

## Infective Endocarditis Presented as Acute Pyelonephritis: A Case Report

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### ABSTRACT

*Infective endocarditis is less likely to sparkle out preferentially in our minds when evaluating and making differential diagnosis of patients with fever daily in emergency departments. We describe a case of infective endocarditis. He was initially diagnosed with pyelonephritis of the right kidney at a hospital because of the noted right flank knocking pain. His computed tomography showed two wedge-shaped low-density lesions in the spleen and the right kidney separately. It dropped a hint to the emergency department physician of thinking of the feature of infarct. The previously neglected cardiac murmurs were then an important clue. We then performed transthoracic emergent echocardiography and confirmed the diagnosis of infective endocarditis.*

**Keywords:** Diagnosis, emergency department, fever.

### INTRODUCTION

Fever is a common complaint in patients presenting to an emergency department. We present a case of infective endocarditis, which had been mistakenly diagnosed as acute pyelonephritis and underwent partial treatment. Infective endocarditis is more prevalent in injection drug users and in the elderly. Comprehensive and careful physical examinations would be the key to awaken physicians to this tentative impression and to arrange further imaging studies and even surgical interventions.

### CASE REPORT

A 62-year-old male patient with the history of benign prostatic hyperplasia was admitted at our hospital because he was suffering from fever, on and off for approximately 2 weeks. Initially, he was diagnosed with pyelonephritis of the right kidney at a hospital because of the noted right flank knocking pain. However, after administering empiric antibiotics, the fever persisted. At the arrival at our hospital for emergency care, the patient had a blood pressure of 96/61 mmHg, a pulse of 98 beats per minute and a temperature of 38.2°C. His physical examination revealed that his abdomen was soft

and non-tender, with the right flank knocking pain. His laboratory serum tests revealed a high C-reactive protein level (11.3 mg/dL), normal renal function (serum creatinine concentration, 1.04 mg/dL), anaemia (haemoglobin concentration, 8.3 g/dL), and thrombopaenia (platelet count, 150 000/ $\mu$ L), but a high-normal white blood cell count (10 500/ $\mu$ L, segmented neutrophils [90.9%]). His serum glucose test was 150 mg/dL. The urinalysis had microscopic haematuria without pyuria. After a sepsis workup, he was admitted to the hospital under the impression of acute pyelonephritis and underwent partial treatment. Soon after being admitted, he complained about a new onset of left flank pain and further image studies were arranged for him.

Abdominal ultrasonography showed a hypoechoic area in his spleen. A computed tomography also showed two wedge-shaped low density lesions in his spleen and right kidney (Fig. 1). It was thought to be a feature of infarct. His previously neglected cardiac murmurs were then an important clue. Under the suspicion of septic emboli, we arranged the transthoracic echocardiography to trace the possible source of his emboli (Fig. 2). His shaggy mitral valves at anterior and posterior leaflets

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and his prominent regurgitation confirmed the diagnosis of infective endocarditis. Despite the fact that intravenous antibiotics treatment was begun immediately, the critical intracranial haemorrhage *via* the suspected mycotic aneurysm ruptured before performing the surgical intervention.



Fig. 1: Two low perfusion area, separately in spleen and right kidney noted in the coronal view of abdominal computer tomography with contrast.

## DISCUSSION

Pneumonia, urinary tract infection and biliary tract infection are the common causes for emergency care. Infective endocarditis is less likely to sparkle out preferentially in our minds in emergency departments. The incidence of infective endocarditis ranged from 5.0 to 7.9 cases per 100 000 person-years in a Minnesota study, with an increasing trend over time (1). Lee *et al* reported a mean annual crude incidence of 7.6 per 100 000 people in Taiwanese adults involving native valves (2). Injection drug users and the elderly are at a higher risk of infective endocarditis (3). It might be related to the decreased incidence of rheumatic heart disease in younger population and the high prevalence of degenerative valve diseases in the elderly.

