

62 year-old woman with recurrent pleural and pericardial effusion (RCD code: III)

Piotr Nowak*, Piotr Liszniański, Jacek Nowak, Ewa Żółkiewicz

Department of Cardiology, District Hospital in Chrzanów, Poland

Abstract

The spectrum of pericardial diseases consists of congenital defects, pericarditis (dry, effusive, effusive-constrictive, and constrictive), neoplasm, and cysts. The aetiological classification comprises: infectious pericarditis, pericarditis in systemic autoimmune diseases, type 2 (auto) immune process, postmyocardial infarction syndrome, and auto-reactive (chronic) pericarditis. We report a case of 62-year-old patient with recurring pericardial and pleural fluid, who was diagnosed with undetermined cause infection. She was successfully treated with antibiotics, colchicine, non-steroidal anti-inflammatory drugs (NSAIDs) In this report we discuss actual recommendations on diagnosis and management of pericardial diseases in adult patients. JRC D 2015; 2 (3): 92–95

Key words: pericarditis, pericardiocentesis, anti-inflammatory drugs, pleuritis

Case presentation

A 62 year-old female patient with a history of coronary artery disease, after myocardial infarction in 2009, with diabetes mellitus type 2, obesity, hypertension, persistent atrial fibrillation and chronic obstructive pulmonary disease (COPD) and chronic kidney disease, after the removal of the uterus, was admitted to department of cardiology because of shortness of breath at rest, lasting for a few days prior to admission. The bedside echocardiography showed significant amount of fluid in the pericardial cavity, up to 36mm behind the posterior wall of the heart. Pericardiocentesis was performed evacuating approximately 100ml of bloody content. The fluid from the right pleural cavity which had exudative character was microbiologically negative. Cytology of the fluid showed no tumor cells. Due to high levels of inflammatory parameters antibiotic and non-steroidal anti-inflammatory (NSAID) therapy, diclofenac and colchicine was initiated. Because elevated levels of CA125 were observed an abdominal computed tomography (CT) (without contrast due to allergy) was performed. It revealed the presence of enlarged lymph nodes of up to 10mm size located above the spinal branch of the right diaphragmatic dome. Tuberculosis (TbC) tests were performed which was negative. Also tests towards, collagenosis and amyloidosis showed negative results.

After transient improvement the amount of fluid in the pericardium increased. The puncture was re-performed. Cytopathology of the fluid did not reveal tumor cells. Parameters of inflammation significantly decreased during NSAID therapy. Clinical status of the patient including dyspnea improved. An electrical cardioversion was considered in this patient due to atrial fibrillation (Figures 1–3). Transesophageal echocardiography (TEE) was performed initially showing a thrombus in the left atrial appendage and persistent foramen ovale with a continuous left-to-right shunt. Electrical cardioversion was not performed. Rhythm control was achieved after optimization of beta-blocker dosage. Unfractionated heparin followed by oral vitamin K antagonist (VKA) was introduced. Further hospital course was uneventful. Fever and shortness of breath did not return. The amount of fluid in the pericardium did not increase. In the steady state, with no fever, without shortness of breath at rest and with persistent atrial fibrillation the patient was discharged home. Her medical treatment comprised of beta-blocker (bisoprolol 1 × 10mg), angiotensin-converting enzyme inhibitor (ACEi) (ramipril 1 × 10mg) and loop diuretic (torasemide 1 × 5mg), alpha blocker (doxazosinum 1 × 4mg), inhibitor of the enzyme thyroperoxidase (Methimazole 1 × 2,5 mg), insulin, metformin 3 × 850mg and atorvastatin 1 × 20mg. She currently remains in regular follow-up. She feels well. Echocardiography shows a small but steady amount of liquid up to 5mm in front of the anterior wall.

Conflict of interest: none declared.

