



## Case Report

# Disseminated *Staphylococcus aureus* infection following spinal anesthesia: a case report<sup>☆</sup>



Zhongheng Zhang MMed (Physician)\*, Xiao Xu MSc (Physician),  
Hongying Ni MMed (Physician)

Department of Critical Care Medicine, Jinhua Municipal Central Hospital, Jinhua Hospital of Zhejiang University, Zhejiang, P.R. China

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**Abstract** We here presented a 65-year-old woman with disseminated *Staphylococcus aureus* infection following spinal anesthesia. The patient underwent spinal anesthesia for great saphenous vein stripping. Twenty days after the procedure, the patient developed hydrocephalus, pulmonary infection, and epidural abscess. Microbiological culture of the pus showed infection by *S aureus*. Appropriate antibiotic therapy and prompt surgical abscess drainage were associated with good outcome. Hydrocephalus is thought to be associated with arachnoiditis caused by *S aureus* infection, which provides new insights into the pathophysiology of arachnoiditis. Here we reported a case of disseminated *S aureus* infection following spinal anesthesia, implicating that appropriate interventions should not be delayed for waiting for the microbiological results.

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## 1. Introduction

Spinal anesthesia is a widespread used technique that can provide rapid and deep surgical block through the introduction of small amount of local anesthetic solution into the arachnoid space [1]. Although the technique is safe, common complications of spinal anesthesia include cardiovascular adverse effect, postdural puncture headache, and neurologic defects. They are usually rare and will recover quickly if treated promptly. However, that does not mean spinal anesthesia is without severe complication, and literature in anesthesiology has reported a few cases of such severe complication [2,3]. Herein, we reported a case of disseminated *Staphylococcus aureus* infection involving lumbar spine and lung following spinal anesthesia.

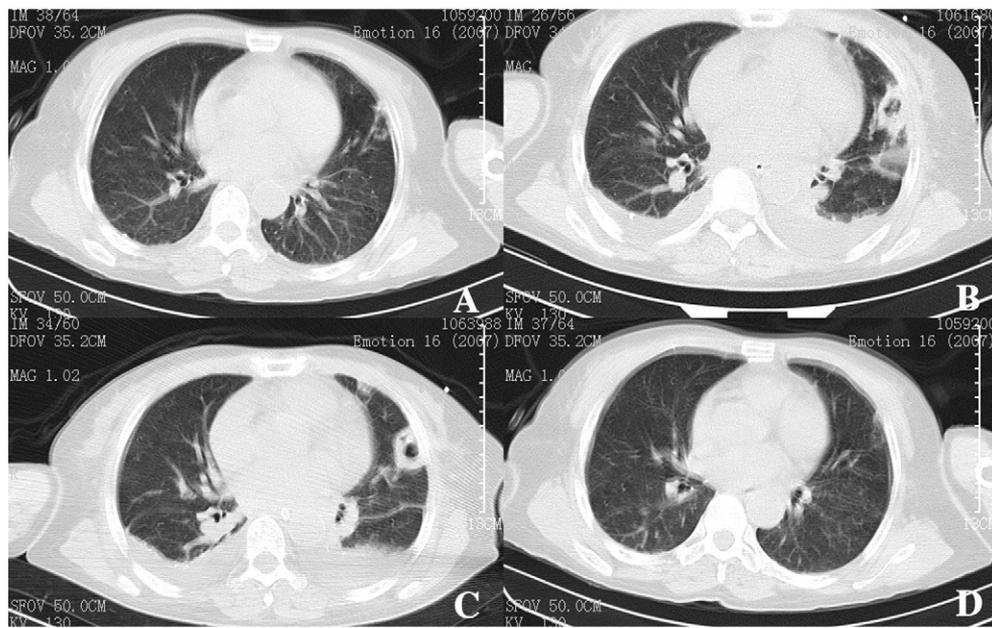
## 2. Case presentation

A 65-year-old woman with varicose vein underwent vein stripping procedure under spinal anesthesia. Preanesthesia examination was unremarkable except for varicose vein in the lower leg. Skin was prepared with soap and antiseptics was performed using povidone iodine aqueous. The bottle containing povidone iodine was single use. The prepared area was dried in the air for 3 minutes before a needle was inserted at L4-5 by an anesthetist wearing a sterile surgical gown, mask, hat, and gloves. There were infection control precautions of the operator hand washing in the institution, which was adapted from international protocols [4]. Culture tests of nasopharyngeal flora of the operator were not performed. There was no puncture difficulty during procedure. The patient recovered uneventfully and went home 2 days after the procedure. However, she developed severe low back pain 10 days after the procedure and presented to the department of orthopedics of our hospital. Outpatient magnetic resonance imaging (MRI) showed severe lumbar spinal stenosis and lumbar disk

<sup>☆</sup> There are no conflicts of interest.

