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A case of laryngeal leishmaniasis presenting as hoarseness in an Ethiopian patient: a case report

Mohammedsefa Arusi Dari[1*], Zelalem Tadesse Wondimu[2], Melaku Abay Muluneh[3], Martha Mekonen Gdey[4] and Adil Fekede Ayele[5]

Abstract

Background Leishmaniasis is a zoonotic disease caused by unicellular protozoa of the *Leishmania* genus. The infection can spread through zoonotic or anthroponotic transmission, depending on the species, with the phlebotomine sandfly serving as the primary vector. Leishmaniasis is endemic in tropical regions of Asia and Africa. While mucocutaneous leishmaniasis is rarely reported in Ethiopia, both the cutaneous and visceral forms of the disease are more commonly seen. The clinical spectrum of *Leishmania* infection includes visceral leishmaniasis (the most common form), as well as cutaneous, mucocutaneous, mucosal, and post-kala-azar dermal leishmaniasis. The mucosal form typically involves the nasal and oral mucosa, though in rare cases, it can also affect the laryngeal and pharyngeal mucosa.

Case presentation This report discusses a case of laryngeal leishmaniasis presenting as hoarseness of voice and discomfort during swallowing, with a focus on clinical presentation, diagnostic process, and management. A 31-year-old Ethiopian man from Addis Ababa, Ethiopia, presented with a 6-month history of hoarseness and difficulty swallowing. He had a history of travel to Humera, a region endemic for leishmaniasis. Flexible nasolaryngoscopy revealed whitish erythema and irregular margins on the right vocal cord. Laryngeal cancer was initially suspected, and a microlaryngoscopy with biopsy was performed, which confirmed the presence of *Leishmania* amastigotes. He was treated with liposomal amphotericin B. After completing the treatment, his voice returned to normal, and repeat nasolaryngoscopy showed no abnormalities.

Conclusion Laryngeal leishmaniasis is a rare but important differential diagnosis for patients presenting with hoarseness, particularly those with a history of travel to endemic areas. Clinicians should consider leishmaniasis in the differential diagnosis of upper respiratory symptoms in endemic regions, even in the absence of classic skin lesions. Early diagnosis and appropriate treatment with antifungal agents such as liposomal amphotericin B can lead to full recovery, as demonstrated in this case.

Keywords Laryngeal leishmaniasis, *Leishmania* amastigotes, Vocal cord, Nasolaryngoscopy, Case report

*Correspondence:
Mohammedsefa Arusi Dari
madyamxperia@gmail.com
Full list of author information is available at the end of the article

Background

Leishmaniasis is a zoonotic disease caused by the *Leishmania* genus. Humans become infected when a vector, the Phlebotomus sandfly, bites and feeds on their blood. The disease manifests in three main clinical forms: visceral, mucosal, and cutaneous [1, 2].

In Ethiopia, both cutaneous and visceral forms of leishmaniasis are endemic. However, mucocutaneous leishmaniasis (MCL) is rarely reported in the country [3]. Visceral leishmaniasis (VL) in Ethiopia is caused by *Leishmania donovani* through anthroponotic transmission. In most immunocompetent individuals, infections remain asymptomatic. The estimated annual burden of VL in the country is between 2000 and 4500 cases [4].

Visceral leishmaniasis primarily affects macrophages in deep organs such as the spleen, liver, and bone marrow. This results in the typical symptoms of VL, including fever, loss of appetite, weight loss, hepatosplenomegaly, and progressive pancytopenia [5]. The clinical presentation of leishmaniasis varies depending on the species and host factors, including age, genetics, and immune status. Laryngeal leishmaniasis is an uncommon condition in immunocompetent individuals, typically presenting with hoarseness of voice [6].

Pharyngolaryngeal involvement can be severe, leading to symptoms such as difficulty swallowing (dysphagia), shortness of breath (dyspnea), hoarseness (dysphonia), sore throat, and coughing. Laryngoscopy typically reveals widespread inflammation, with redness and swelling. Granulomatous ulcers are commonly seen and may produce purulent discharge. In advanced cases, significant tissue destruction can occur. Prior to diagnosing leishmaniasis, it is essential to consider other potential conditions, such as leprosy, sarcoidosis, syphilis, Wegener's granulomatosis, systemic lupus erythematosus, actinomycosis, histoplasmosis, and tumors [7, 8].

