Clinical microbiological case: cardiac tamponade due to hemorrhagic pericarditis in a non-immunocompromised woman from south-eastern United States

A. Safdar1,4, S. H. Humphery2,4, S. A. Harding3,5 and T. P. Close6

1Division of Infectious Diseases, Department of Medicine, 2Department of Medicine and 3Department of Pathology, University of South Carolina School of Medicine and 4Department of Medicine, 5Department of Pathology and 6Department of Radiology, Palmetto-Richland Memorial Hospital, Columbia, SC, USA

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CASE REPORT

A 45-year-old, human immunodeficiency virus-seronegative, black woman presented with new-onset dyspnea. Her adult-onset diabetes mellitus and hypertension were controlled. She had not travelled outside South Carolina, nor had she been in contact with domestic animals. She was afebrile, and on room air her blood oxygen saturation was 85%. Thoracic auscultation was normal. Cyanosis, clubbing of digits and distended neck veins were not observed. Laboratory studies showed the following: white blood cell count 8700/µL, hemoglobin 11.5 g%, hematocrit 36.8%, platelet count 574 000/µL, CD3+ CD4+ 760 U/L, aspartate transaminase 44 U/L, alanine transaminase 47 U/L, creatine phosphokinase 92 U/L, lactate dehydrogenase 731 U/L, and sedimentation rate 61 mm/h.

The chest X-ray was normal, and an electrocardiogram displayed sinus rhythm. A spiral

Figure 1 Computed tomography scan of chest after intravenous administration of 150 cm³ of Isovue (Iopamidol, 61%; Bracco Diag. Inc., Princeton, NJ). A large homogeneous pericardial effusion was noticed (arrow heads), without pericardial enhancement, thickening, or nodularity (arrow).
computed tomography scan showed no evidence of pulmonary artery thrombosis and embolism. A large collection of fluid in a non-thickened pericardial sac was seen (Figure 1). Findings of trans-thoracic echocardiogram were consistent with cardiac tamponade, showing normal ventricular systolic function and diastolic collapse of the right ventricular free wall.

The patient underwent emergency pericardiocentesis and 1300 cm³ of reddish-brown pericardial fluid was removed. Examination of pericardial fluid showed red blood cell count 34,00000 cells/mm³, white blood cell count 990 cells/mm³ with 64% granulocytes, 13% lymphocytes, 21% monocytes, and glucose was 111 mg/dL. Stains and cultures for bacteria, mycobacteria and fungi were negative. No neoplastic cells were identified on cytological examination. DNA amplification of pericardial fluid using specific primers for *Mycobacterium tuberculosis* and cytomegalovirus failed to establish a diagnosis.

**QUESTIONS**

Discuss the case, while considering the following:
1. What is the underlying etiology of acute cardiac tamponade in a non-immunocompromised adult?
2. What are the common clinical parameters associated with an infection in patients with acute and subacute pericarditis?
3. Does a negative investigation of pericardial fluid exclude an infectious process?
4. Are patients with a compromised immune system at increased risk?
5. What is the optimal treatment regimen, and what are the chances of recurrence following discontinuation of treatment?