Scientific Research Publishing

Case Reports in Clinical Medicine, 2023, 12, 292-298
https://www.scirp.org/journal/crcm
ISSN Online: 2325-7083
ISSN Print: 2325-7075

Laryngeal Tuberculosis and Laryngeal Cancer: Two Similar Diagnoses in an Elderly Person in Tuberculosis-Endemic Area

Ndeye Amy Sarr[1], Daouda Thioub[1], Ndiassé Ndiaye[2], Agbogbenkou Tevi Déla Lawson[1], Sylvie Audrey Diop[1]

[1]Department of Infectious and Tropical Diseases, Abdoul Aziz Sy Dabakh Hospital of Tivaouane, Tivaouane, Senegal
[2]ENT Department, Thiès Regional Hospital, Thiès, Senegal
Email: sarr.ndeyeamy@gmail.com, dave11690@gmail.com, ndndiayeorl@yahoo.fr, lawsalomon@yahoo.fr, sylviediop@gmail.com

How to cite this paper: Sarr, N.A., Thioub, D., Ndiaye, N., Lawson, A.T.D. and Diop, S.A. (2023) Laryngeal Tuberculosis and Laryngeal Cancer: Two Similar Diagnoses in an Elderly Person in Tuberculosis-Endemic Area. *Case Reports in Clinical Medicine*, **12**, 292-298.
https://doi.org/10.4236/crcm.2023.128041

Received: July 23, 2023
Accepted: August 14, 2023
Published: August 17, 2023

Abstract

Laryngeal tuberculosis is a rare form of extrapulmonary tuberculosis, often complicating pulmonary tuberculosis that may be unrecognized. Its clinical presentation is nonspecific, often pointing to cancer. We report the case of a 77-year-old woman, with no reported pathological history. She also has no alcohol or tobacco intoxication, who presented with chronic dysphonia evolving for 2 months, associated with an altered general condition. The examination of the larynx by direct laryngoscopy and anatomical pathology study of the biopsies led to the diagnosis of laryngeal tuberculosis. A search for secondary sites revealed a concomitant pulmonary infection. The evolution was favorable under standard anti-tuberculosis treatment, with complete voice recovery and improved performance status. Laryngeal tuberculosis should be suspected in patients living in endemic areas and suffering from chronic dysphonia, even if they are not alcoholics or smokers.

Keywords

Tuberculosis, Laryngeal, Dysphonia, Senegal

1. Introduction

Tuberculosis is a chronic bacterial infection caused by *Mycobacterium tuberculosis*. Pulmonary tuberculosis is the most common manifestation, but it can occur in any other organ such as larynx [1]. Pulmonary tuberculosis and laryngeal tuberculosis are the two contagious forms of tuberculosis. Laryngeal tuberculosis

remains the most common granulomatous disease of the larynx. It is a rare form of extrapulmonary tuberculosis, accounting for less than 1% of all tuberculosis cases [1] [2]. It classically develops due to direct spread of *Mycobacterium tuberculosis* to the larynx from contaminated sputum but can also occur due to hematogenous spread [3]. Rarely isolated, it often reveals an associated lung involvement that may be clinically unrecognized [1] [2]. Its diagnosis can be challenging, as the clinical symptoms and the macroscopic lesions sometimes mimic a laryngeal cancer [2] [3] [4].

We report a case of laryngeal tuberculosis discovered following chronic dysphonia. Through a review of the literature, we outline the epidemiological, clinical and diagnostic aspects of this pathology.

2. Case Report

A 77-year-old female Senegalese patient living in a rural area, with no particular pathological history, nor alcohol or tobacco intoxication, presented with a 2-month history of dysphonia. She reported symptoms such as dry cough and right-sided chest pain, which had been evolving for over a year. Those symptoms were associated with fever, chills, and night sweats, and she also experienced a deterioration in her performance status with physical asthenia, anorexia and weight loss. There was no personal history of tuberculosis or any tuberculosis contact. The patient was also complaining of selective dysphagia to solid food, which had been evolving for several weeks. Clinical examination revealed dysphonia with a weak, puffy voice, right pulmonary condensation syndrome rising to mid lung zone, and inflammatory suboccipital, cervical and axillary lymphadenopathies. Her standard blood test results (CBC, renal and liver functions) were unremarkable. The chest X-ray revealed a right apical excavation associated with a bilateral interstitial infiltrate (**Figure 1**). Direct laryngoscopy showed a budding tumoral lesion in the right ventricular band (**Figure 2(a)**), decreased mobility of the left vocal cord and an ulcerated epiglottis (**Figure 2(b)**). Pathological examination of biopsies revealed an epithelio-gigantocelullary granuloma with many lymphocytes, plasma cells, epithelioid cells and Langhans-type giant cells, associated with necrosis infiltrated by inflammatory cells. Tuberculosis diagnosis was retained. The intradermal tuberculin test was phlyctenular and sputum examination revealed acid-fast bacilli (AFB). Fasting blood glucose was normal and HIV serology was negative.

