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Intracranial hemorrhagic embolus

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ABSTRACT

A febrile and unconscious man was sent to our emergency department. On physical examinations, some dark red ecchymosis/discoloration over the trunk and track mark in the left-sided groin region were seen. Brain CT scan showed septic emboli complicated with hemorrhage. Chest X-ray revealed pulmonary emboli. Aortic valve vegetation was found by echocardiography. Although aggressive treatment and resuscitation were taken, he died of methicillin-sensitive *Staphylococcus aureus* sepsis and multiple organ failure. Intravenous drug users are susceptible to right-sided infective endocarditis. In our case, left-sided infective endocarditis with lung and brain embolism resulting in fatality was relatively uncommon. Review of literature was also made for this article.

1. Introduction

Altered mental status is commonly seen in daily emergency practice. For an unconscious and febrile patient, workup for infection including inspection (skin lesion, discoloration or track mark), palpation and auscultation is important. In the case, track mark over the left inguinal area indicated that this patient was an intravenous drug user (IVDU). For fever and septicemia, we should check the cardiac sonography, chest X ray and brain CT for this patient. Sequential findings of left-sided infective endocarditis, septic pulmonary emboli and intracranial hemorrhagic septic embolus were noted. The mortality rate is high although aggressive resuscitation was applied without delay.

2. Case report

An unconscious 54-year-old man was sent to our emergency

department by his friends. He was febrile (38.6 °C), tachycardiac (114/min), with rapid respiratory rate of 24/min and blood pressure was 119/59 mmHg. Physical examinations showed drowsy consciousness (E4M4V1) and shortness of breath. Owing to the semi-comatose consciousness, cranial CT was obtained and showed hyperdense nodule like lesion over the left parietal lobe (Figure 1). There were several nodule lesions in variable sizes in chest X ray examination (Figure 2). A track mark in the left inguinal area (Figure 3A) and reddish discoloration over the abdominal skin (Figure 3B) were also noted. Results of laboratory data showed white blood count of 54600/ μ L and platelet of 10000/ μ L. Urine toxic screening revealed positive for opiate. Aortic valve vegetations were found by echocardiography and blood culture yielded methicillin-sensitive *Staphylococcus aureus* (MSSA). Multiple septic emboli in lungs and brain with infective endocarditis resulting in disseminated intravascular coagulation were concluded. He was admitted to intensive care unit with treatment of antibiotics (500 mg vancomycin every day, 2 g ceftriaxone every 12 h, and 500 mg metronidazole every 8 h). He died of worsening septic shock and multi-organ failure 1 month later.

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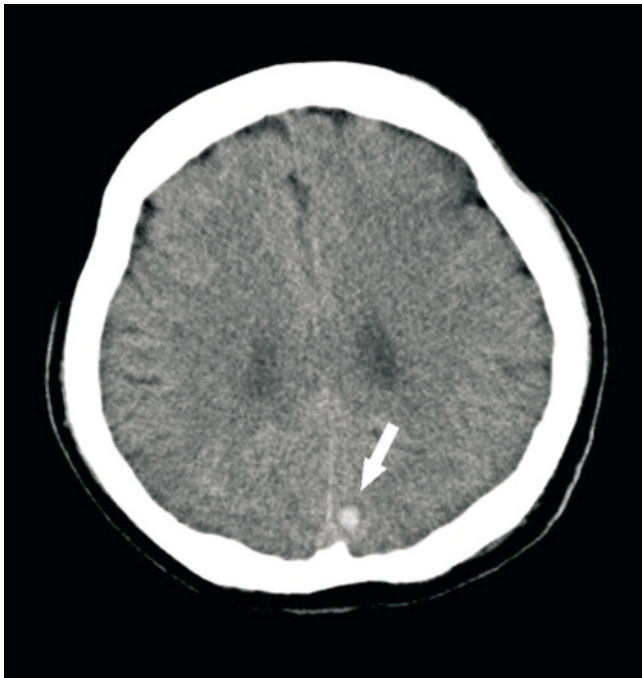


Figure 1. Cranial CT scan revealing a small hyperdense nodular lesion in the left parietal lobe indicating a brain abscess with hemorrhage (the white arrow key).