Although Duke criteria had expected 80% sensitivity and specificity for the diagnosis of infective endocarditis (4), it depends mainly on the basis of blood cultures and

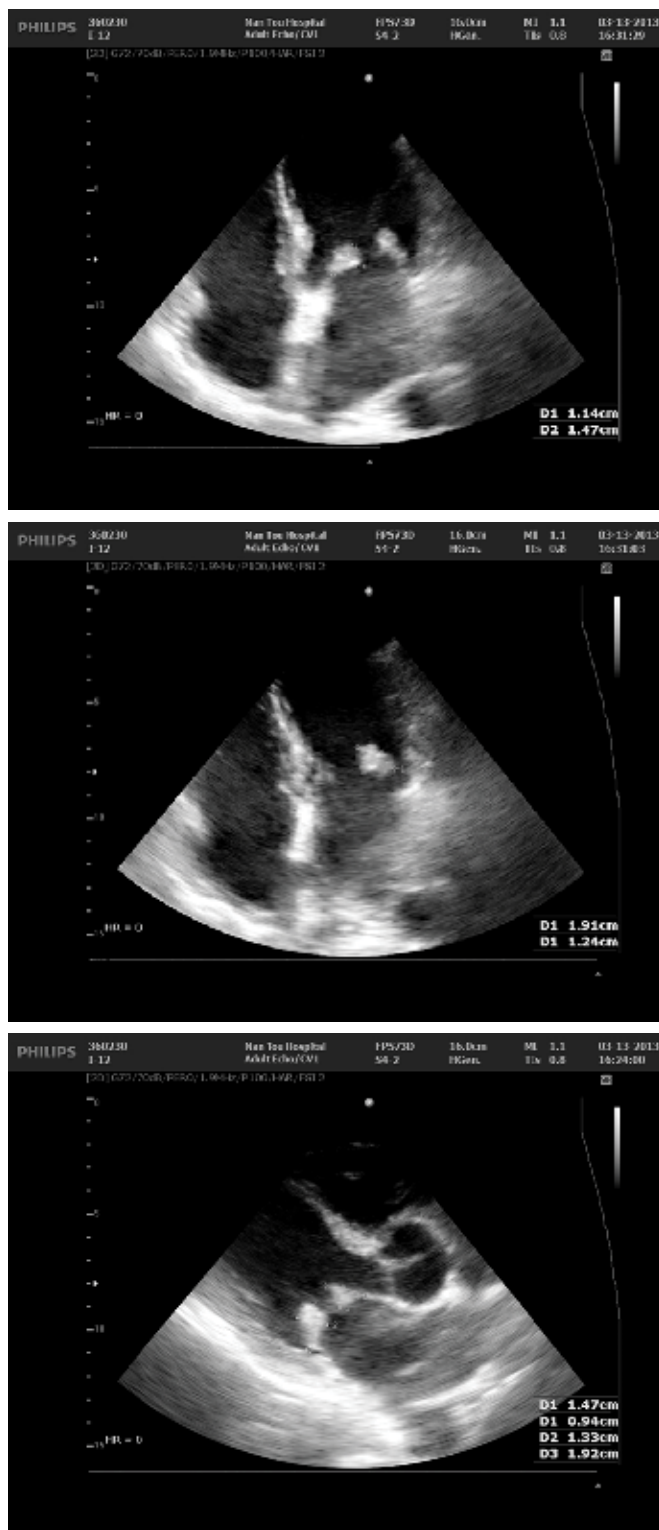


Fig. 2: (a) Shaggy mitral valves about  $1.14 \times 1.47$  cm at AML (arterial mitral leaflet) area. (b) Shaggy mitral valves about  $1.91 \times 1.24$  cm at PML (posterior mitral leaflet) area in apical four chamber view. (c) Vegetation in parasternal long axis view.

echocardiography. Both blood cultures and echocardiography results are not easily available soon in emergency departments. Fever with multiple septic emboli among different anatomy areas may be the hint of the vascular implication of infective endocarditis. Physicians practising emergency cares should be aware of the high risk of neurologic complications associated with infective endocarditis and interpret them to the patients and their relatives. After infective endocarditis is confirmed and with surgical consultation, urgent and emergent surgery should be evaluated immediately (5).

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