Clinical Note

Purulent pericarditis due to *Staphylococcus aure* with fever, cough and

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Figure 1 Chest radiograph showing cardiomegaly, with a pericardial effusion (arrows) and a pleural effusion (arrowhead) (left side of the image).

Purulent pericarditis caused *aureus* is an infrequent infections originating in anot typically an acute and often this report a 23-year-old man and emergency department with fever, productive cough and chest pain of 5 days duration. He was overwhelmed by shortness of breath. Chest x-ray showed an fluid level in the pericardium. chest CT scan showed evidence of large pericardial effusion, with bilateral pleural effusion (more in the right). Diagnosis was aided by echocardiography. The patient was admitted to the intensive care unit. Emergency pericardiocentesis was performed by the insertion of a single lumen catheter into the pericardial space. During the procedure, 900 ml of purulent pericardial fluid was drained. Antibiotic therapy was started upon admission to the hospital. A sample of the pus with polymorphonuclear predominance and *Staphylococcus aureus* organisms. Intravenous vancomycin was given. A total of 600 ml of pus was drained from the pericardium through the single lumen catheter during 3 days. But the patient remained febrile. Repeated echocardiography examination showed signs of constrictive pericarditis, consequently a partial pericardiectomy was performed. The intravenous vancomycin continued. On the seventh day of the patient's general condition improved and the fever subsided. Two weeks postpericardiotomy the patient remained asymptomatic and consequently was discharged.

Acute pericarditis is a inflammation of the pericardium, encloses the heart and pericardium is composed of two layer called the parietal pericardium, inner layer called the visceral pericardium. The layers are attached by connective tissue and separated by up to 50 mL of pericardial fluid. The pericardium function, as a barrier against infection and, the spread of malignancy, protects cardiac movement, and restricts the heart and other organs. The pericardial fluid reduces friction and lowers pressure, which is normally very low. It plays an important role in allowing distention of the cardiac chambers in diastole.[2] Infectious pericarditis is an inflammatory response to an agent or agents.

Pericardial effusion and tamponade are uncommon complications of infectious pericarditis. Pericardial effusion may be seen in acute bacterial, viral, fungal, and tuberculous pericarditis. Acute bacterial pericarditis can be complicated by large pericardial effusion and cardiac tamponade. Patients with large pericardial effusion may show enlarged cardiac silhouette.[2] recognized on chest radiography, echocardiography and computed tomography. The diagnosis of acute pericarditis is supported by the presence of pericardial effusion, cardiac tamponade, and pericardial effusion. The diagnostic criteria for acute pericarditis are based on the presence of two of the following: chest pain, pericardial friction rub, characteristic electrocardiographic changes, and pericardial effusion.[6,7] Suspected purulent pericarditis should be treated as a medical emergency. Symptoms

often absent; a high index of awareness is required for its diagnosis.[8] It is typically an acute and often catastrophic illness. *Staphylococcus aureus* is considered as a causative agent, and the most common predisposing factor is respiratory tract infection. Our patient initially developed productive cough, fever and chest pain; later on he developed shortness of breath. Pericardiocentesis was diagnostic in purulent pericarditis. Purulent pericarditis is diagnosed when pus is drained from the pericardial space or when bacteria are cultured from the pericardial fluid. This rare disease is often diagnosed late, when severe hemodynamic compromise develops due to pericardial tamponade. It is usually a complication of pneumonia. The chest radiograph and echocardiogram were useful pointers to the diagnosis, but the electrocardiogram was not reliable. Pericardial drainage and appropriate antibiotic treatment eventually resulted in complete recovery. Delay in diagnosis and treatment often results in death. Some surviving patients like our patient may develop constrictive pericarditis and require pericardiectomy.

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References

1. Lorell BH. Pericardial diseases. In: Braunwald E, editor. Heart disease: a textbook of cardiovascular medicine. 5th ed. Philadelphia (PA): WB Saunders; 1997. p. 1478-1485.
2. Aikat S, Ghaffari S. A review of pericardial diseases: clinical, ECG and hemodynamic features and management. ***Cleve Clin J Med*** 2000; 67: 903-914.
3. Sagrista-Sauleda J, Permanyer-Miralda G, Soler-Soler J. Tuberculous pericarditis: ten-year experience with a prospective protocol for diagnosis and treatment. ***J Am Coll Cardiol*** 1988; 1: 724-728.
4. Farraj RS, McCully RB, Oh JK, Smith TF. Mycoplasma-associated pericarditis. ***Mayo Clin Proc*** 1997; 72: 33-36.
5. Zayas R, Anguita M, Torres F, Gimenez D, Bergillos F, Ruiz M, et al. Incidence of specific etiology and role of methods for specific etiologic diagnosis of primary acute pericarditis. ***Am J Cardiol*** 1995; 75: 378-382.
6. Permanyer-Miralda G, Sagrista-Sauleda J, Soler-Soler J. Primary acute pericardial disease: a prospective series of 231 consecutive patients. ***Am J Cardiol*** 1985; 56: 623-630.
7. Merce J, Sagrista-Sauleda J, Permanyer-Miralda G, Soler-Soler J. Should pericardial drainage be performed routinely in patients who have a large pericardial effusion without tamponade? ***Am J Med*** 1998; 105: 106-109.
8. Demey HE, Eycken M, Vandermast M, Bossaert LL. Purulent pericarditis due to methicillin-resistant Staphylococcus aureus. A case report. ***Acta Cardiol*** 1991; 46: 485-491.