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Case Report

Lower leg weakness as the presentation of infective endocarditis with septic emboli☆

Abstract

Lower leg weakness is a common and nonspecific complaint that encompasses a broad differential diagnosis at emergency department, which includes neurologic aspect and a wide range of nonneurologic conditions. Infective endocarditis usually presented with variable symptoms emphasizing constitutional complaints, or complaints that focus on primary cardiac effects or secondary embolic phenomena. Underdiagnosis of the disease can lead to clinical catastrophe and even death. By far, it is rarely considered in the differential diagnosis of lower leg weakness. Herein, we present a case of a 56-year-old man who came to our emergency department with a chief concern of lower leg weakness, which was actually the result of L-spine osteomyelitis and spondylodiscitis as complications of infective endocarditis with septic emboli.

A 56-year-old man was sent to our emergency department (ED) by ambulance with a chief concern of bilateral lower leg weakness, which was associated with back pain and intermittent fever for 3 days. On arrival, his vital signs showed a blood pressure of 149/79 mm Hg, pulse rate of 110 beats/min, respiratory rate of 20 breaths/min, and body temperature of 38.3°C. Physical examinations were inconclusive, except lower back knocking pain and multiple small erythematous macules found over both legs. Neurologic examinations revealed decreased muscle power and positive straight-leg raising test over bilateral lower legs, whereas tendon reflexes remained intact over bilateral knees and ankles. Laboratory test showed leukocytosis (white blood cells, 11.68 * 1000/μL), bandemia (23.0%), elevated C-reactive protein level (27.250 mg/dL), and mild elevated Glutamate oxaloacetate transaminase (52 IU/L). Chest x-ray showed mottled pneumonic infiltration with multiple nodules over both lungs (Fig. 1). Lumbar spine x-ray showed no significant abnormality. Computed tomography (CT) of the chest and abdomen (including the lumbar spine) were arranged for further evaluation. Chest CT showed multiple nodules over both lung fields with a lobulated pleural effusion over the right chest, and hence, the patient was suspected of having multiple septic pulmonary emboli and right chest empyema (Fig. 2). Abdomen and lumbar spine CT revealed multiple low-density masses at the left psoas muscle, left piriformis, right longismus thoracic muscle, and right gluteus maximus; muscle abscess was highly suspected at these sites (Fig. 3). In addition, grade I spondylolisthesis at L4-5 level was also noted. Magnetic resonance image of the lumbar spine was further arranged because of the neurologic deficits. Osteomyelitis and spondylodiscitis over L4 were found (Fig. 4). Echocardiography was then arranged to rule out infective endocarditis (IE) because the patient had multiple sites of infection and showed a huge shaggy mass attached on mitral valve with moderate mitral regurgitation and an impaired ejection fraction of 40% (Fig. 5). The patient was then admitted to intensive care unit under the impression of IE with multiple septic emboli and multiple organs involved. Antibiotic treatment with oxacillin was commenced immediately. Chest tube insertion was done for empyema over the right lung; CT-guided drainage of left psoas muscle abscess and incision with drainage of gluteal muscle abscess were performed. Because of deteriorated cardiac function due to huge vegetation, mitral valve replacement surgery was performed a few days later. The patient was eventually discharged with a stable condition 1 month later without neurologic deficits.

Infective endocarditis is a notorious disease with high mortality and morbidity. In-hospital mortality rate is up to 15% to 20%, with 1-year mortality approaching 40% [1]. Incidence rate is high in patients with prosthetic valves, intracardiac devices, unrepaired cyanotic congenital heart diseases, or a history of IE. Other risks include chronic rheumatic heart disease, age-related degenerative valvular lesions, hemodialysis, diabetes, human immunodeficiency virus infection, and intravenous drug users [2]. The clinical manifestations of IE are on a continuum, from acute in onset to insidious and indolent, and most of the symptoms may be the consequence of embolic events [3]. Emboli often involve major arterial beds including the lungs, coronary arteries, spleen, bowel, and extremities, and up to 65% of embolic events may involve the central nervous system [4]. Multiple embolic or metastatic events are not common, and only about 16% of multiple embolic events have been reported. The most common locations of the multiple embolic events are seen at the central nervous system, gastrointestinal system, chest system, musculoskeletal system, and peripheral arteries [3]. However, this case presented with peripheral neurologic deficit initially, which was actually the result of osteomyelitis and spondylodiscitis as complications of IE with septic emboli.

Diagnosis of IE is generally based on 3 aspects, clinical, microbiologic, and echocardiographic findings, whereas using Duke criteria is an effective diagnosis method with a high sensitivity and specificity of 80% [2]. However, blood culture or echocardiography is time consuming. Delay in obtaining these data may, in turn, delay the start of empirical therapy, which may be critical for this fatal disease. Therefore, clinical judgment is substantially crucial in the first stage of care, especially in the ED. Richet et al [5] developed a scoring system using nonspecific clinical signs and biological results to identify patients with a high probability of IE. The predictive factors include being male, prior valvular damage, fever, stroke, emboli, finger clubbing, splenomegaly, leukocytosis, thrombocytopenia, and an erythrocyte sedimentation rate greater than 50 [5]. The score is calculated by adding 1 each time a predictive factor is present and 0 when it is absent. The greater the number of predictive factors present, the higher the probability of IE [5]. Other than the scoring

