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Diagnostic Challenge of a Primary Laryngeal Lymphoma Mimicking Laryngeal Inflammation with No Sign of Malignancy: A Case Report

Azin Kheradmand [1], Mahammad Amir Alizadeh Tabrizi [2], Sadra Amirpour Haradasht [2], Sarina Hassanpour Dargah [3*]

1. Department of Pathology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

2. Department of Oral and Maxillofacial Surgery, School of Dentistry, Zahedan University of Medical Sciences, Zahedan, Iran.

3. Department of Oral and Maxillofacial Surgery, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran.

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**Corresponding author:*
Sarina Hassanpour Dargah

Department of Oral and Maxillofacial Surgery, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran.

Tel: +98-912-0301871
Fax: +98-21-84903747
Email: sarina.hassanpour@gmail.com

ABSTRACT

Laryngeal lymphoma is an extremely rare condition. Symptoms are nonspecific and include hoarseness, dysphagia, and respiratory difficulty or airway obstruction. The initial presentation often mimics benign conditions such as inflammation or infection. Early diagnosis is crucial for optimal treatment. A 63-year-old man was admitted with a 1-month history of dysphonia, persistent hoarseness, odynophagia, and mild dyspnea. The patient did not report any fever, weight loss, or night sweats. Complete examination included: general physical examination, comprehensive ENT examination, oral cavity examination, neck examination, stroboscopy, flexible fibrolaryngoscopy, CT scan, MRI, and chest X-ray. Biopsy and IHC confirmed a diagnosis of diffuse large B-cell lymphoma (DLBCL). The patient underwent chemotherapy with the R-CHOP scheme, followed by involved-site radiotherapy (ISRT). After a 2-year follow-up, the patient remained in complete remission. This case emphasizes the importance of considering rare malignancies in patients with nonspecific laryngeal symptoms and the crucial role of a comprehensive diagnostic workup, even when symptoms are more commonly associated with benign conditions such as inflammation, and there is no sign of malignancy. Time is a critical factor for the management of laryngeal lymphoma, as Early diagnosis with appropriate treatment may significantly improve patients' prognosis.

Keywords: Laryngeal lymphoma; Inflammation; Malignancy.

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Introduction

Laryngeal lymphoma is an extremely rare condition, with fewer than 100 cases reported worldwide and less than 1% of all primary laryngeal neoplasms. It presents a distinct entity in laryngeal malignancies. Although the head and neck region is the second most common extranodal site for non-Hodgkin lymphomas (NHL), the larynx itself is a rare site of involvement. The supraglottic region, especially the epiglottis and aryepiglottic folds, is the most common site for primary laryngeal lymphoma due to its rich follicular lymphoid tissue [1-4]. This type of lymphoma is predominant in older men, presenting variable symptoms that make the diagnosis challenging. These symptoms include hoarseness, dysphagia, respiratory difficulty or airway obstruction, and systemic symptoms such as weight loss, night sweating, and fever. The initial presentation often mimics benign conditions such as inflammation or infection. Early diagnosis is crucial for optimal treatment; however, due to its rarity and nonspecific presentation, diagnosis is often delayed [1].

Laryngeal lymphomas mainly consist of non-Hodgkin lymphomas (NHLs). Most cases originate from B cells, while diffuse large B-cell lymphoma (DLBCL) is the most common subtype. A rare condition accounting for less than 10% of all lymphomas is extranodal natural killer/T-cell lymphoma, which typically involves the larynx [3-5]. Surgical approach for management of these tumors comes with limited efficacy and unnecessary complications; therefore, a nonsurgical approach is preferred. Chemotherapy, with or without radiotherapy, is a favorable treatment approach that improves survival [5]. In this article, we present a 63-year-old man with laryngeal lymphoma to emphasize the presentation and characteristics of this rare tumor mimicking a benign condition with no sign of malignancy. It is also highlighted that early diagnosis and proper management are critical for improving prognosis and achieving better outcomes.

Case Presentation

A 63-year-old man was admitted in 2024 to the oral and maxillofacial department with a 1-month history of dysphonia. He also mentioned persistent hoarseness, odynophagia, and mild dyspnea. The patient did not report any fever, weight loss, or night sweats. He had no history of long-term smoking, alcohol consumption, irregular heating habits, or exposure to environmental or occupational risk factors such as dust or chemicals. There was no other personal or family medical history.

