

CORRESPONDENCE

Lemierre syndrome with cervical spondylodiscitis and epidural abscess associated with direct injection of heroin into the jugular vein

Dear Editor,

Pseudomonas aeruginosa infections rarely occur in intravenous drug users with Lemierre syndrome.^{1,2} We report here the case of a patient, an intravenous drug user with a history of injecting heroin directly into the jugular vein, with thrombophlebitis, *P. aeruginosa* bacteremia, metastatic cervical spondylodiscitis, and an epidural abscess. The patient's condition was initially complicated by moderate quadriplegia, hyperreflexia, and hypoesthesia below the C5 dermatome. He recovered well after surgical debridement, treatment with antibiotic drugs, and rehabilitation.

The 64-year-old male heroin addict was admitted to hospital with a history of moderate paralysis of all four limbs and fever for 1 week. His initial route of heroin administration had been inhalation, but he had changed to intravenous injection 1 year previously. Six months previously he began to inject heroin directly through the neck vessels to obtain stronger and faster euphoria. He reported neck and shoulder pain with numbness 1 month later.

He was conscious on admission and, on neurological examination, had hypoesthesia below the C5 dermatome. He had Grade 3 (3/5) muscle power in all four extremities. Examination of his skin showed multiple needle injection wounds, local redness, tenderness, and mild swelling of his right neck. He also had a fever and leukocytosis. Magnetic resonance imaging showed spondylodiscitis, an epidural abscess with spinal cord compression at the C5–C6 level, and moderate thrombosis of the jugular vein in his right neck (Fig. 1). He received surgical decompression and combination treatment with antibiotics: ciprofloxacin 400 mg intravenously every 12 hours and amikacin 375 mg

intravenously every 12 hours for 2 weeks, then ciprofloxacin monotherapy for 6 weeks. The results of blood and pus cultures showed *P. aeruginosa*. The results of both post-operative magnetic resonance imaging of his cervical spine and a gallium-67 whole-body inflammation scan showed no further evidence of infection. He recovered gradually, regaining full strength of muscle power (5/5) in all four limbs within 2 years, although he still had a spastic gait and hyperthesia in all four limbs.

Fusobacterium necrophorum is the pathogen most commonly implicated in Lemierre syndrome, followed by *F. necleatum*.¹ Lemierre syndrome with *P. aeruginosa* infection has rarely been reported.¹ Pneumonia or pleural empyema is the most common metastatic infection (79.8% of cases) in Lemierre syndrome.^{3,4} In contrast, metastatic infections affecting the cervical spine are rare. The pathogenesis of our patient may be due to the dissemination of bacteria through the jugular vein into the transverse cervical veins and to the anastomotic veins of the spinal column.⁵

The most common organisms causing infection in intravenous drug users are coagulase-negative *Staphylococcus* and *S. aureus*.² The abscess and blood cultures of our patient were positive for *P. aeruginosa*. Chuo et al⁵ reviewed the cases of 21 intravenous drug users with spinal infections and found that *Staphylococcus* was the most common pathogen. Only three patients were infected with *Pseudomonas* species.

In conclusion, metastatic septic embolism with infection of the cervical spine is rare in patients with Lemierre syndrome. Cervical spondylodiscitis and epidural abscess are emerging neurological infections.⁵ The course is usually rapid and irreversible therefore timely diagnosis and

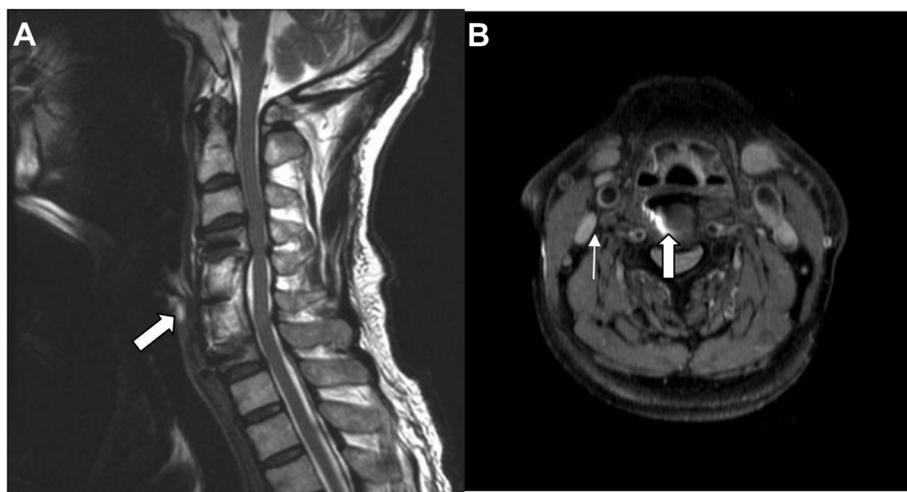


Figure 1. (A) Sagittal T2-weighted magnetic resonance image of the cervical spine showing the C5–6 spondylodiscitis and epidural abscess (thick arrow) causing spinal canal stenosis. (B) Transverse T2-weighted magnetic resonance image of the cervical spine showing right jugular vein thrombosis (thin arrow) and C6 spondylodiscitis (thick arrow).

treatment are important. A high index of suspicion is required for the differential diagnosis of heroin abusers. The case of Lemierre syndrome associated with a heroin user reported here shows the importance of clinicians being aware of the possibility of *P. aeruginosa* in cervical spinal infections.

Conflicts of interest

The authors declare that they have no conflicts of interest related to the content in this letter.

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