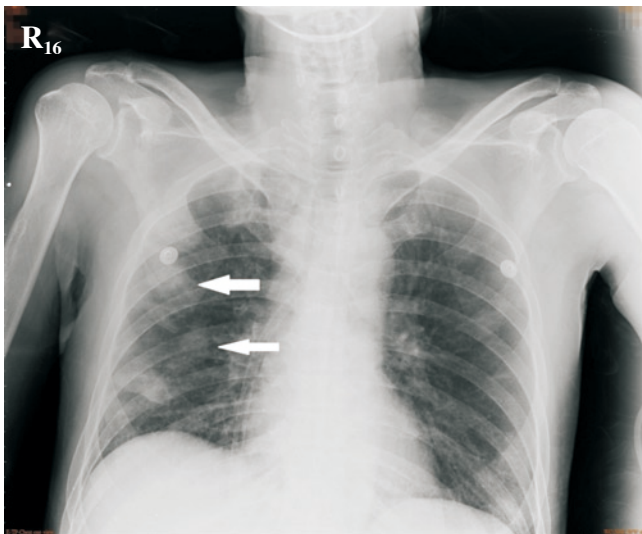


Figure 2. Radiograph of chest showing multiple hazy patches in the right lung indicating septic emboli in lungs.

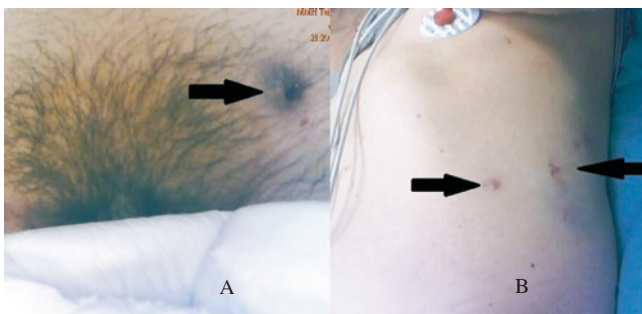


Figure 3. A: A track mark in the left inguinal area (the black arrow key); B: Several petechiae in the abdominal wall (the black arrow key).

3. Discussion

Infective endocarditis is a common febrile disease in emergency department and it may lead to some debilitated complications such

as septic emboli, brain abscess, and the following hemorrhage or pneumothorax[1]. Most of all, the left-sided endocarditis is more commonly seen than right sided. However, in the IVDU, right-sided infective endocarditis is predominant[2]. In our case, aortic valve vegetation was found in an opiate addiction user, which is relatively unusual seen in the clinical practice, and this leads to septic emboli of lung and brain hemorrhagic emboli. For infective endocarditis, IVDUs easily have lung emboli and septic complications than non-IVDU[2].

A Japanese report in the year of 2010 described *Streptococci viridans* is the most common pathogen of infective endocarditis, and it was accounted for 36.8%. *Staphylococcus aureus* (*S. aureus*) (21.3%) is the second common pathogen. Infective endocarditis induced by methicillin-resistant *S. aureus* is strongly related to intubation, surgical intervention, hemodialysis and some nosocomial infections with high mortality rate (70%), and in MSSA, the mortality rate is relative low as 34.8%[3,4]. In our case, although the culture result was MSSA, multiple septic infarcts (lung and brain) and the following intracranial hemorrhage, altered mental status, and disseminated intravascular coagulation could lead to fatal outcome. *S. aureus* is the most common pathogen of infectious endocarditis in IVDU and its mortality remained high despite aggressive management. There is up to 74% of left-sided endocarditis patients developed one or more cardiac or extracardiac complication in a retrospective study ($n = 133$)[5]. Neurologist and emergency physicians should prudently distinguish cotton fever from useful diagnostic tools such as inspection, X-rays and CT. Overall mortality of left-sided endocarditis was about 38%[5]. *S. aureus* endocarditis is a debilitated and fatal infection. For physicians, it is important to early diagnose and treat infective endocarditis preventing from death owing to multiple organ failure.

Conflict of interest statement

The authors report no conflict of interest.

References

- [1] Aguado JM, Arjona R, Ugarte P. Septic pulmonary emboli. A rare cause of bilateral pneumothorax in drug abusers. *Chest* 1990; **98**(5): 1302-4.
- [2] Chao TH, Li YH, Tsai WC, Lin LJ, Chen JH, Tsai LM, et al. Clinical characteristics and prognostic determinants of infective endocarditis in adult intravenous drug users. *J Formos Med Assoc* 2004; **103**(10): 754-60.
- [3] Takayama Y, Okamoto R, Sunakawa K. Definite infective endocarditis: clinical and microbiological features of 155 episodes in one Japanese university hospital. *J Formos Med Assoc* 2010; **109**(11): 788-99.
- [4] Sherwood M, Smith D, Crisel R, Veleदार E, Lerakis S. *Staphylococcus aureus* endocarditis: the grady memorial hospital experience. *Am J Med Sci* 2006; **331**(2): 84-7.
- [5] Fernández Guerrero ML, González López JJ, Goyenechea A, Fraile J, de Górgolas M. Endocarditis caused by *Staphylococcus aureus*: a reappraisal of the epidemiologic, clinical, and pathologic manifestations with analysis of factors determining outcome. *Medicine (Baltimore)* 2009; **88**(1): 1-22.