Upon physical examination, no palpable lymphadenopathy or hepatosplenomegaly was observed. The general physical examination revealed stable vital signs: normal blood pressure of 130/80 mmHg, a heart rate of 83 beats per minute, and an oxygen saturation of 98% on room air. A comprehensive ENT examination revealed no abnormalities of the ears or nose. The oral cavity examination was also unremarkable, with no deviation of the uvula, impaired mobility of the soft palate, or medialization of the pillars. Neck examination showed bilateral cervical lymphadenopathy with 2x2 cm, firm, and non-tender lymph nodes. The thyroid gland was normal on palpation, with no tenderness noted in the larynx.

Stroboscopy showed a large supraglottic lesion; the airway and true vocal cords (TVC) were not visible. Flexible fibrolaryngoscopy revealed a large, smooth-surfaced mass in the supraglottic area with significant erythema. A well-defined margin, along with saliva pooling, was also noted. The bilateral vocal cords were not fully visible and were likely impaired in mobility. Bulging and edema were observed in the right pyriform sinus. The upper airway, arytenoid, and aryepiglottic fold were not visible (Figure 1). Computed tomography (CT Scan) with contrast from the skull base to the thorax revealed a well-defined, homogeneous enhancing lesion involving the suprahyoid and supraglottis regions, measuring 36x25x34 mm (AP*TR*CC). Hypertrophy of the adenoid tissue and the palatine tonsils was noticeable. Multiple bilateral cervical and superior mediastinal adenopaties were seen, the largest was on zone 4 right side with a size of 25*18 mm. There was no evidence of involvement of the prevertebral space or erosion of the vertebrae posteriorly. According to this finding (Figure 2).

Enhanced magnetic resonance imaging (MRI) of the neck revealed a well-defined enhancing mass with high SI on T2 and iso at T1 in the supraglottic area. Measuring about 37*24*32 mm. Multiple bilateral cervical and superior mediastinal adenopaties were seen, the largest was on the zone 4 right side with a size of 27*18 mm. Hypertrophy of bilateral adenoid tissue and palatine tonsil was noted. Differential diagnosis based on imaging included lymphoma and SCC. The chest X-ray and blood count were unremarkable. No viral infection was detected during immunologic screening. The definitive diagnosis implied histological characterization; therefore, the patient was referred for biopsy 2 weeks after admission. The biopsy was done under sedation in the operating room.

Postoperative immunohistochemistry (IHC) results revealed cells with morphology suggestive of malignancy. Squamous-lined mucosa infiltrated by sheets of intermediate- to large-sized lymphoid cells with vesicular nuclei and prominent nucleoli was seen (Figure 3). IHC was diffusely positive for CD20. (Figure 4) and the Ki-67 proliferative index was about 40% (Figure 5). CD 3, 10, 15, 30, AE1/AE3, MUM1, BCL6, and TdT were negative. The diagnosis of diffuse large B-cell lymphoma (DLBCL), NOS, non-germinal center type lymphoma was confirmed. Following the oncology team's decision, based on NCCN (National Comprehensive Cancer Network) and ESMO (European Society for Medical Oncology) recommendation, the patient underwent chemotherapy with the R-CHOP regimen (rituximab 375 mg/m² IV (day 1), cyclophosphamide 750 mg/m² IV (day 1), doxorubicin 50 mg/m² IV (day 1), vincristine 1.4 mg/m² IV (max 2 mg, day 1), and oral prednisone 100 mg on days 1–5. (Cycles were repeated every 21 days. Baseline assessment included CBC, renal/hepatic tests, LDH, hepatitis B screening, and cardiac evaluation. Afterward, ISRT with 30-36 Gy in 20 fractions of 1.8 Gy over 2 months was done. Post-treatment follow-ups were performed as recommended in the NCCN/ESMO guidelines, including clinical examinations every 3-6 months for the first 2 years and every 6-12 months thereafter. PET CT imaging was not clinically indicated in our patient. After treatment completion and a 2-year follow-up, the patient had no new lesions and showed improved systemic condition, with no visible recurrence.

