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Research paper

Lemierre's Syndrome with Neck Phlegmon Following Otitis Media in A Patient with Rheumatic Heart Disease Disease: A Case Report from Ethiopia

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Abstract

Introduction: Lemierre's syndrome is a rare septic thrombophlebitis of the internal jugular vein, classically following oropharyngeal infection. Once common in the pre-antibiotic era, it is now termed the "forgotten disease." Otitis media as a preceding infection is exceptional.
Case Presentation: A 33-year-old Ethiopian woman with rheumatic heart disease presented with fever, sore throat, dysphagia, and right-sided neck swelling after untreated otitis media. Ultrasound confirmed a right neck abscess with internal jugular vein thrombosis. She was treated with intravenous ceftriaxone and metronidazole, underwent surgical drainage, and was anticoagulated. She improved after two weeks of hospital stay and was discharged on oral antibiotics and warfarin.
Discussion: Lemierre's syndrome typically follows pharyngeal infections. Diagnosis requires imaging, with CT being the gold standard, but ultrasound remains essential where resources are limited. Prolonged antibiotics are the mainstay, and the role of anticoagulation is debated.
Conclusion: This case highlights the importance of maintaining suspicion for Lemierre's syndrome in patients with head and neck infections, even when the source is otitis media, particularly in resource-limited regions. It sends a message to policy makers. They need to improve diagnostic imaging, like CT scans, in resource-limited settings. It also underscores the need to have guidelines or protocols for Lemierre's syndrome diagnosis and management, especially on the use of anticoagulants.

Keywords: *Lemierre's Syndrome; Internal Jugular Vein Thrombosis; Otitis Media; Rheumatic Heart Disease; Case Report.*

1. Introduction

Lemierre's syndrome, described in 1931 by André Lemierre as post-anginal septicemia, is a rare but life-threatening disease caused primarily by Fusobacterium necrophorum [1]. It is characterized by thrombophlebitis of the internal jugular vein and septic emboli. Its incidence is estimated at 3–4 cases per million annually [2]. During the antibiotics era, it was considered a 'forgotten disease' [2], [16]
Before antibiotics, the disease was more frequent, but it is now considered rare. The most common source is pharyngeal infection; otitis media as a cause is highly unusual, and other rare sources of infection include odontogenic, acute mastoiditis, and sialadenitis [23], [24]. Reports from sub-Saharan Africa are extremely limited, possibly due to low clinical suspicion and limited diagnostic capacity.
Here, we present a case of Lemierre's syndrome following otitis media in a patient with rheumatic heart disease, the first case reported from Ethiopia.

2. Case Presentation

2.1. History

A 33-year-old Ethiopian woman with rheumatic heart disease, on warfarin (5 mg daily) for eight years, presented to Gondar University Comprehensive Specialized Hospital emergency department walking by herself with a 3-day history of fever, sore throat, dysphagia, dysphonia, and right-sided neck pain.
She reported right ear pain with purulent discharge beginning three days before the systemic symptoms, for which she did not seek treatment.

2.2. Examination

Temperature 38.6 °C, heart rate 118 bpm, respiratory rate 20 breaths per minute
Puffy face, tender erythematous swelling on the right neck (Figure 1)
Bilateral submandibular lymphadenopathy
Cardiovascular: mitral regurgitation murmur
Respiratory: clear breath sounds

Fig. 1: Clinical photograph at presentation demonstrating facial puffiness and erythematous swelling over the right side of the neck.

