

# A rare case of Lemierre Syndrome in an IVDU Patient with Group A Streptococcus

Nobel Nguyen, MS4 and Richard Olstein, MD

## Introduction

- Lemierre syndrome is a rare disease characterized by septic thrombophlebitis of the internal jugular vein (IJV).
- The condition most commonly originates from an oropharyngeal infection that spreads to the IJV, though there have been case reports caused by blunt trauma.
- Possible mechanisms of spreading include hematogenous route or through the lymphatics.
- The most common bacteria that causes Lemierre syndrome is *Fusobacterium necrophorum*, an anaerobe found in the human oral flora.
- In this case report, we present a patient with a history of intravenous drug use that presented with Lemierre syndrome without a history of a recent oropharyngeal infection.

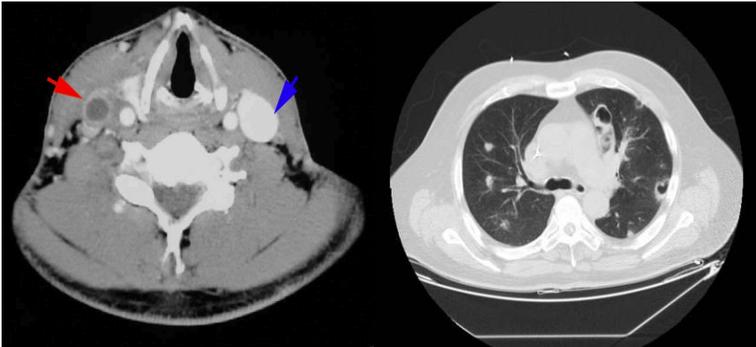


Figure 1A: Demonstrates a thrombus in the right internal jugular vein on CT scan that is classic for Lemierre syndrome.

Figure 1B: Demonstrates round opacities in the lungs on CT scan that is suggestive of septic pulmonary emboli.

## Case Presentation

A 26-year old male with a history of intravenous drug use and endocarditis presented to the ED with severe left-sided neck pain and increased swelling and redness for 3 days. The patient reported he was injecting heroin into the veins of his neck three days prior, but had “missed” the injection site. On initial evaluation in the ED, the patient was noted to be febrile with a temperature of 102.5 degrees F, and otherwise stable vital signs. Physical exam was notable for swelling, redness, and induration of the left anterolateral neck. The patient was started on broad-spectrum empiric antibiotics of piperacillin-tazobactam and vancomycin. CT scan of the neck revealed thickened irregular left jugular vein with surrounding fat stranding extending into the superior mediastinum, which suggests a thrombus. Due to concerns for whether the infection had spread, a CT angiogram of the chest was ordered, which showed round opacities with central cavitation in the right lung that most likely represented septic emboli. Transesophageal echocardiogram was also ordered but it did not reveal any valvular vegetation. On the third hospital day, blood cultures grew group A streptococcus. After starting intravenous antibiotics, the patient had rapid clinical improvement.

## References

1. Kidambi TD, Lee C, Kohlwes RJ. MRSA-Associated Lemierre's Syndrome in an Intravenous Drug User. *J Gen Intern Med.* 2015;30(12):1886-1887. doi:10.1007/s11606-015-3259-9
2. Allen BW, Anjum F, Bentley TP. Lemierre Syndrome. [Updated 2021 Aug 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499846/>

## Discussion

- In most cases of Lemierre syndrome, the primary infection occurs in the oropharyngeal space, most commonly pharyngitis affecting the palatine tonsils and peritonsillar tissue, spreading locally to the internal jugular vein.
- We present the first case of Lemierre syndrome caused by IVDU injection and local infection with group A streptococcus.
- Common complication from Lemierre syndrome are septic pulmonary emboli, bacteremia, endocarditis, and infections of the large joints.
- The diagnosis of Lemierre syndrome includes both radiographic imaging demonstrating an IJV thrombus, and blood cultures demonstrating *Fusobacterium* or other implicated pathogens.
- Blood cultures grew GAS, which was most likely introduced through the use of intravenous drug use at the injection site.
- With prompt administration of appropriate intravenous antibiotics, the patient's clinical presentation rapidly improved, and the patient's overall mortality and morbidity significantly decreased from this complicated disease.

## Conclusion

In summary, this case highlights the consideration of atypical pathogens and pathologies associated with intravenous drug use. Lemierre syndrome should highly be suspected in an intravenous drug user with septic emboli and evidence of lateral neck soft tissue infection. Prompt diagnosis and antibiotic administration will result in decreased morbidity and mortality