NON-HODGKIN LYMPHOMA PRESENTING AS A BASE OF TONGUE MASS: CLINICOPATHOLOGICAL STUDY

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Abstract

Background: Non-Hodgkin's lymphoma (NHL) rarely occurs in the base of tongue. The aim of the study was to investigate the clinicopathological findings in patients with base-of-tongue NHL.

Methods: The computerized files of 10 patients with primary NHL in the base of the tongue from 1997 to 2007 at a major tertiary medical center were reviewed.

Results: There are three females and seven males aged 17 to 93 years (mean 62.5 years). Patients complained of dysphagia, dyspnea, and bleeding in the mouth. A mass in the base of the tongue was detected in all patients by rigid or flexible laryngeal endoscopy, with posterior displacement of the epiglottis in six patients. The diagnosis was confirmed by histological study, which revealed diffuse large B-cell lymphoma in eight patients, and peripheral T-cell lymphoma in two patients.

Conclusion: Although NHL of the base of the tongue is rare, it should be considered in the differential diagnosis of base of the tongue mass.

Introduction

Studies have shown that in the United States, 5-10% of all cases of primary or secondary non-Hodgkin's lymphoma (NHL) occur in Waldeyer's ring, which includes the palatine tonsils, lymphoid tissue of the nasopharynx, soft palate, and base of the tongue [1, 2]. In Europe, higher rates of 30 to 50% were reported in several case series. The difference may be attributable to the European practice of routine biopsy on findings of Waldeyer's ring in all patients with NHL, or to unique peripheral patterns, or to the possible influence of specific etiologic or environmental factors [1, 3, 4]. Approximately one-third of all cases of NHL arises in tissues other than the lymph nodes and is collectively termed extra nodular lymphomas [5, 6].
Within Waldeyer’s ring, the tonsil is the site most frequently affected (40% to 79% of all primary lesions). Findings of primary NHL in the base of tongue, the soft palate, and multiple sites in oral cavity are less common [1, 7, 8]. Waldeyer’s ring shares many of the histopathological tendencies of the rest of mucosa-associated lymphoid tissue (MALT), such as a high frequency of diffuse large B-cell lymphoma (DLBCL) and relative rarity of follicular lymphoma in spite of its rich endowment of reactive lymphoid follicles [9].

Clinically, tonsillar and base-of-tongue lesions usually present as sore throat and dyspnea, whereas nasopharyngeal lymphomas are usually associated with nasal, auditory, and cranial nerve symptoms. In the study of Batuccas Caletrio et al. [10], performed in 2005, cervical lymphadenopathy was the most frequent symptom of NHL of Waldeyer’s ring.

Lingual tonsil hypertrophy is usually caused by compensatory hyperplasia following tonsillectomy. However, when it is associated with progressive dyspnea and/or dysphagia and a firm, nontender exophytic or polypoid lesion, tumor should be suspected. Histological study is necessary to rule out malignancy, and imaging studies, either computed tomography (CT) or magnetic resonance imaging (MRI), is necessary to evaluate the laryngeal extension of the mass [11].

The aim of the present study was to investigate the clinicopathological findings in patients with primary NHL in the base of the tongue who were diagnosed and treated at our center over a nine-year period.

Materials and Methods

Our review of the computerized files of the Department of Otolaryngology and Head and Neck Surgery of Rabin Medical Center from 1997 to 2007 yielded ten patients treated for NHL of the base of the tongue. Data on their background features, presenting symptoms and signs, method of diagnosis, and outcome were recorded.

Results

The clinical data are shown in Table 1. There were seven male and three female patients aged 17 to 93 years. Three patients had previously undergone palatine tonsillectomy. The presenting symptoms were dysphagia, dyspnea especially in the supine position, bleeding in the mouth, and neck mass (one patient). Ultrasound of the neck was performed in five patients to rule out neck mass, and thyroid scan was performed in three patients to rule out thyroid tissue in the base of the tongue. Physical examination by palpation and indirect endoscopy revealed enlargement of the lingual tonsils; direct rigid laryngeal endoscopy revealed a base-of-the-tongue mass measuring up to 4.5x4.5 cm in diameter, displacing the epiglottis posterior in six patients (Fig. 1). Head and neck CT, performed in three patients, and MRI, performed in one, showed a mass in the base of the tongue, narrowing the airway, without laryngeal extension (Figs. 2, 3).

Treatment consisted of chemotherapy, radiotherapy or their combination. All patients showed complete remission throughout follow-up of up to nine years.

Histological examination

All patients underwent biopsy of the primary lesion; the patient with a neck mass also underwent fine needle aspiration (FNA). The excisional biopsy was done endoscopically (laser endoscopy in three cases). One patient required multiple (4) biopsies before the diagnosis was confirmed. Biopsy specimens were fixed in formalin and embedded in paraffin for examination with conventional hematoxylin-eosin stain.

