). Further investigations showed erosive gastritis, right carotid artery stenosis, significant stenosis of the brachiocephalic trunk and left subclavian artery, as well as an infrarenal abdominal aortic aneurysm. Upon admission, dabigatran and amiodarone were discontinued. The patient was treated with ibuprofen, colchicine and gastroprotection. This was accompanied by a recovery from anemia, normalization of inflammatory markers, and a significant reduction in pericardial effusion, which measured 11 mm on the 14th day of hospitalization (**Figure 2**). Subsequently, immunological results revealed a positive finding of OJ antibodies. Two weeks later, the pericardial effusion had resolved (**Figure 3**), and a PET/CT scan demonstrated increased radiopharmaceutical accumulation in the aortic walls, both subclavian arteries, and both hilus with enlarged lymph nodes and small nodular lung lesions.

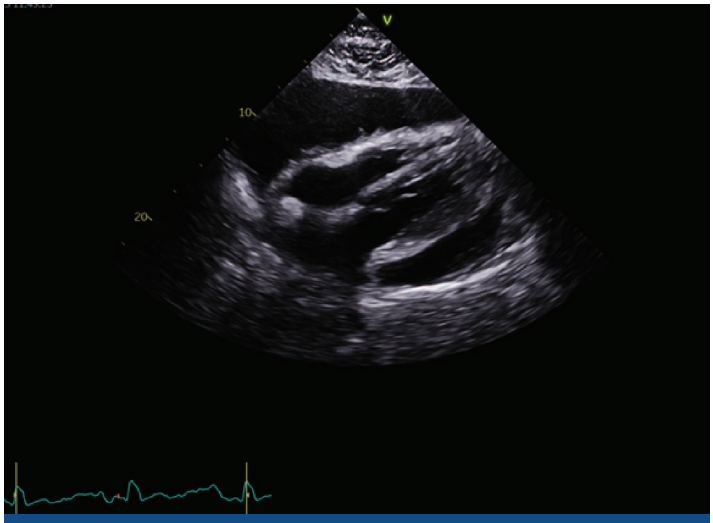

FIGURE 1. The subcostal view shows a significant pericardial effusion.

RECEIVED:
March 16, 2025
ACCEPTED:
April 2, 2025

Conclusion: This is a case of reactive pericarditis accompanied by pericardial effusion, influenced by several potential precipitating factors: anticoagulant therapy combined with amiodarone, electrocardioversion, and the possibility of an underlying (systemic) disease. It is important to highlight the favorable and rapid response to a conservative treatment approach for extensive pericardial effusion.

