Pericardial Abscess in an Intravenous Drug User: a Case Report

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A 45 year old man, intravenous drug user, without history of systemic illness, presented with fever, chills and an anterior left thorax pulsatile mass. Echocardiogram showed an anterior mediastinal fluid collection with no apparent pericardial communication and without evidence of endocarditis. Chest tomography revealed a large left anterior mediastinal abscess with multiple pulmonary abscesses. Percutaneous aspiration and blood cultures were positive for Staphylococcus aureus. Surgical drainage with pericardiectomy was done.

Key words: Pericardial abscess, Staphylococcus aureus, Intravenous drug user

Pericardial abscess is an extremely rare complication of bacteremia, with few reports published in the English literature. Delayed diagnosis of this entity may carry severe complications to the patient. The main treatments of a pericardial abscess consist of percutaneous drainage under echocardiographic or tomographic guidance, or surgical drainage and pericardiectomy, in conjunction with appropriate antimicrobial therapy. To our knowledge, this is the first case of a pericardial abscess extending outside of the chest wall in a patient without previous history of cardiac surgery (1-4).

Case Report

A 45 year-old man, intravenous drug user of cocaine and heroin, with no systemic illness, human immunodeficiency virus nor hepatitis, presented to the emergency room with quantified fever, chills and an anterior left thorax pulsatile mass. He had noticed the mass two weeks before admission, initially small, but it increased in size with time.

He denied shortness of breath, cough, sputum production, hemoptysis, trauma, needle punctures at the thorax or the presence of other mass at any other body area. Vital Signs on admission were: BP: 112/79 mmHg, P: 84 bpm, R: 18 min, T: 36.8 C, Wt: 110 pounds, Ht: 64 inches.

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On physical examination the patient was a middle age malnourished man with intact memory, poor hygiene, without respiratory difficulty or pain. He presented multiple needle tracts on all extremities without rashes, jugular venous distention nor hepatojugular reflux. Fundoscopic examination showed normal vessels pattern. He presented with a large pulsatile mass bulging from the left anterior thoracic wall, without skin changes nor discharge (Figure 1). On auscultation of the heart he presented a regular rate and rhythm, no gallops, murmurs or friction rub. The lungs were clear to auscultation and tympanic to percussion with symmetric tactile fremitus and without wheezes, rhonchi nor crackles. Adequate pulses without evidence of edema, lymphadenopathy nor rashes.

Significant laboratory results showed normocytic anemia (Hb 10.2 g/dL), normal white blood cell counts, renal function, electrolytes and coagulation parameters. Sedimentation rate was elevated (120 mm/hr). Blood cultures and pericardial fluid aspiration were positive for Staphylococcus aureus. Staphylococcus was resistant to penicillin and erythromycin.

Electrocardiogram was normal. Two-dimensional echocardiogram showed an anterior mediastinal fluid collection with impingement on the right ventricle, normal left ventricular function with an ejection fraction of 60%, normal chambers dimensions and valvular function, without vegetations. No apparent pericardial communication was appreciated (Figure 2).

Trans-esophageal echocardiogram showed an anterior mediastinal fluid collection without apparent pericardial communication or evidence of valvular vegetations. Chest tomography revealed a large (8.4 cm transverse, 6.9 cm anterior-posterior and 7.7 cm height) left anterior mediastinal wall abscess with multiples pulmonary abscesses (Figure 3).

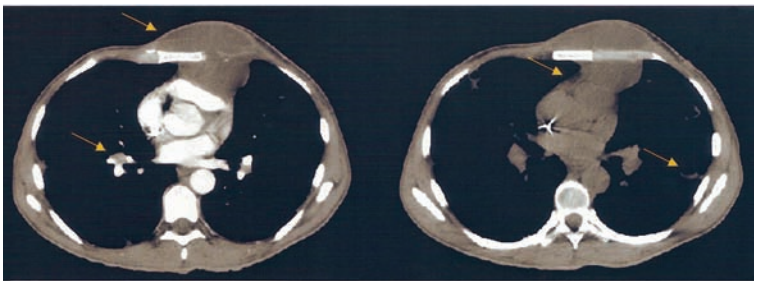

Figure 1. Large pulsatile mass bulging from the left anterior thoracic wall (arrow).

