

## Value of multimodal imaging in recurrent pericarditis – clinical burden of hemodynamic and inflammation imaging

**Sandra Jakšić Jurinjak<sup>1\*</sup>**,  
**Vlatka Rešković Lukšić<sup>1</sup>**,  
**Diana Kovač<sup>2</sup>**,  
**Blanka Glavaš Konja<sup>1</sup>**,  
**Marija Brestovac<sup>1</sup>**,  
**Marina Prpić<sup>1</sup>**,  
**Zvonimir Ostojić<sup>1</sup>**,  
**Joško Bulum<sup>1</sup>**,  
**Martina Lovrić Benčić<sup>1</sup>**,  
**Jadranka Šeparović Hanževački<sup>1</sup>**

<sup>1</sup>University of Zagreb School of Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

<sup>2</sup>University of Zagreb School of Medicine, Zagreb, Croatia

**KEYWORDS:** cardiac imaging, recurrent pericarditis, inflammation.

**CITATION:** *Cardiol Croat.* 2021;16(5-6):196-7. | <https://doi.org/10.15836/ccar2021.196>

**\*ADDRESS FOR CORRESPONDENCE:** Sandra Jakšić Jurinjak, Klinički bolnički centar Zagreb, Kišpatičeva 12, HR-10000 Zagreb, Croatia. / Phone: +385-1-2388-888 / E-mail: [sjaksicj@gmail.com](mailto:sjaksicj@gmail.com)

**ORCID:** Sandra Jakšić Jurinjak, <https://orcid.org/0000-0002-7349-6137> • Vlatka Rešković Lukšić, <https://orcid.org/0000-0002-4721-3236> • Diana Kovač, <https://orcid.org/0000-0002-5098-1594> • Blanka Glavaš Konja, <https://orcid.org/0000-0003-1134-4856> • Marija Brestovac, <https://orcid.org/0000-0003-1542-2890> • Marina Prpić, <https://orcid.org/0000-0002-0635-3806> • Zvonimir Ostojić, <https://orcid.org/0000-0003-1762-9270> • Joško Bulum, <https://orcid.org/0000-0002-1482-6503> • Martina Lovrić Benčić, <https://orcid.org/0000-0001-8446-6120> • Jadranka Šeparović Hanževački, <https://orcid.org/0000-0002-3437-6407>

**Introduction:** Recurrent pericarditis can occur in up to 30% of patients after acute episode of pericarditis and is associated with significantly impaired quality of life and morbidity<sup>1</sup>. High rate of recurrence remains despite treatment as nonsteroidal anti-inflammatory drugs (NSAIDs), colchicine, steroids or other immunosuppressants<sup>1</sup>. If medical therapy fails, in case of symptomatic constrictive hemodynamics, surgical approach-pericardiectomy is indicated. Therefore, imaging modalities have to distinguish between hemodynamic assessment, where echocardiography is first line imaging modality, and inflammation where other cardiac imaging modalities complement echocardiographic findings<sup>2</sup>.

**Case report:** We present series of two cases, first of recurrent pericarditis in patient with postpericardiectomy syndrome and second recurrent pericarditis which lead to constrictive pericarditis resolved by pericardiectomy. First case is 60-year female who had aortic valve replacement due to severe aortic stenosis three weeks prior development of first symptoms, comprised of severe chest pain, fever with elevated markers of infection, and pleural effusion. Echocardiography revealed normal function of artificial aortic valve, normal ejection fraction of left and right ventricle and pericardial effusion, mainly inferoposterolateral and in front of right ventricle with septal bounce and hemodynamic signs of elastic constriction. PET CT confirmed inflammation only in pericardium and pleura (**Figure 1**).



**FIGURE 1.** A) Chest CT showing pericardial and pleural effusion. B) echocardiography showing pericardial effusion. C) PET CT identifying inflammation of the pericardium.

**RECEIVED:**  
March 28, 2021

**ACCEPTED:**  
April 2, 2021



Regression followed due to NSAIDs, colchicine, steroids treatment. She had signs of recurrence within next six month, but less severe inflammation. Second case is 45-year male who was admitted to our institution due to right heart failure and atrial undulation. Echocardiography revealed septal bounce with respiratory dependent septal shift to the right as result of interventricular interdependence due to severe calcification of pericardium mainly in front of right ventricle and pericardial effusion infero-laterally. CT revealed massive calcification of the pericardium and no active inflammation in patient with right heart failure leading us to indicate surgical treatment pericardiectomy (**Figure 2**). Patient is recovering after surgery and was discharged in good condition.