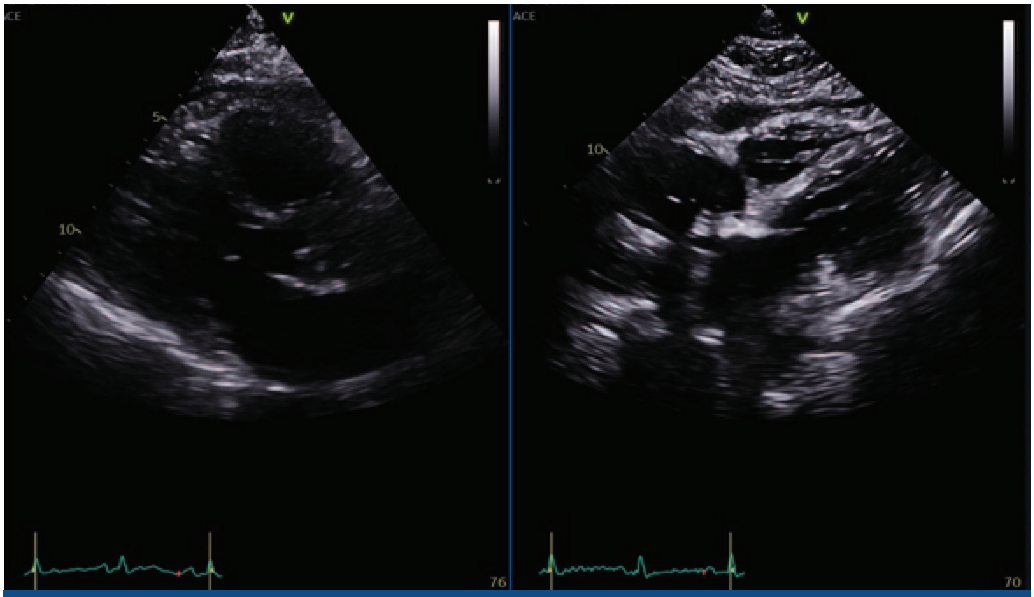

FIGURE 2. By the 14th day of hospitalization, there was a significant decrease in pericardial effusion observed in both the long parasternal view (left) and the subcostal view (right).

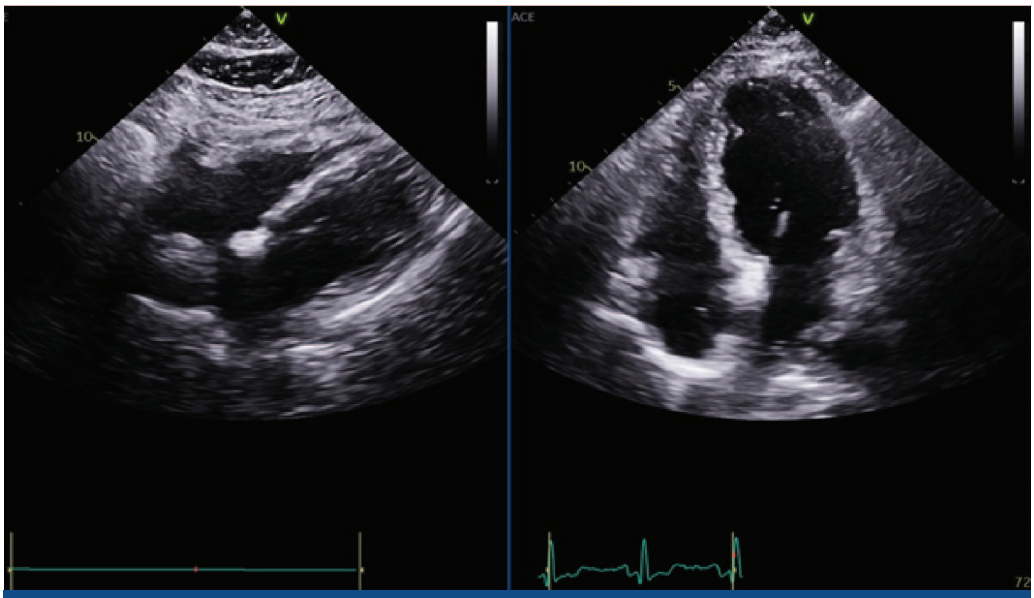

FIGURE 3. The subcostal view (left) and 4-chamber view (right) demonstrate the resolution of pericardial effusion following four weeks of conservative treatment.

LITERATURE

1. Leeson P, Monteiro C, Augustine D, Becher H. Transthoracic anatomy and pathology: Pericardial effusion. In: Leeson P, Monteiro C, Augustine D, Becher H. Echocardiography. 3rd edition. Oxford Specialist Handbooks in Cardiology. Oxford: Oxford University Press 2020. p.222-223.
2. Van Gelder IC, Rienstra M, Bunting KV, Casado-Arroyo R, Caso V, Crijns HJGM, et al; ESC Scientific Document Group. 2024 ESC Guidelines for the management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS). Eur Heart J. 2024 Sep 29;45(36):3314-3414. https://doi.org/10.1093/eurheartj/ehae176
3. Abdallah M, Abdallah T, Abi Rafeh N, Khoueiry G, Abouyassine A, Chalhoub M, et al. A sanguineous pleuro pericardial effusion in a patient recently treated with Dabigatran. Heart Lung. 2015 May-Jun;44(3):209-11. https://doi.org/10.1016/j.hrtlng.2015.02.006