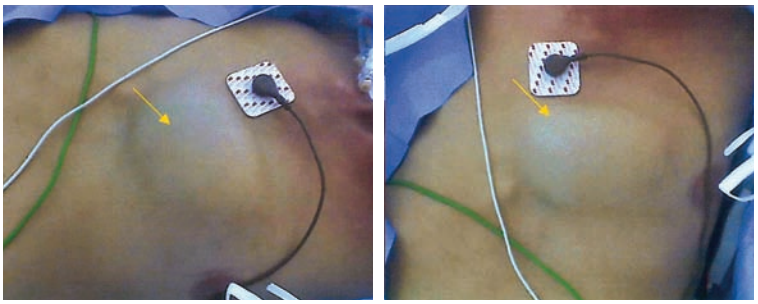

Figure 2. Two-dimensional echocardiogram (long parasternal view), showing an anterior mediastinal fluid collection with impingement on the right ventricle without apparent pericardial communication (arrow).

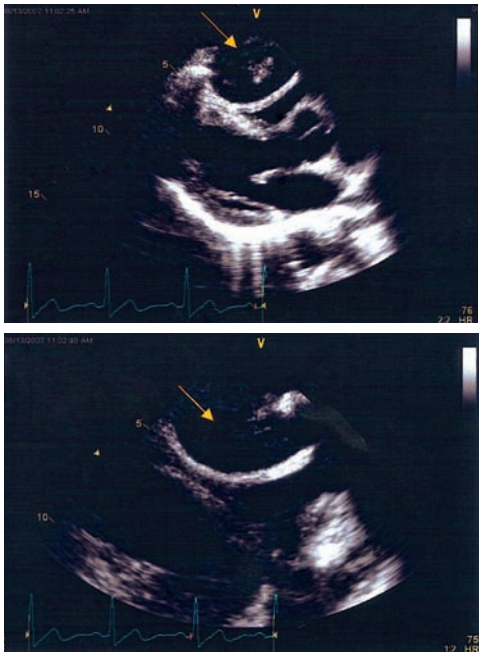

Figure 3. Chest tomography revealed a large left anterior mediastinal wall abscess and multiples pulmonary abscesses (arrows).

Bed side aspiration of the fluid revealed a purulent material. Surgical drainage with partial pericardiectomy was performed and the patient was treated in the hospital for 20 days with intravenous antibiotics (vancomycin and garamycin). He completed additional 14 days of rifampin at home with complete resolution of symptoms.

Discussion

Purulent pericarditis usually manifests as a diffuse inflammation of the pericardium with accumulation of pus within the pericardial space. In modern practice, it is a well-known, although rare, complication of Staphylococcus aureus infection. The pericardium is rarely a primary site of infection. It can result from hematogenous spread, direct extension from pneumonia, empyema, chest trauma, or postoperative mediastinitis. Staphylococcus aureus accounts for approximately one-fourth of the cases of purulent pericarditis.

Pericardial abscess, in contrast, is a rare and unusual complication of bacteremia, with only few cases reported in the English language medical literature. The mechanism by which Staphylococcus aureus causes a focal abscess in the pericardium is unknown. Possible explanations include hematogenous seeding or direct extension into a preexisting pericardial cyst or localized purulent pericarditis occurring in a patient with old pericardial adhesions (2, 4-5). Based on the intravenous drug usage history of this patient and the absence of previous pericardial disease, the most probable cause of the pericardial abscess was hematogenous spread secondary to bacteremia. Because only part of the pericardium is involved, the echocardiographic picture can be confusing. Tomography provides useful information on the extent of the pericardial abnormality. The main treatment of a pericardial abscess consists of percutaneous needle drainage under echocardiographic or tomographic guidance, or surgical drainage and pericardiectomy, in conjunction with appropriate antimicrobial therapy.

Conclusion

Pericardial abscess is a serious, life-threatening illness associated with a high mortality. Early diagnosis can be difficult because the usual signs and symptoms of pericarditis may be absent, especially in the debilitated patient. Prompt institution of appropriate therapy with antibiotics and drainage remains the best treatment for improving the prognosis in these patients. A high index of suspicion of this entity in patients who have one or more of the predisposing factors is important, and early echocardiography is recommended, although picture

can be confusing because only part of the pericardium is involved. Tomography provides useful information on the extent of the pericardial abnormality, and aspiration under echocardiographic or tomographic guidance may provide the diagnosis (1, 3-4).

Resumen

En este escrito presentamos un varón de 45 años de edad, usuario de drogas intravenosas, sin historial de enfermedades sistémicas, que se presentó con fiebre, escalofríos y una masa pulsátil en el lado izquierdo del tórax anterior. El ecocardiograma mostró una colección de líquido en el mediastino anterior sin aparente comunicación con el pericardio o evidencia de endocarditis. La tomografía de pecho reveló un absceso grande en el lado izquierdo del mediastino anterior con múltiples abscesos pulmonares. Aspiración percutánea de la colección y cultivos de sangre fueron positivos para Staphylococcus aureus. Al paciente se le realizó un drenaje quirúrgico con pericardiectomía, seguido de antibióticos con completa resolución de la infección.

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