Antituberculosis treatment was started with a standard regimen of Rifampicin (R), Isoniazid (H), Ethambutol (E) and Pyrazinamide (Z). The patient clinically improved with partial recovery of the voice noticed on day 20. At day 40 of treatment, voice recovery was complete, and the patient reported significantly reduced coughing, no more dysphagia and regained appetite. The regimen was continued until M2 and follow-up laboratory tests (transaminases and uricemia) were unremarkable. Treatment will be continued according to the RH regimen for 4 months, and a follow-up chest X-ray and endoscopy are scheduled at M6 of treatment.

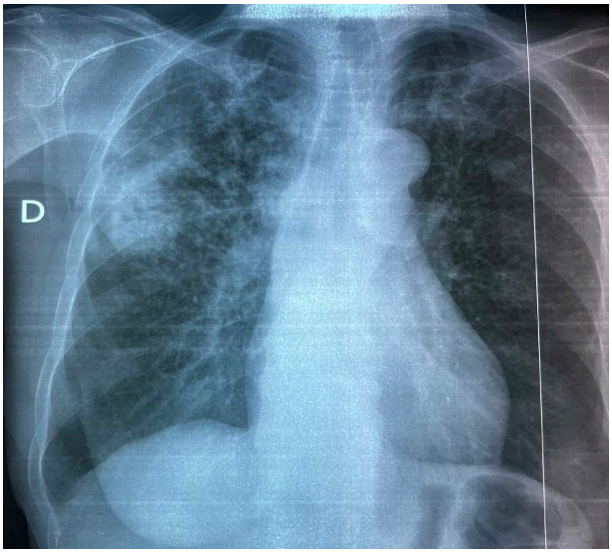
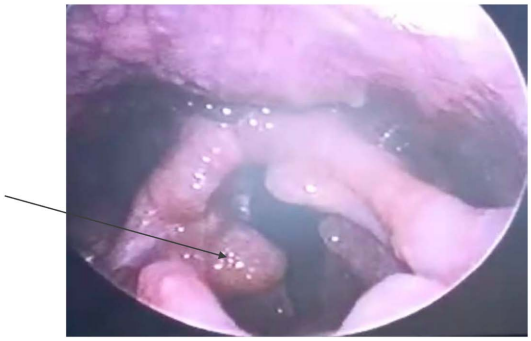
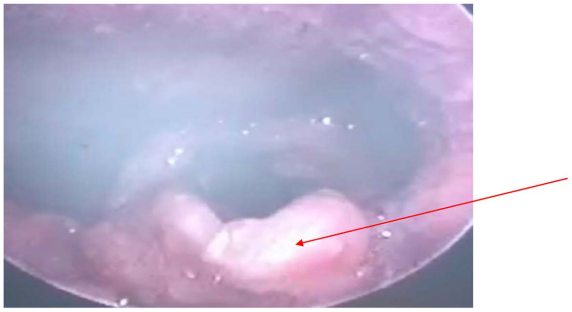


Figure 1. Front chest X-ray: right apical excavation associated with bilateral interstitial infiltrate.



(a)



(b)

Figure 2. (a) Tumoral lesion of the right ventricular band; (b) ulcerated epiglottis.

3. Discussion

Tuberculosis remains a public health concern, especially in endemic countries. Pulmonary involvement is the usual localization but it can affect any other organ, due to hematogenous dissemination. Laryngeal involvement is exceedingly rare, accounting for less than 1% of all tuberculosis cases [2] [4]. It is exceptionally primary and is usually diagnosed in patients with advanced lesions of active

pulmonary tuberculosis, whether symptomatic or not [3] [5] [6]. It appears to affect both men and women, with no age predilection. The risk factors of the disease are mainly the endemic area, alcohol and/or tobacco intoxication, and immunodepression especially HIV [1] [2]. These risk factors seem to be the same for laryngeal cancer. This situation can lead to misdiagnosis in elderly persons where laryngeal cancer is the first diagnosis the diagnosis to be made in cases of chronic dysphonia. Our patient was 77 years old, living in an endemic zone, and had no particular risk factors.

The vocal cords and ventricular bands are the most frequently affected sites, accounting for around 90% of laryngeal tubercular localizations. More rarely, tuberculous granulomas occur in the arytenoids, posterior commissure, and epiglottis [7]. The routes of laryngeal contamination include aerial dissemination of the germ from a pulmonary focus (retrograde airborne route), and this contamination mode prevails in glottic localizations. In other cases, contamination may occur via hematogenous or lymphatic dissemination [5] [8] [9] [10]. The contamination mode may be difficult to identify in our case, as the airborne route remains probable due to the pulmonary focus. Lymphatic contamination is also a possibility, considering the homolateral laryngeal and lung localizations, and the existence of lymphadenopathies.