* Corresponding author: District Hospital in Chrzanów, Topolowa str 16, 32-500 Chrzanów, Poland; tel. 0048 32 624 72 37, fax 0048 32 624 72 37; e-mail: piotrnnowak00787@gmail.com
Copyright © 2015 Journal of Rare Cardiovascular Diseases; Fundacja Dla Serca w Krakowie

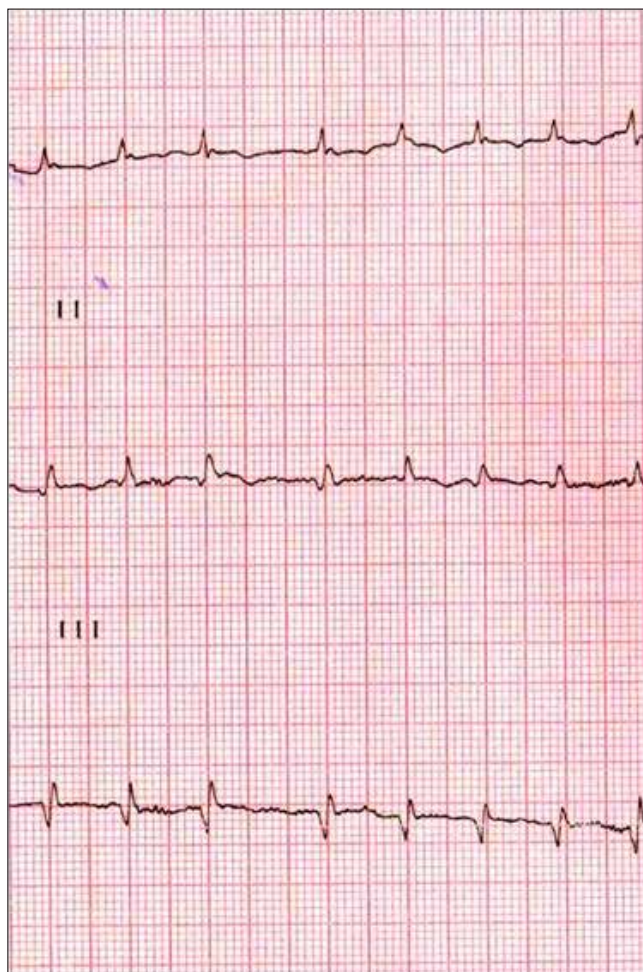


Figure 1. Electrocardiogram. Atrial fibrillation with the ventricular action 100–150/min. Q in II, III, aVF, low r waves voltage

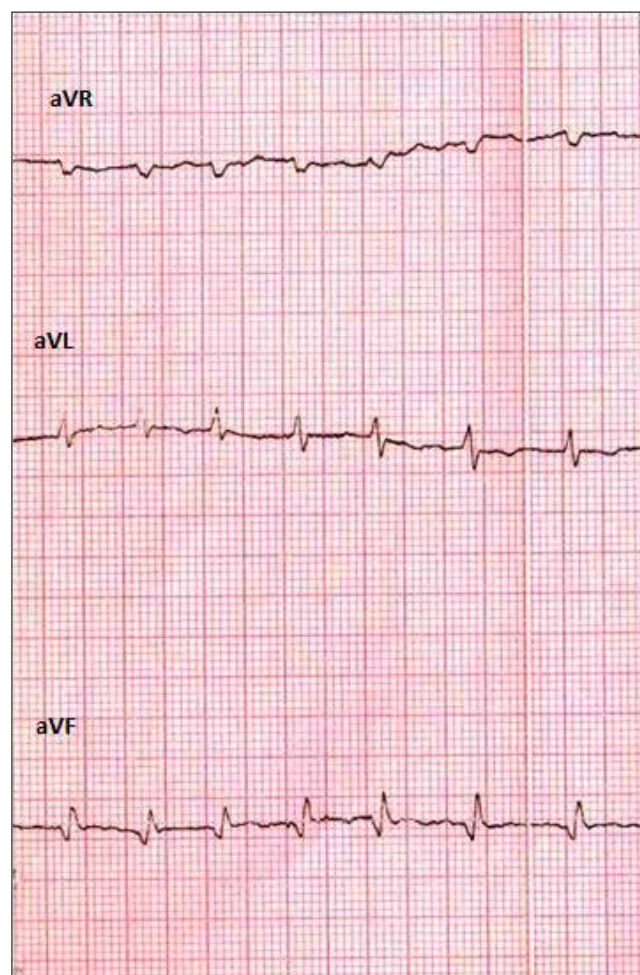


Figure 2. Electrocardiogram. Atrial fibrillation with the ventricular action 100–150 / min. Q in II, III, aVF, low r waves voltage