2.3. Investigations

CBC: 9,900/µL (72.4% neutrophils)
ESR: 25 mm/hr
Renal/liver function and coagulation: normal
Ultrasound: right anterolateral neck abscess (1.6 × 1.0 cm) with acute internal jugular vein thrombosis (Figures 2 and 3)
Chest X-ray: showed cardiomegaly (Figure 4)
Blood culture: No organism growth seen
Echo: mitral regurgitation, no vegetation or oscillating mass
A CT scan was ordered, but not performed due to financial limitations

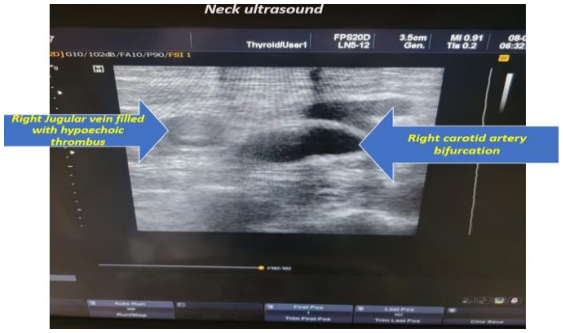

Fig. 2: Ultrasonography Image of the Neck Showing A Hypoechoic Thrombus Within the Right Internal Jugular Vein (Arrow).

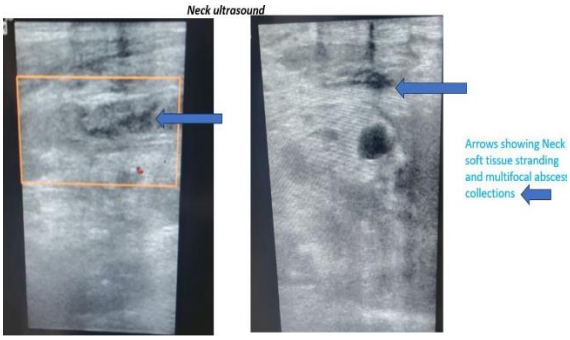

Fig. 3: Ultrasonography Image of the Neck Demonstrating Soft Tissue Stranding and Multifocal Abscess Collections (Arrow) in A Patient with Acute Internal Jugular Vein Thrombosis.

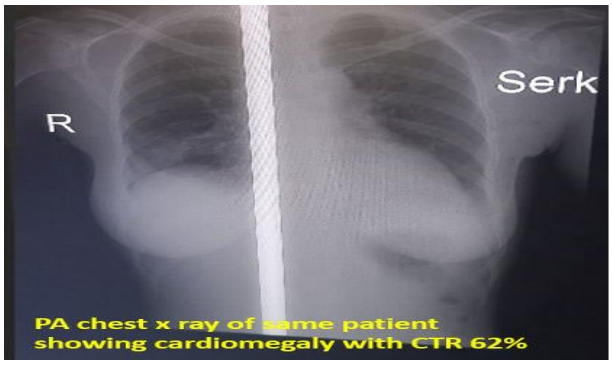

Fig 4: Chest Radiograph Showing Cardiomegaly with a Cardiothoracic Ratio of 62% in A Patient with Rheumatic Heart Disease.

2.4. Management

The patient began intravenous ceftriaxone (1gram twice daily) and metronidazole (500 mg three times daily) on day one. Then warfarin was held, and vitamin K 2 mg intravenously was given since surgery was considered on the first day after neck ultrasonography result showed a neck abscess around the right internal jugular vein. On day 3, a coagulation profile was done, and INR was 1.4. Then, surgery was decided then Surgeons performed drainage under general anesthesia, and it revealed a small phlegmon and a palpable thrombus in the internal jugular vein with surrounding inflammation. (Figure 5)
After 24 hours of surgery, she was anticoagulated with unfractionated low molecular weight heparin with warfarin, and after five days, transitioned to warfarin only. After two weeks of IV antibiotics, she was discharged on oral antibiotics and warfarin in improved condition. After 2 weeks of discharge from the hospital, she came to the medical outpatient department for follow-up up and at that time she completed her oral antibiotics and She was clinically stable and started her normal day-to-day life. Then she was advised that in the future, whenever she has symptoms of upper respiratory tract infection to visit the health care center early.