Symptoms of laryngeal tuberculosis are non-specific and clinically, it is difficult to distinguish it from a malignant tumor of the larynx. Dysphonia, however, is a constant symptom, progressing rapidly from hoarseness of voice to voice loss. It usually has a chronic course, lasting from 1 to 6 months in 85% to 100% of cases [5] [11] [12]. Other non-specific signs may also be present. Dysphagia and odynophagia are often reported, while dyspnea is much rarer and indicates advanced involvement [5] [11]. Furthermore, signs such as dry or productive cough, chest pain, fever, etc… should be systematically sought, as they may indicate associated pulmonary involvement. Soda *et al.*, [7] and Galietti *et al.*, [12] found associated pulmonary symptoms in all their patients diagnosed with laryngeal tuberculosis. Chest X-ray must be performed, as well as a sputum examination, which can be positive in about 20% of patients [13]. This was the case in our patient, in whom an apical excavated lesion on chest X-ray and the acid-fast bacillus found on sputum examination revealed a pulmonary localization of the infection.

Examination of the larynx relies essentially on direct laryngoscopy, which can pinpoint the location and characteristics of tuberculous lesions. They mostly appear as pseudotumoral or tumoral lesions, as reported by El Ayoubi *et al.* who found 90% pseudotumoral forms in their study [1]. Less often, they can be ulcerated or, when minimal, present as edema, hyperemia, or laryngeal immobility [1] [5]. The lesions are therefore not specific to tuberculosis, and this makes diagnosis difficult, particularly in elderly persons where tumor cause is the first to be suggested. This was the case in our patient, whose age and the tumoral lesion further supported the suspicion of neoplasia. Moreover, laryngeal endoscopy enables biopsies to be taken, which remain the key to diagnosis. Anatomopathological examination reveals the classic tubercular follicle, consisting of a cen-

tral zone of caseation surrounded by epithelioid cells with lymphocytes, and especially the giganto-cellular aspects of Langhans cells [1] [14] [15]. Thus, the discovery of lymphocytic laryngitis in a suggestive context of tuberculosis should lead to the performance of a special Ziehl-Nielsen stain, and/or culture of the biopsy fragments on the Lowenstein-Jensen medium, allowing the identification of *Mycobacterium tuberculosis*. It is therefore recommended to carry out at least two biopsy fragments during endoscopy, one for the pathologist and one for the bacteriologist [10] [16].

The curative treatment for laryngeal tuberculosis is the same as for classic tuberculosis, based on a six-month course of anti-tuberculosis chemotherapy: 02 months of rifampicin, isoniazid, ethambutol, and pyrazinamide (RHZE) in combination, followed by 04 months of dual therapy combining isoniazid and rifampicin (RH). Corticosteroids may be added in some situations such as severe airway edema. Surgery is exceptional but may be necessary in some dyspneic forms requiring tracheotomy, or in cases of laryngeal fibrosis. Response to treatment is generally great, usually leading to regression of symptoms and laryngeal lesions, as observed by Ayoubi *et al.*, who had noted a recovery in all their patients [1] [17]. If there is no improvement after a few weeks, non-compliance with treatment should be suspected [1]. In our case, voice recovery was noted after 20 days of anti- tuberculosis treatment, along with a significant improvement in performance status. Regular monitoring is essential to watch out for the undesirable effects inherent to anti-tuberculosis treatment, such as hepatic cytolysis, allergic reactions, or symptomatic hyperuricemia.

4. Conclusion

Laryngeal tuberculosis is a rare localization of extrapulmonary tuberculosis. Clinical and endoscopic signs are not specific, therefore it should be suspected in patients living in endemic areas and suffering from chronic dysphonia, even if they are not alcoholics or smokers. Pulmonary involvement must be systematically sought. Treatment is essentially based on the classic anti-tuberculosis regimen, with a good prognosis and usually favorable response to therapy.

Consent

Consent was obtained from the patient for the publication of this case report, which is available.

Authors' Contributions

The original manuscript was written by NAS and DT. NN contributed to patient management. NAS collected and prepared the figures. LATD and SAD drafted and approved the final version to be published.

Conflicts of Interest

The authors declare having no conflict of interest.