\* Corresponding author at: 351#, Mingyue Road, Jinhua, Zhejiang Province 321000, China. Tel.: +86 579 82552667; fax: +86 579 82552629.

E-mail address: zh\_zhang1984@hotmail.com (Z. Zhang).

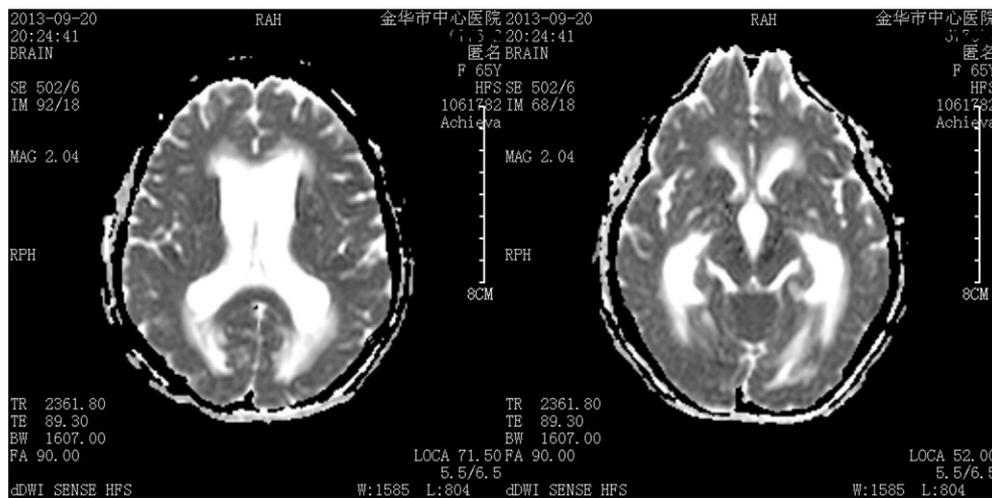


**Fig. 1** Serial changes of chest computed tomography (CT) during clinical course. A, CT scan was obtained on ward floor, showing patchy inflammatory lesions in the left lung. B, CT scan obtained on the third ICU day, showing lesion of cavity on the left lung. C, CT scan obtained on the sixth ICU day, showing that the lesion remained unchanged. D, CT scan obtained 2 months after ICU admission during follow up, showing that the lesion was recovered.

herniation, and she was advised to admit to hospital for further evaluation. Two days after her admission, her medical condition deteriorated with tachycardia, fever, decreased oxygenation, and altered mental status. Emergent cranial computed tomography (CT) was ordered but with negative findings. Chest CT showed patchy consolidations on the lung (Fig. 1A). Thereafter, the patient was transferred to intensive care unit (ICU) for further monitoring and evaluation.

The patient denied personal history of alcohol drinking, and she is not a frequent injection receiver. She was healthy in the past and denied comorbidities such as hypertension or diabetes mellitus, or use of corticosteroids. She also denied any recent infections.

On ICU entry, she appeared sluggish and disoriented. She was tachycardia and tachypnea with the heart rate of 154 beats/min and the respiratory rate of 34 breaths/min. The temperature was 36.8°C and blood pressure was 89/56 mm Hg. The pulse oxygen saturation was 95% when she was breathing 8 L/min oxygen via facial mask. Septic shock was considered and fluid resuscitation was initiated. Imipenem/Cilastatin was administered within 2 hours. After administration of 2 L fluid, the hemodynamics was stabilized, with heart rate returning to 90 beats/min and blood pressure going up to 118/67 mm Hg. However, she remained tachypnea and required high-concentration oxygen given via facial mask.



**Fig. 2** Cranial MRI showing enlarged lateral ventricles and third ventricle, indicating hydrocephalus.

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