To increase the likelihood of obtaining a positive result for *Leishmania*, it is recommended to use multiple diagnostic methods. These include the visualization of characteristic amastigotes in smears or tissue (histopathology), parasite isolation through in vitro culture, molecular detection of parasite DNA, and serologic testing for visceral leishmaniasis (VL). Additionally, simultaneous testing for other potential diagnoses, such as histopathology and culture, should be considered [9, 10].

For the treatment of visceral leishmaniasis (VL), liposomal amphotericin B is the preferred option, regardless of the patient's immune status. However, in immunocompromised individuals, the treatment protocol typically involves higher daily doses, more frequent administrations, and a greater total cumulative dose [11].

Case presentation

We present the case of a 31-year-old Ethiopian man from Addis Ababa, Ethiopia, who presented with a 6-month history of hoarseness of voice and difficulty swallowing. His voice was intermittently husky, with reduced pitch and volume, and worsened with prolonged use, improving with vocal rest. He had no painful swallowing or shortness of breath. The patient had previously visited Humera in northern Ethiopia, a region endemic for leishmaniasis. However, he did not report any skin lesions, hepatosplenomegaly, nor palpable lymphadenopathy. He is not immunocompromised, does not smoke, and does not use drugs. His complete blood count, organ function tests, electrolyte levels, and abdominopelvic ultrasound results were all within normal limits.

Flexible nasolaryngoscopy revealed whitish erythema and irregular margins of the right vocal cord (Fig. 1). Laryngeal cancer was initially suspected, and a microlaryngoscopy with biopsy was performed, which confirmed the presence of *Leishmania* amastigotes (Fig. 2), diagnosing him with laryngeal leishmaniasis. During the procedure, the right vocal cord appeared irregular and thickened, while the remainder of the upper aerodigestive tract appeared normal.

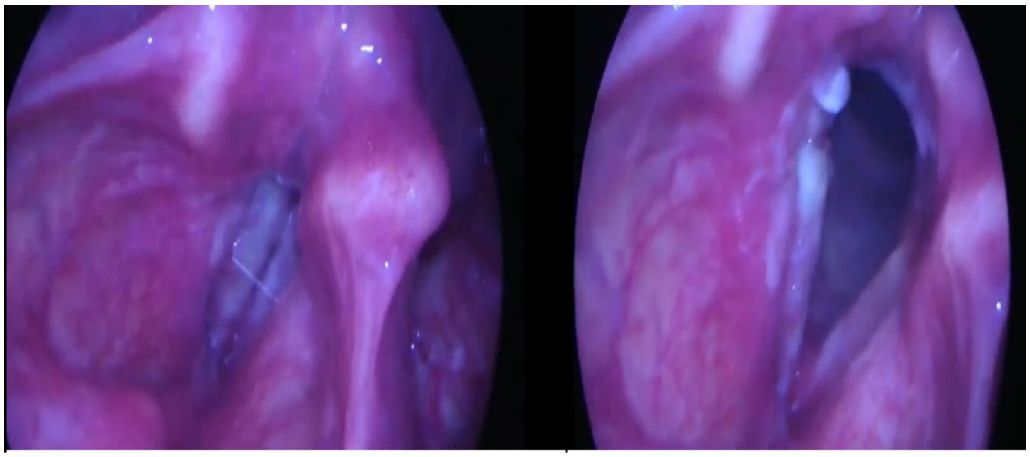
The patient was treated with liposomal amphotericin B, 210 mg on days 1–5, and 630 mg on days 14 and 21. The treatment was well tolerated. After completing the treatment, his voice returned to normal, and repeat nasolaryngoscopy showed no abnormalities (Fig. 3).

Discussion

In Ethiopia, visceral leishmaniasis (VL) has been reported as an epidemic in the northwestern regions, particularly along the border with Sudan, including in areas such as Humera and Metema. Due to its high mortality rate, frequent epidemics, and high incidence, leishmaniasis has become one of the major health challenges in the country [3].

Mucosal leishmaniasis is rare, and only a few cases involving the oral mucosa and/or upper respiratory tract have been reported [1]. Laryngeal leishmaniasis is a very rare diagnosis in immunocompetent individuals and often presents with hoarseness of voice [12].

Visceral leishmaniasis (VL) is a life-threatening disease caused by protozoan parasites of the *Leishmania donovani* complex. It primarily infects macrophages in deep organs such as the spleen, liver, and bone marrow, leading to the classic symptoms of VL, including fever, loss of appetite, weight loss, hepatosplenomegaly, and progressive pancytopenia. However, in contrast to this typical presentation, our patient presented with hoarseness and difficulty swallowing, without involvement of other deep organs or cutaneous symptoms [5].



