

## A Giant Lung Abscess Complicating Tricuspid Valve Infective Endocarditis: A Rare Case of a Dreadful Complication

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### ABSTRACT

Infective endocarditis in hemodialysis patients is a serious complication of the dialysis catheter. Pulmonary complications are rare and may include lung abscess.

We report the case of a 72-year-old chronic hemodialysis female patient diagnosed with tricuspid valve complicated by a giant lung abscesses. This case underlines the impact on poor outcomes of IE in hemodialysis patients.

**KEYWORDS:** Infective endocarditis, Hemodialysis, tricuspid valve, lung abscess.

### INTRODUCTION

Infective endocarditis (IE) in hemodialysis (HD) patients is a serious complication of the dialysis catheter. Patients who develop endocarditis have a poor prognosis due to the high morbidity and mortality compared to the general population. The incidence of IE complicating bacteremic episodes in HD patients can be up to 12% [1,2]. Thus, the relative risk of IE in HD patients was as much as 16.9 times that of IE in the general population [3]. Pulmonary complications are rare and may include bacterial pneumonia, lung abscess, pleural effusion, and pneumothorax.

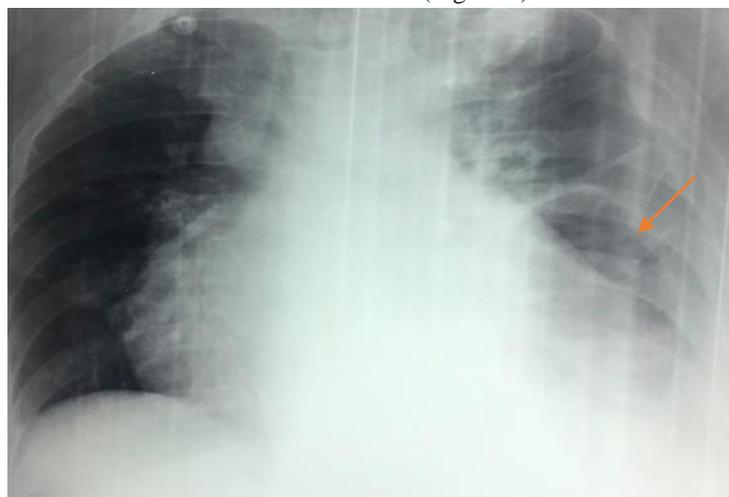
We report the case of a 72-year-old female (chronic hemodialysis patient) diagnosed with tricuspid valve (TV) IE complicated by a giant lung abscesses.

### CASE REPORT

A 72-year-old patient, was admitted in our department with acute respiratory distress, fever and alteration in general conditions, her past medical history revealed a well-balanced hypertension, type 2 diabetes with diabetic nephropathy with kidney failure, who had been wearing a tunneled catheter for 1 week following the dysfunction of her arteriovenous fistula. At admission, the patient had a heart rate of 110 bpm, blood pressure of 80/50 mmHg, respiratory rate of 25 breaths/min, and O<sub>2</sub> saturation of 87% on room air and 96% under 5l of oxygen. Her temperature was 38.2°C.

Heart sounds were distinct with a regular rhythm. There was a grade 3/6 systolic murmur of tricuspid regurgitation. The electrocardiogram showed a first degree atrioventricular block.

Chest X-ray showed a left lung inferior lobe cavitating mass with an air fluid level and a moderate left pleural effusion (Figure 1).