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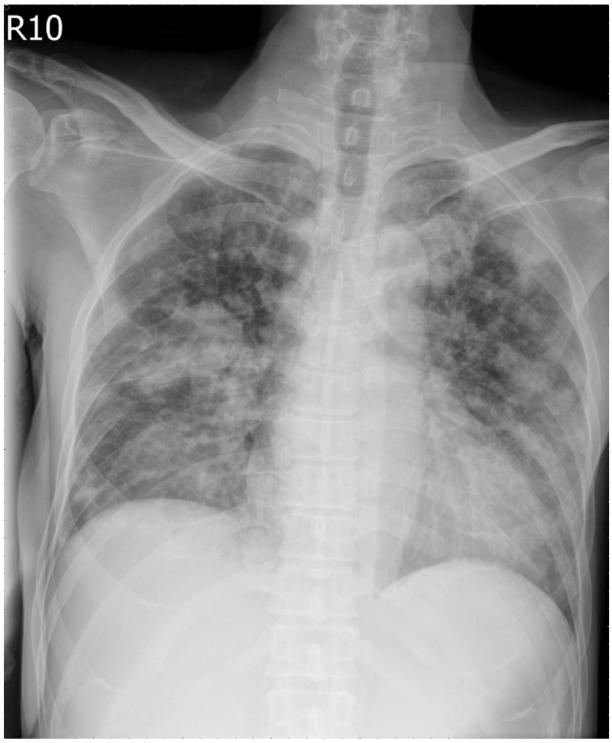

Fig. 1. Mottled pneumonic infiltration with multiple nodules over both lungs.

system, features related to IE such as hematuria, splenomegaly, splinter hemorrhages, Janeway lesions, Roth spots, and conjunctival hemorrhage are also important. In addition, sepsis, meningitis, unexplained heart failure, septic pulmonary emboli, stroke, acute peripheral arterial occlusion, and renal failure may also be presenting manifestations [6].

Treatment strategies for the disease require adequate antibiotic treatment as soon as possible according to the cultured bacteria ranging from 2 to 6 weeks [6]. Surgical treatment should be considered in patients with heart failure, uncontrolled infection, and prevention of embolic events [7]. Anticoagulant and antiplatelet agents are controversial because an anticoagulant is associated with increased mortality

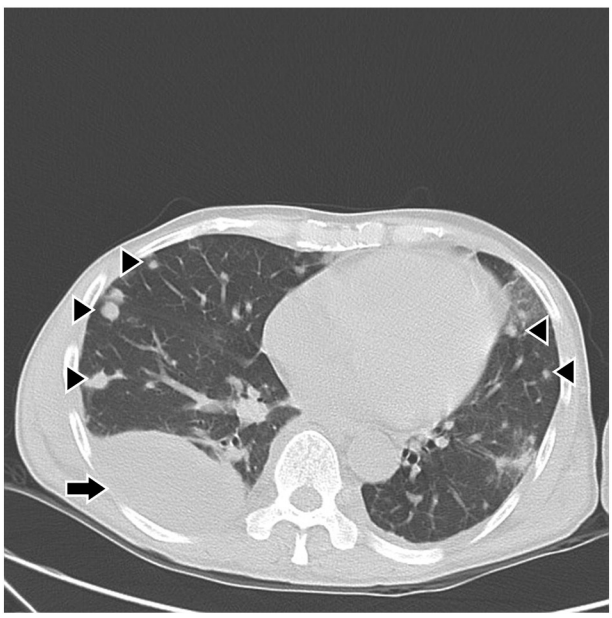

Fig. 2. Chest CT showed lobulated pleural effusion over the right chest (arrow) and multiple nodules over both lung fields (arrowhead).

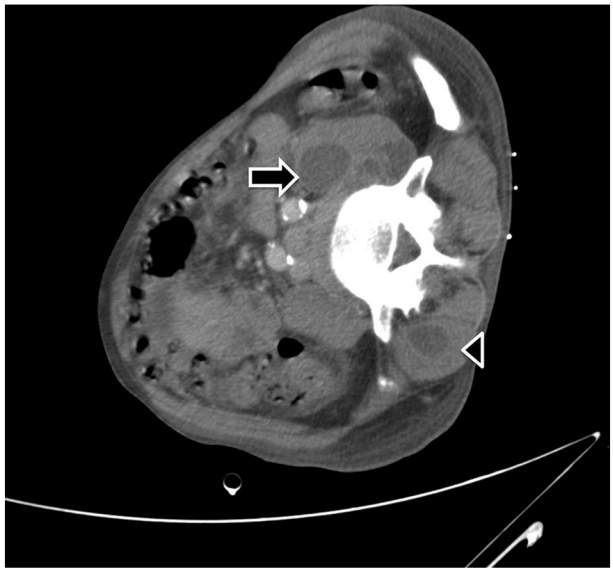

Fig. 3. Abdomen CT showed a low-density mass at the left psoas muscle (arrow) and a hypodensity lesion over the right longismus muscle (arrowhead).

due to neurologic damage in left-sided *Staphylococcus aureus* IE [8], and the use of antiplatelet agents such as aspirin does not effectively reduce the risk of embolic events and is likely associated with an increased risk of bleeding [9]. In this case, the patient has received antibiotic treatment upon admission to the ED, has undergone several surgical interventions for drainage of multiple-muscle abscess formation and vegetation of mitral valve, and, fortunately, has achieved full recovery.

Although IE is rarely presented with peripheral neurologic deficits, it should be considered in patients presenting with lower leg weakness as the present case. This patient's favorable outcome results from early aggressive management and illustrates the importance and benefits of early recognition and definite treatment of IE and associated complications.

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