References

[1] El Ayoubi, F., Chariba, I., El Ayoubi, A., Chariba, S. and Essakalli, L. (2014) Primary Tuberculosis of the Larynx. *European Annals of Otorhinolaryngology, Head, and Neck Diseases*, **131**, 361-364. https://doi.org/10.1016/j.anorl.2013.10.005

[2] Kurokawa, M., Nibu, K., Ichimura, K. and Nishino, H. (2015) Laryngeal Tuberculosis: A Report of 17 Cases. *Auris Nasus Larynx*, **42**, 305-310. https://doi.org/10.1016/j.anl.2015.02.012

[3] Kiakojouri, K. and Roushan, M.R.H. (2012) Laryngeal Tuberculosis without Pulmonary Involvement. *Caspian Journal of Internal Medicine*, **3**, 397-399.

[4] Margery, J., Grassin, F., Lecoules, S., *et al.* (2004) Atteinte laryngée révélatrice d'une tuberculose pulmonaire méconnue. *Revue de Pneumologie Clinique*, **60**, 39-42. https://doi.org/10.1016/S0761-8417(04)72081-7

[5] Arrivé, F., Roncato-Saberan, M., Beuvon, C., Martellosio, J.P. and Meriglier, E. (2017) Une tuberculose laryngée. *Médecine et Maladies Infectieuses*, **47**, 174-175. https://doi.org/10.1016/j.medmal.2017.01.004

[6] Lemaître, M.P., Portet, L., Londero, A., Lettré, M.J., Vincent, D. and Pradalier, A. (1995) Dysphonie révélatrice d'une tuberculose laryngée associée à une tuberculose pulmonaire latente. *Revue de Médecine Interne*, **16**, 371-372. https://doi.org/10.1016/0248-8663(96)80726-0

[7] Soda, A., Rubio, H., Salazar, M., Sanchez, A., Rubio, H. and Salaza, M. (1989) Tuberculosis of the Larynx: Clinical Aspects in 19 Patients. *Laryngoscope*, **99**, 1147-1150. https://doi.org/10.1288/00005537-198911000-00007

[8] Cruz, S., Ribeiro, A., Trigueiros, N. and Rodrigues e Rodrigues, M. (2014) Laryngeal Tuberculosis: A Diagnosis not to Be Overlooked. *European Annals of Otorhinolaryngology, Head and Neck Diseases*, **131**, 325-326. https://doi.org/10.1016/j.anorl.2013.11.011

[9] El Beltagi, A.H., Khera, P.S., Alrabiah, L. and Al Shammari, N.F.J. (2011) Acute Tuberculous Laryngitis Presenting as Acute Epiglottitis. *Indian Journal Radiology and Imaging*, **21**, 284-286. https://doi.org/10.4103/0971-3026.90690

[10] Thiam, I., Doh, K., Gaye, A.M., Sonhaye, K., Ndiaye, M. and Gaye, G.W. (2018) La tuberculose laryngée diagnostiquée dans un laboratoire d'anatomie pathologique du Sénégal (2011-2015). *Bulletin de la Société de Pathologie Exotique*, **111**, 5-8. https://doi.org/10.3166/bspe-2018-0010

[11] Porras Alonso, E. (2002) Tuberculose laryngée. *Revue de Laryngologie Otologie Rhinologie*, **123**, 47-48.

[12] Galietti, F., Giorgis, G.E., Gandolfi, G., *et al.* (1989) Examination of 41 Cases of Laryngeal Tuberculosis Observed between 1975-1985. *European Respiratory Journal*, **2**, 731-732. https://doi.org/10.1183/09031936.93.02080731

[13] Nishiike, S., *et al.* (2002) Laryngeal Tuberculosis: A Report of 15 Cases. *Annals of Otology, Rhinology & Laryngology*, **111**, 916-918. https://doi.org/10.1177/000348940211101010

[14] Richter, B., Fradis, M., Kohler, G. and Ridder, G.J. (2001) Epiglottic Tuberculosis: Differential Diagnosis and Treatment: Case Report and Review of the Literature. *Annals of Otology, Rhinology & Laryngology*, **110**, 197-201. https://doi.org/10.1177/000348940111000218

[15] Schluger, N.W. (2001) Changing Approaches to the Diagnosis of Tuberculosis. *American Journal of Respiratory Critical Care of Medicine*, **164**, 2020-2024. https://doi.org/10.1164/ajrccm.164.11.2008100

[16] Groupe de travail du conseil supérieur d'hygiène publique (2004) Diagnostic clinique et bactériologique de la tuberculose. *Medecine et Maladies Infectieuses*, **34**, 364-370. https://doi.org/10.1016/j.medmal.2004.07.016

[17] Abbassi, I.M., El Euch, M., Jaziri, F., *et al.* (2022) Tuberculose laryngée isolée de l'adulte: Localisation extra pulmonaire exceptionnelle (à propos d'un cas). *The Pan African Medical Journal*, **43**, Article 9. https://doi.org/10.11604/pamj.2022.43.9.21014