A B

Fig. 1 Flexible nasolaryngoscopy with whitish, erythema, thickened, and irregular margins of the right vocal cord during vocal cord adduction (image **A**) and abduction (image **B**)

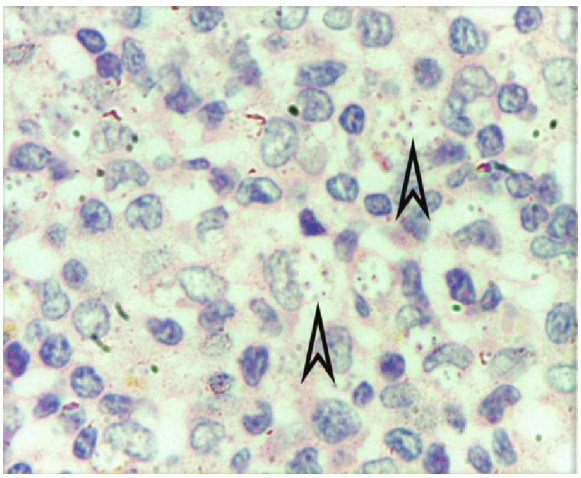
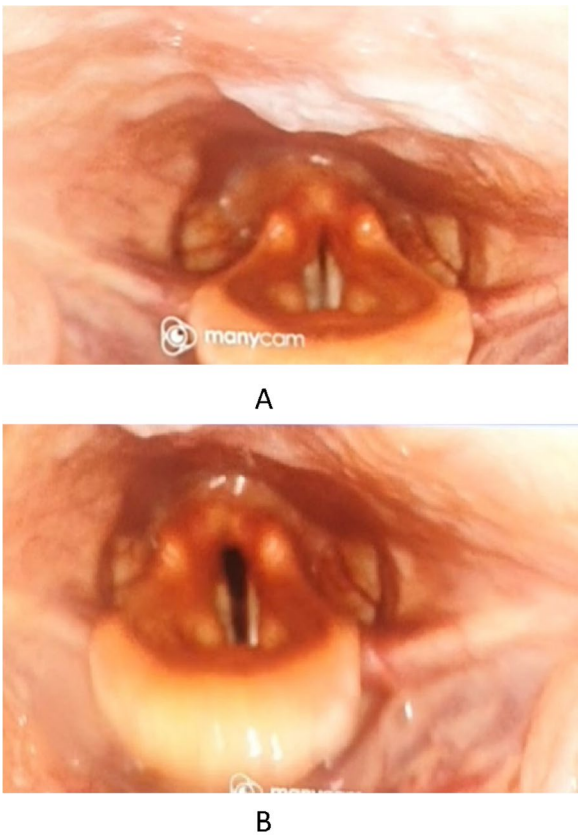


Fig. 2 Histopathology image indicating the presence of Leishmania amastigotes within macrophages (black arrows)

Primary laryngeal leishmaniasis, or isolated laryngeal involvement, typically occurs in immunocompromised patients, often those with comorbidities such as human immunodeficiency virus (HIV), immunosuppressive therapy, or a history of organ transplantation. In immunocompetent individuals, some reported cases have had a prior history of cutaneous leishmaniasis. However, our patient is immunocompetent and has no history of cutaneous leishmaniasis [5, 6, 11, 12].

Conclusion

Laryngeal leishmaniasis is a rare but important differential diagnosis for patients presenting with hoarseness, particularly those with a history of travel to endemic



A B

Fig. 3 Both vocal cords appearing normal after treatment, with no visible lesions; vocal cords fully adducted (image **A**) and slightly abducted (image **B**)

areas. Clinicians should consider leishmaniasis in the differential diagnosis of upper respiratory symptoms in endemic regions, even in the absence of classic skin lesions. Early diagnosis and appropriate treatment such as liposomal amphotericin B can lead to full recovery, as demonstrated in this case.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s13256-025-05134-0.

Supplementary material 1.

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Availability of data and materials
Supporting data are available and can be provided upon request.

Declarations

Ethical approval and consent to participate
Written informed consent was given by the patient.

Consent for publication
Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Competing interests
No competing interests were disclosed.

Author details
[1]Otolaryngology Head and Neck Surgery Department, Addis Ababa University, Addis Ababa, Ethiopia. [2]Internal Medicine Department, Wolkite University, Wolkite, Ethiopia. [3]Pathology Department, Minilik II Comprehensive Hospital, Addis Ababa, Ethiopia. [4]General Practitioner, Mekelle University, Mekelle, Ethiopia. [5]Internal Medicine Department, Addis Ababa University, Addis Ababa, Ethiopia.

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