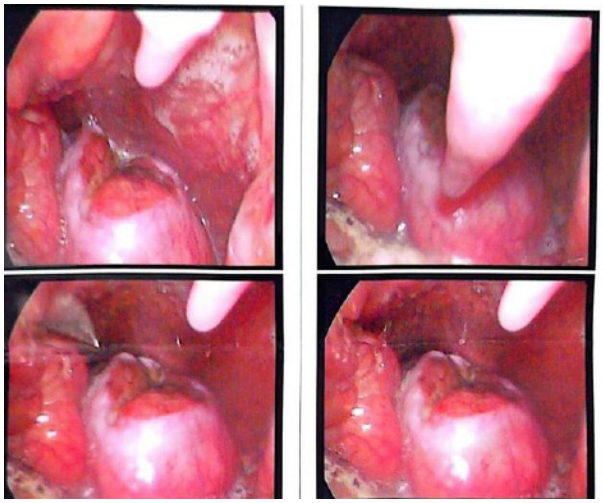

Figure 1. Fibrolaryngoscopy revealed a large, smooth-surfaced mass in the supraglottic area with significant erythema. The bilateral vocal cords were not fully visible and were likely impaired in mobility. Bulging and edema were observed in the right pyriform sinus.

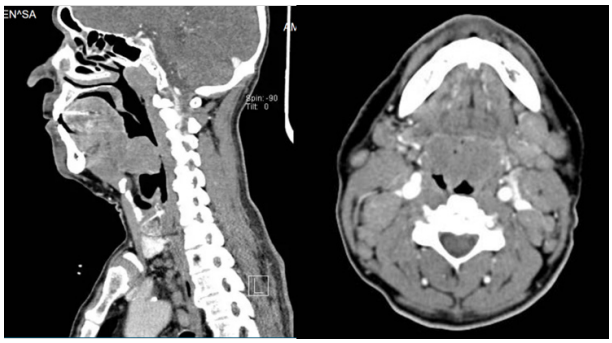

Figure 2. CT scan revealed a well-defined, homogeneous enhancing lesion involving the suprahyoid and supraglottic regions. Hypertrophy of the adenoid tissue and the palatine tonsils was noticeable. Multiple bilateral cervical and superior mediastinal adenopathies were seen. There was no evidence of involvement of the prevertebral space or erosion of the vertebrae posteriorly.

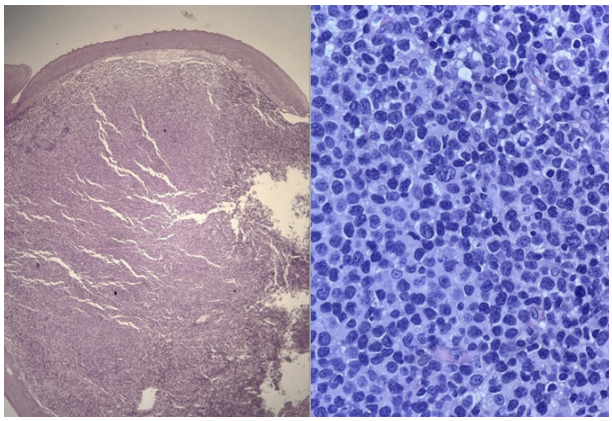

Figure 3. Histopathology (magnification x40 & x400) revealed Squamous-lined mucosa infiltrated by sheets of intermediate- to large-sized lymphoid cells with vesicular nuclei and prominent nucleoli.

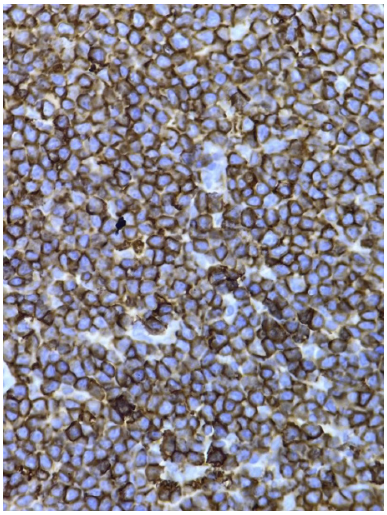

Figure 4. Ihc diffuse positive for CD20.