Discussion and literature review

Etiologically, pericarditis may be caused by infective or non-infective diseases [1]. Viral infections prevail among infective factors [2]. The other group includes autoimmune diseases, metabolic disorders, neoplastic conditions, pathology of adjacent organs and structures, chest trauma, thyroid dysfunction, pregnancy, toxins and medications (e.g. amiodarone), radiation therapy. In some cases the cause cannot be determined (idiopathic pericarditis).

As far as natural history is concerned, acute (dry, effusive, or fibrinous), recurrent and chronic pericarditis may be distinguished. Usual symptoms include chest pain, non-productive cough, dyspnea. Physical examination may reveal pericardial friction (rarely detected), muffled heart sounds (depends on the amount of effusion), tachycardia. Pericarditis may be accompanied by pleural fluid and there is often some degree of myocarditis. There are no specific ECG features.

TTE is the first choice diagnostic modality for diagnosis, monitoring and fluid aspiration guidance [3,4].

Pericarditis management depends on etiology. Medical treatment comprises of antibiotics, NSAIDs (e.g. ibuprofen, acetylsalicylic acid), colchicine, glucocorticosteroids. According to the cur-

rent European Society of Cardiology (ESC) guidelines in case of cardiac tamponade, pericardiocentesis is a life-saving procedure (class I and level of recommendation B) [1]. If no haemodynamic compromise is observed pericardiocentesis is indicated in effusions exceeding 20 mm or for diagnostic purposes (class IIa and level of recommendations B). Pericardial puncture is absolutely contraindicated in aortic dissection. In acute traumatic haemopericardium and purulent pericarditis surgical drainage appears to be more appropriate. Pericardiocentesis is guided either by TTE or fluoroscopy with ECG monitoring. Simultaneous heart catheterization may enable hemodynamic monitoring of puncture effects. Possible complications comprise of myocardial damage (including muscle/cardiac vessel perforation), arrhythmias (most commonly vasovagal bradycardia), pneumothorax, purulent pericarditis, internal mammary artery fistulas.

Patient's management and follow-up

In our management of the patient we included symptoms, physical examination, family history and results of additional studies. A resting electrocardiogram (ECG) demonstrated atrial fibril-