All specimens underwent immunohistochemical analysis for pan-B markers CD20, CD79A, Bcl2, LN1 (CD75) and LN2 (CD74), and stains for Epstein-Barr virus (EBV) and expression of T-cell-associated antigens (CD3, CD43, and CD45RO).
Histological examination revealed diffuse large B-cell lymphoma (DLBCL) in eight patients. The mass replaced the normal architecture in a diffuse pattern. Medium-to-large transformed lymphoid cells were identified, most with lobulated nuclei with two to four nucleoli; in two cases, a single nucleolus with a more “immunoblastic” appearance was observed. All specimens expressed pan-B markers CD20 and CD79A. One sample was characterized by a mild nodular pattern and immunohistochemical positivity for Bcl2, LN1 (CD75), and LN2 (CD74). A possible origin of the follicular center cell was suggested. In a specimen from another patient (the youngest in the series, 17 years old) numerous “tangible body macrophages” and a high apoptosis count were observed; the tentative diagnosis was “atypical Burkitt lymphoma”. All specimens showed proliferative indexes of 80-90%, and all were negative for EBV.

The other two patients were diagnosed with peripheral T-cell lymphoma on histological analysis. The mass presented as diffuse infiltrates with a more heterogeneous population than DLBCL and predominance of medium- to large cells. The nuclei were irregular, convoluted, and vesicular, with prominent nucleoli. There was a background of plasma cells, histiocytes, and eosinophils. Some reactive lymphoid follicles were noted at the periphery of the lesion with a proliferation of post-capillary venules and marked fibrosis. The specimens from both patients were positive for the T-cell-associated antigens CD3, CD43, and CD45RO and negative for EBV. The proliferative index was about 35%, predominantly in the large cells.

**Discussion**

We describe the clinicopathological findings in ten patients with NHL of the base of the tongue who attended our department over a nine-year period.

NHLs are the most frequent nonepithelial neoplasms of the head and neck area [12]. There are no oral pathognomonic signs or symptoms [13, 14, 15,16]. NHL in the base of the tongue may occur primarily or secondary to disseminated disease [1]. Because the tongue is superficially located, most lingual lesions can be easily accessed and diagnosed without imaging analysis. However, some may arise in the deep portion of the tongue and manifest as a submucosal bulge, and cross-sectional imaging studies are necessary to identify their true characteristics and extent [17]. In the present study, a mass was demonstrated on plain soft-tissue films of the neck and base of the tongue. Head and neck CT was performed in three patients to evaluate the extent of local disease.

One patient had an unusual presentation of massive oropharyngeal hemorrhage originating from lymphoma of the Waldeyer's ring, as described by Turner and Zitsch [18].

In 2001, Daskalopoulou et al. [19] diagnosed lymphoma of Waldeyer's ring in 17 patients using FNA. However, in two cases, a difference in the specific type of lymphoma was noted histologically.

In patients complaining of progressive dyspnea, the examination of the base of the tongue should be preceded by identification of the airway. If the airway cannot be identified and the patient is in respiratory distress, the clinician should consult with an anesthesiologist before attempting surgical intervention. We recommend doing diagnostic biopsy, not FNA. Sometimes multiple biopsies are needed, as in one patient in our series.

The similar clinical presentation of lymphoma and carcinoma in Waldeyer's ring makes the histological examination essential for proper diagnosis. Indeed, both types of tumor may present as a neck mass [20], which occurred in one of our patients as well.

DLBCL is the most common type of NHL in western countries, representing approximately 30% of all cases of NHL. One third to one fourth of all DLBCLs has a primary extranodal origin [5]. DLBCL was the most common histological diagnosis in the present series (8 patients), in agreement with previous studies [2-4].
ARTICOL ORIGINAL

Regarding background characteristics, Waldeyer's ring lymphoma is recognized as a disease of older patients, with >80% aged 50 years or more [4, 20], with a male predominance [1]. Accordingly, in the present series, all patients but two were aged over 50 years, and 7 of the 10 were men (66.6%).

In conclusion, patients with a suspected tumor in the base of the tongue accompanied by dysphagia and/or progressive dyspnea, especially in the supine position, should also undergo complete work-up for malignant lymphoma. Although NHL of the base of the tongue is uncommon, it should not be overlooked. It occurs more often in older patients (>50 years), but has been reported in younger ones as well. Diagnostic tests include digital palpation of the mass if possible, indirect or direct fibrotic laryngoscopy, and neck ultrasound to rule out neck masses and to demonstrate the location of the thyroid gland, thyroid scan when lingual thyroid is suspected, and CT or MRI of the laryngopharynx to evaluate the extension of the mass. Histopathological examination is crucial to confirm the diagnosis; sometimes multiple biopsy specimens are needed.