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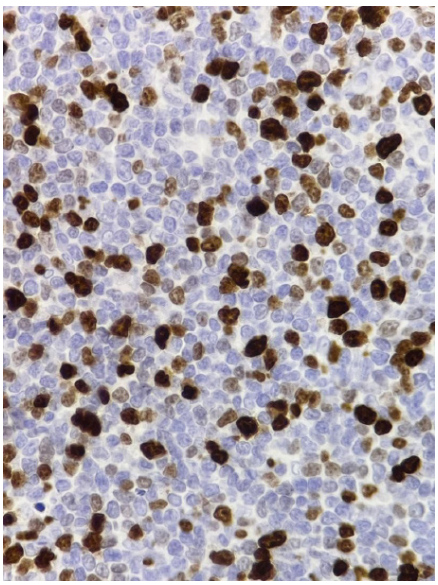

Figure 5. The Ki-67 proliferative index was about 40%.

Discussion

Primary DLBCL of the larynx is a rare form of NHL that should be ruled out in all supraglottic masses, as it has a unique clinical presentation and management compared to other laryngeal malignancies, such as squamous cell carcinoma, adenocarcinoma, MALToma, extramedullary plasmacytoma, and sarcomas [1]. The primary involvement of the larynx is an unusual occurrence. In contrast, the most common extranodal sites for NHL include Waldeyer's ring, ocular adnexal structures, nasal cavity, paranasal sinuses, nasopharynx, thyroid gland, and salivary glands.DLBCL predominantly affects the supraglottic area due to the presence of lymphoid tissue in the region [6,7].

DLBCL usually occurs around the seventh decade, whereas in this case, the patient was slightly younger. There is no difference in distribution between males and females [8-10], although Liao et al. and Saadoun et al. show a higher incidence in men than in women [5,8]. Inconclusive symptoms of laryngeal lymphoma make the diagnosis challenging; these symptoms include dysphonia, dysphagia, voice change, hoarseness, dyspnea, cervical lymphadenopathy, and other systemic symptoms, such as weight loss and fever, which may also be present [1,5]. This lack of specificity in the symptoms should be taken into account when dealing with an unknown cervical or oral mass. In our case, the patient only presented dysphonia, hoarseness, odynophagia, and mild dyspnea, which could easily lead to misdiagnosis. Previous case reports of laryngeal lymphoma often report a sign of malignancy. Prithviraj et al. reported an unexplained weight loss, intermittent history of fever, and night sweats [9]. Lombo et al. reported night sweats and weight loss [2], and Varghese et al. reported weight loss [10] wherase in our case, there was no sign of malignancy. The association of DLBCL with Epstein-Barr virus infection, methotrexate therapy in rheumatoid arthritis patients, HIV infection, and chronic hepatitis B has been reported previously [11,12]. Lombo et al. reported a laryngeal lymphoma initiated after viral infection [2]. Our patient didn't have any of the above associations, and EBV was also negative, making the diagnosis even more challenging. Upon presenting nonspecific symptoms or a known cause of laryngeal lymphoma, a combination of clinical, radiological, and histopathological evaluations is needed for diagnosis [2]. Imaging techniques, such as CT and MRI, play a critical role in the diagnostic process [13]. In our case, both CT and MRI imaging suggested malignancy and required further evaluation. The final diagnosis was confirmed by biopsy. As a rare condition, the WHO has Ann Arbor staging for lymphomas, but there is currently no guideline available for the treatment [2,14]. Surgery is only necessary in cases of life-threatening airway obstruction. In general, most cases can be managed non-surgically with chemotherapy or radiotherapy, as laryngeal lymphomas typically do not progress significantly and tend to remain localized for long periods [1,15]. The chosen treatment plan depends on the patient's overall health, tumor stage, and airway condition. In contrast, in our case, chemotherapy with the R-CHOP regimen (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) was selected and proved effective.

Conclusion

Overall, this case emphasizes the importance of considering rare malignancies in patients with nonspecific laryngeal symptoms. This case also highlights the importance of a comprehensive diagnostic workup, including flexible laryngoscopy, stroboscopy, biopsy, and histological examination, even when symptoms are more commonly associated with benign conditions. Time is a crucial factor in the management of laryngeal lymphoma, as the prognosis differs significantly. Early diagnosis with appropriate treatment may greatly improve patients' prognosis.

Conflict of Interest

There is no conflict of interest to declare.

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