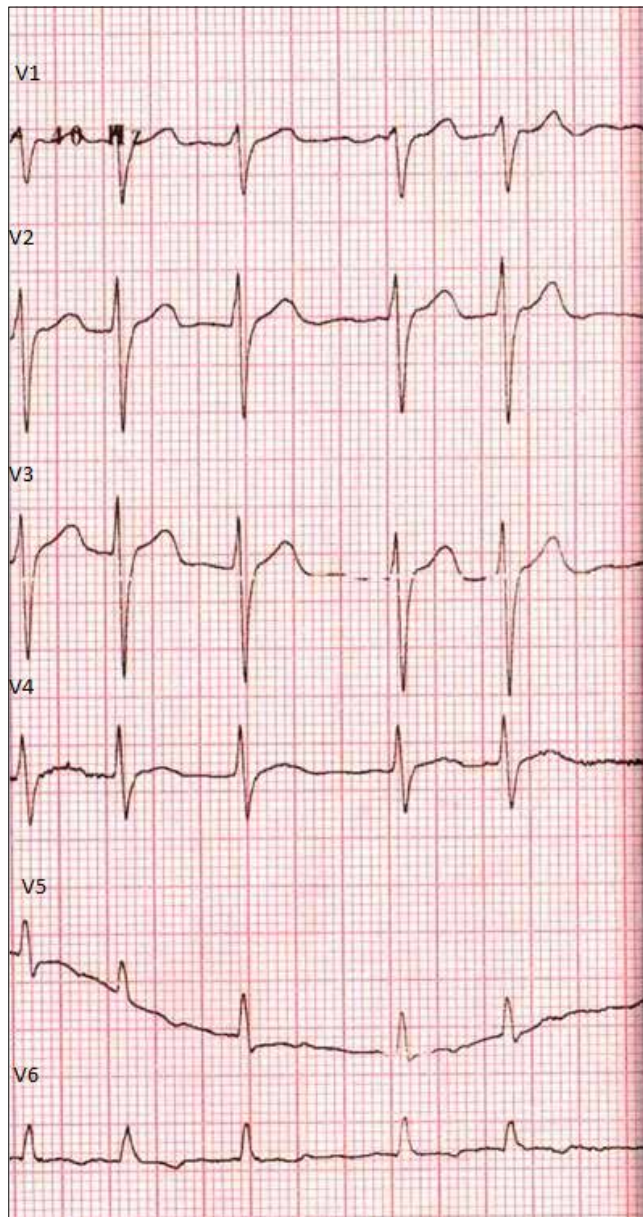


Figure 3. Electrocardiogram. Atrial fibrillation with the ventricular action 100–150/min. Q in II, III, aVF, low voltage waves in all leads r

lation with the ventricular action of 100–150 / min. Q in II, III, aVF, low R waves voltage in all leads. Laboratory tests revealed elevated inflammation markers, elevated levels of d-dimer and Ca-125, low TSH and troponins. Diagnostic tests for autoimmune diseases and tuberculosis were also negative. Chest X-ray did not show inflammatory changes. Abdominal ultrasound examination demonstrated mildly enlarge hyperechogenic liver, postinflammatory lesions in both kidneys, right-sided nephrolithiasis, peritoneal cavity was without fluid. CT scan of abdominal cavity and pelvis revealed a group of lymph nodes (10 mm of diameter) above the spinal branch of the right dome of the diaphragm. Due to the patient's clinical status pericardiocentesis and thoracocentesis were performed – bloody inflammatory effusive fluid was evacuated. Cytological examination revealed no neoplastic cells, mi-



Figure 4. Chest X-ray: Posterior- Anterior view (PA)



Figure 5. Chest X- ray (lateral)

crobiological tests were negative. Medical treatment comprised of antibiotics, colchicine, NSAIDs and beta-blocker, diuretic, ACEi, VKA among others.

Conclusion

This case illustrates, that the diagnosis of recurrent pericardial fluid may often be very difficult. Despite numerous tests and studies, which we have performed, we were not able to elucidate

the cause of the symptoms. Nevertheless, we have encountered that symptomatic anti-inflammatory treatment with the use of NSAIDs may produce good results.

References

1. Maisch B, Seferovic PM, Ristic AD, et al. Guidelines on the diagnosis and management of pericardial diseases executive summary: The task force on the diagnosis and management of pericardial diseases of the European Society of Cardiology. *Eur Heart J* 2004; 25: 587–610.
2. Abadilla JE, Heurich AE. Cardiovascular tuberculosis. [In:] Rom WN, Garay SM. *Tuberculosis* 2 ed., Lippincott Williams and Wilkins, Philadelphia 2004; 509–552.
3. Wann S, Passen E. Echocardiography in pericardial disease. *J Am Soc Echocardiogr* 2008; 21: 7–13.
4. Pepi M, Muratori M. Echocardiography in the diagnosis and management of pericardial disease. *Journal of Cardiovascular Medicine* 2006; 7: 533–544.
5. Camm AJ, Lip YH, Atar D, et al. Update of the ESC Guidelines for the management of atrial fibrillation. *EHJ* 2012; 33: 2719–2747.
6. Pruszczyk P, Stępińska J, Banasiak W, et al. Zastosowanie nowych doustnych leków przeciwkrzepliwych w prewencji powikłań zatorowych u chorych z migotaniem przedsionków. *Kardiol. Pol.* 2012; 70: 979–988.