

# Acute purulent pericarditis caused by *Klebsiella pneumoniae* in an intravenous drug abuser

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**BACKGROUND:** Infections are among the most serious complications experienced by intravenous drug abusers. However, there have been rare reports of the cases with acute pericarditis caused by *Klebsiella pneumoniae*. **CASE REPORT:** In this study we reported a case of purulent pericarditis caused by *Klebsiella pneumoniae* in an intravenous drug abuser. The patient was completely treated by adequate surgical drainage and effective intravenous antibiotic therapy. **DISCUSSION:** Infections are among the major complications of drug use. Purulent pericarditis usually occurs as a complication of another illness, like surgical wound infection, mediastinal abscess, lung abscess, or severe sepsis. Aggressive surgical and medical treatments would thus be lifesaving.

**KEYWORDS:** Pericarditis, *Klebsiella Pneumoniae*, Intravenous Substance Abuse

## BACKGROUND

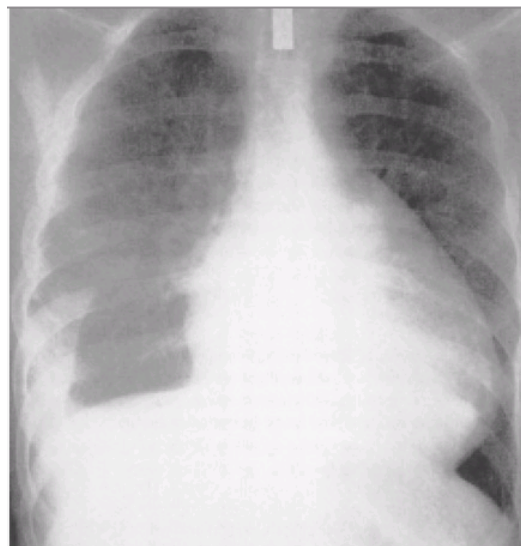
Infections are among the most serious complications experienced by intravenous drug abusers. There have been rare reports of the cases with acute pericarditis caused by *Klebsiella pneumoniae*.

## CASE REPORT

A 30-year-old man referred to Alzahra Hospital (Isfahan, Iran) due to worsening of dyspnea, cough, and severe fatigue in 2011. He had had no chest pain, sputum, or fever before. He had been using intravenous opioid drugs for many years. One month before his referral, he had been operated because of right lower lobe abscess. Partial lobectomy had thus been done due to not responding to antibiotics. Thereafter, his chest tube had been removed and he was discharged after one week.

At the time of arrival, he appeared pale and cyanotic. In his physical examination, he had high jugular vein pressure (JVP), decreased breathing sound and moist rales. A chest radiograph was obtained at the emergency room which showed cardiomegaly and increased opacity over the right heart border (Figure 1). Emergency echocardiography showed massive pericardial effusion and normal left ventricular systolic function without any sign of cardiac tamponade. consequently, pericardiocentesis with percutaneous drainage was performed, which showed purulent pericardial effusion containing a red blood cell count of 23000 /mm<sup>3</sup>, white

blood cell count of 41000 /mm<sup>3</sup>, 75% neutrophils, 25% lymphocytes, and less than 40 mg/dl sugar. A concurrent blood sugar of 105 mg/dl (normal range: 70-110 mg/dl), white blood cell count of 19000 /mm<sup>3</sup> (normal range: 4000-11000 /mm<sup>3</sup>), blood urea nitrogen of 40 mg/dl (normal range: up to 20 mg/dl), and creatinine of 1 mg/dl (normal range: 0.7-1.4 mg/dl) were detected.



**Figure 1.** Chest radiograph of a 30-year-old man who presented with dyspnea and cough showed cardiomegaly.

Due to persistent dyspnea and cyanosis, multi-section/multiplanar chest and mediastinal computed tomography (CT) scan with intravenous contrast study revealed massive pericardial effusion and

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filling defect in the right lower lobe pulmonary artery suggesting pulmonary thromboembolism. Besides, right-sided loculated hydropneumothorax and small amounts of left side pleural effusion were also apparent.

Gram staining and culture of the pericardial aspirate yielded gram-negative bacilli, "Klebsiella pneumoniae" which was susceptible to amikacin, ciprofloxacin, and meropenem. It was resistant to cefotaxime, ceftazidime, and cefepime. The blood cultures yielded the same organism and antibiograms. The tuberculosis culture of the pericardial aspirate produced no growth after two months. The result of hepatitis C virus (HCV) antibody was positive with normal serum transaminase levels.

Transabdominal pericardial window and tube thoracostomy were inserted on the second day after admission. There was no evidence of malignancy in this cytological study. Totally, one liter of gross puss was drained through pericardial window. The physical examination and the CT scan of the abdomen did not reveal evidence of liver abscess or other infectious foci.

During the course of hospitalization, the patient received infusion meropenem (1 g every 8 hours) for 4 weeks. He was then discharged without any sign of pericardial effusion or constriction.

## DISCUSSION

The use of parenterally administered recreational drugs has increased enormously in recent years.<sup>[1]</sup> Annually, approximately 5% of the global population, or 200 million people, use illicit drugs. There are an estimated 13 million injection-drug users worldwide, 78% of whom live in developing countries. There are now an estimated 300,000 or more injection drug users in the United States.<sup>[2]</sup>

Infections are among the most serious complications of drug use.<sup>[2]</sup> Increased risk of infection is likely associated with poor hygiene and colonization with potentially pathogenic organisms, contamination of drugs and equipment, increased sexual risk behaviors, and impaired immune defenses.<sup>[1]</sup> There have been rare reports of cases with acute pericarditis caused by *Klebsiella pneumoniae*.<sup>[3,4]</sup> As we know, only two cases have been reported in the literature.<sup>[3,4]</sup>

Purulent pericarditis is a disease that almost always occurs as a complication of another illness, be it surgical wound infection, intrathoracic infection, or severe septicemia.<sup>[4,5]</sup>

In our case, adequate drainage, open pericardiectomy, and meropenem therapy could result in a reasonable clinical outcome.

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