**Figure 1:** Chest X-ray showing left lung cavity with an air fluid level and a moderate left pleural effusion

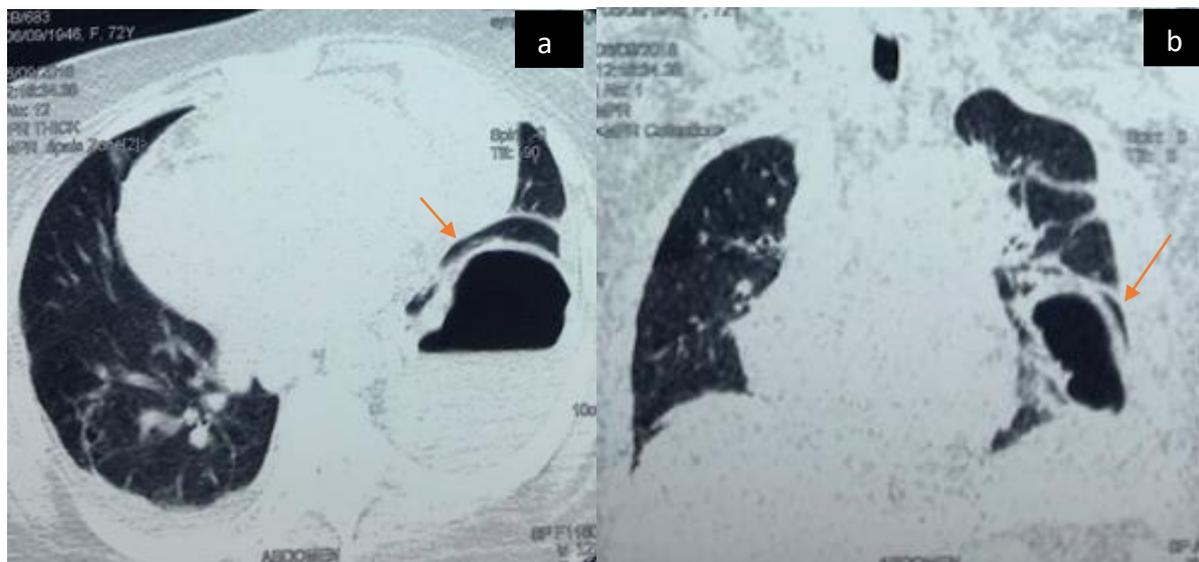
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Transthoracic echocardiogram revealed a mobile filiform vegetation of 22 mm attached to the tricuspid valve with a moderate regurgitation, without a perforation or any other abnormalities (Figure 2).



**Figure 2:** Vegetation of 22 mm attached to the tricuspid valve.

Thoracic CT scan showed a huge pulmonary abscess measuring 28x16mm, without signs of proximal pulmonary embolism (Figure 3 a, b).



**Figure 3:** Axial (a) and coronal (b) planes of thoracic CT scan showing a huge pulmonary abscess.

Given the patient's condition, the decision was to remove the dialysis catheter, and to start a probabilistic antibiotic therapy with vancomycin and gentamicin. We also started vasopressors.

Bacteriological analysis of the catheter tip after extraction found a staphylococcus epidermidis, and two blood cultures found a multi-resistant coagulase negative staphylococcus. According to duke criteria, the diagnosis of IE was retained. Our patient was kept under the same antibiotics. Surgery was postponed because of comorbidities and high risk of

perioperative mortality, to until stabilization of patient conditions.

One week later our patient subsequently died due to uncontrolled infection with refractory septic shock.

### DISCUSSION

The incidence of infective endocarditis in hemodialysis patients is estimated to be 308/100,000 patient-years [4], which is 50- to 180-fold higher than the 1.7 to 6.2 cases per 100,000 patient-years [5] reported for the general population.

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The mortality rate among these patients ranges from 30% to 56% at 1 year [4].

The features of right-sided endocarditis are respiratory complications with septic pulmonary embolism, which is induced by bacterial emboli from infectious lesions. Lung abscess is defined as a circumscribed area of pus or necrotic debris in lung parenchyma, which leads to a cavity and diagnosed by the hallmark of chest CT,[7]. In our case, it was confirmed by chest X-ray and thoracic CT.

The choice of empiric antimicrobial therapy depends on the suspected microorganism, type of drug and solvent used by the addict and the infection location. In any case, *S. aureus* must always be covered. Initial treatment includes penicillinase-resistant penicillin, vancomycin or daptomycin in combination with gentamicin [6]. Once the causative organisms have been isolated, therapy has to be adjusted. Our patient received a probabilistic antibiotic therapy with vancomycin and gentamicin, we kept the same therapy after bacteriological tests results.

The three indication of surgical procedure recommended at 2015 ESC Guidelines were as follow: TV vegetations > 20 mm and recurrent septic pulmonary emboli with or without concomitant right heart failure; IE caused by microorganisms that are difficult to eradicate or bacteremia for at least 7 days despite adequate antimicrobial therapy; and right heart failure secondary to severe TR with poor response to diuretic therapy [6]. Although, the hemodynamic instability of our patient delayed the surgery.

Additionally, infection by staphylococcus, gram-negative bacilli or fungus represent a poor prognosis criteria, and tends to be a fast-developing and refractory endocarditis factor [8]. Therefore, we could not control endocarditis in the present case, and our patient subsequently died.

### CONCLUSION

Patients with TVIE have a particularly high prevalence of pulmonary complications. Moreover, pulmonary complications had a greater impact on poor outcomes in

hemodialysis patients. Given the significant impact on outcomes, future efforts will examine optimal management strategies for patients with IE.

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