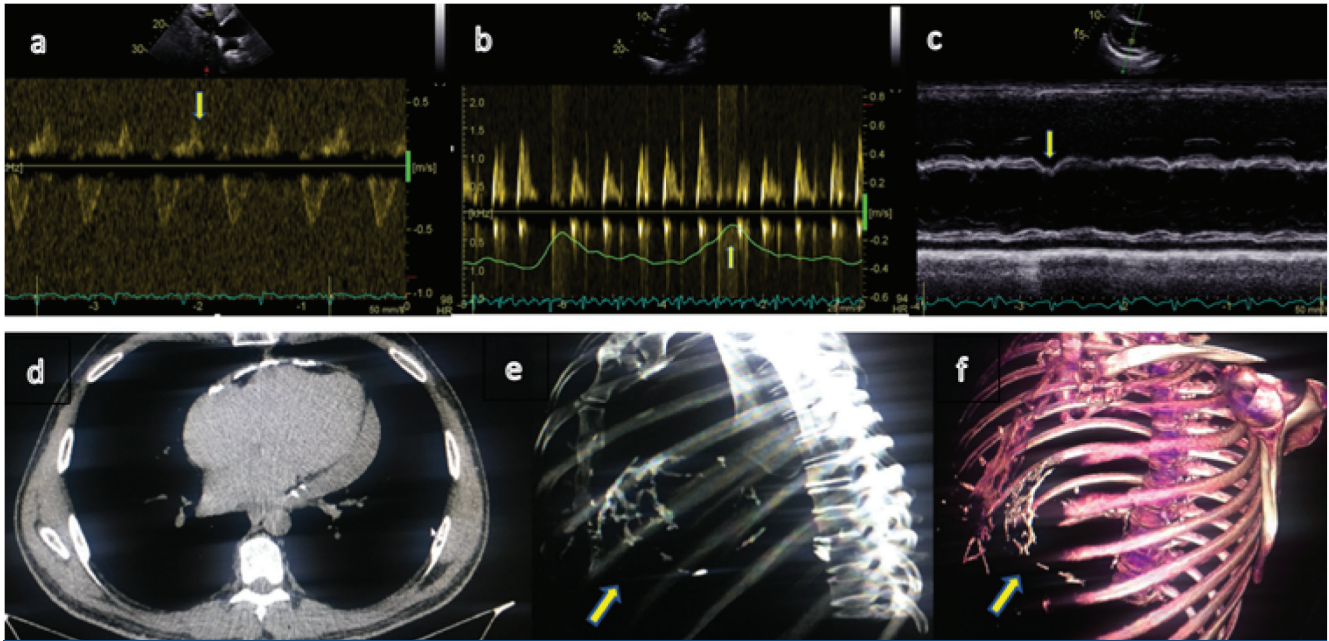


FIGURE 2. A) Hepatic flow reversal with IVC plethora. B) Hemodynamic information bet seen by echo C) Diastolic septal bounce best seen on M mode as septal notch in early diastole. D, E, F) CT showing pericardial calcification.

**Conclusion:** Multidisciplinary approach to pericardial disease and multimodality imaging of pericardial pathology is paramount, as diagnosis and treatment often include multiple subspecialties. Echocardiography is still superior imaging modality when hemodynamic is the question but is best complemented with imaging modalities indicating inflammation.

**LITERATURE**

1. Chiabrando JG, Bonaventura A, Vecchié A, Wohlford GF, Mauro AG, Jordan JH, et al. Management of Acute and Recurrent Pericarditis: JACC State-of-the-Art Review. *J Am Coll Cardiol.* 2020 Jan 7;75(1):76-92. <https://doi.org/10.1016/j.jacc.2019.11.021>
2. Klein AL, Cremer PC. Ephemeral Effusive Constrictive Pathophysiology. *JACC Cardiovasc Imaging.* 2018 Apr;11(4):542-545. <https://doi.org/10.1016/j.jcmg.2017.10.028>