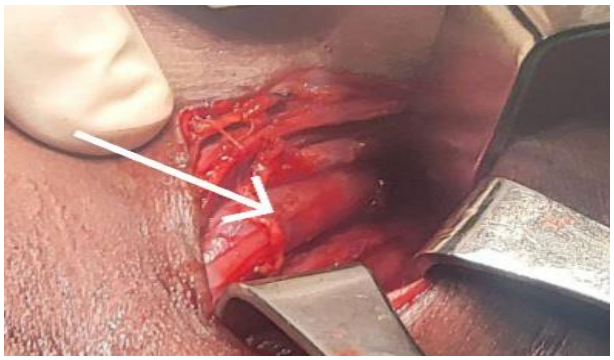

Fig. 5: Intraoperative Photograph Demonstrating Drainage of Phlegmon from the Perijugular Space with a Palpable Thrombus within the Internal Jugular Vein (Arrow).

Compliance statement: This work has been reported in line with the SCARE criteria (17).

3. Discussion

Lemierre's syndrome is an anaerobic septic thrombophlebitis of the internal jugular vein, most often caused by Fusobacterium necrophorum [3]. Clinical features include fever, sore throat, neck pain, and swelling, with possible pulmonary or systemic septic emboli [4], [5], [9]. The overall mortality of Lemierre's syndrome was 9% [8].

3.1. Diagnosis

Contrast-enhanced CT of the neck is the gold standard imaging modality since it allows for to detection of the thrombus in the internal jugular vein. In addition to this, it can also detect aetiologies like peritonsillar abscess and identify complications like pulmonary abscess and septic emboli [6], [22], but in resource-limited settings, ultrasound is crucial for identifying internal jugular thrombosis. Blood cultures may confirm F. Necrophorum [8], [9], [11], though there was no growth in our case.

3.2. Management

Prolonged antibiotics (at least 2–4 weeks, with ≥2 weeks IV) are standard [7]. Beta-lactams and metronidazole are the most commonly used combination of drugs [9,10]. The role of anticoagulation remains debated, though some studies suggest improved thrombus resolution and better outcomes [12 - 15]. Despite the prevalence of anticoagulant use increasing from about 42.1% to 62.5%, there is literatures that restrict the use of anticoagulants only to those with uncomplicated disease means without new septic complications and major bleeding [18], [21], [22]. On the contrary, some studies suggest that anticoagulants do not affect thrombus progression or recurrence [19], [20]. Anticoagulation use in clinical practice varies widely, and no consensus exists. Surgical intervention is indicated for abscesses or phlegmons drainage.

3.3. Uniqueness of this case

Unlike the typical pharyngeal origin of pharyngitis (>85% of cases) [2], this patient developed Lemierre's syndrome after otitis media. Such cases are rare worldwide and previously unreported in Ethiopia. The absence of reports in sub-Saharan Africa likely reflects diagnostic challenges and low clinical suspicion rather than true rarity. In addition, to the best of our knowledge, there are no reported cases of Lemierre's disease in patients with rheumatic heart disease on warfarin, a scenario in which the diagnosis may be easily confused with infective endocarditis, and the way of giving anticoagulation is different from those who have no rheumatic heart disease, since she was already on anticoagulant.
This case underscores the importance of awareness in resource-limited settings, where early recognition and intervention are vital to reduce mortality.

4. Conclusion

Lemierre's syndrome is a rare but serious complication of head and neck infections. Although typically pharyngeal in origin, otitis media can also be a source. In resource-limited settings, clinicians should maintain a high index of suspicion when evaluating patients with fever and neck swelling. Early diagnosis, antibiotics, surgical drainage, and consideration of anticoagulation are critical to improving outcomes.

Ethical Approval

Not applicable.

Consent

Informed consent was obtained from the patient for publication of this case report and any accompanying images.

Provenance and Peer Review

Not commissioned, externally peer reviewed.

Declaration of Competing Interest

None declared.

Contributors

Credit
HAS: Writing– original draft, Conceptualization, patient care, SAK: Supervision, EAE: Writing– original draft, DEA: Writing– review & editing, Resources, MAM: Writing, imaging– review & editing, patient care, AGT: Writing– review & editing, Resource

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