# Lymphomas of Waldeyer's ring: Clinical features, management and prognosis of eleven adult patients

*Waldeyer halkası lenfomaları: Onbir erişkin hastanın klinik özellikleri, tedavi ve prognozu*

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## *Abstract*

Lymphoma is the second most common neoplasm of the head and neck after squamous carcinoma. The majority of lymphomas involving the head and neck are non-hodgkin's lymphomas. Hodgkin's lymphoma is rare in Waldeyer's ring. Between 1999 and 2006, the medical records and pathology data of all newly diagnosed, previously untreated adult patients with Waldeyer's ring lymphomas were retrospectively reviewed. Pathologic specimens were adopted according to WHO histologic classification. All patients were clinically staged with history and physical examination, routine hematologic and biochemical profiles, chest X-ray, and computerized tomography of the head and neck, chest, abdomen and pelvis. All patients were treated with chemotherapy. Approximately one month after the end of the scheduled initial management, patients were restaged for evidence of residual disease with physical examination, laboratory profiles and relevant radiologic studies. Total patient number was 11 in our institution. Complete remission was achieved in 6 patients and partial remission in 3 patients; 1 patient did not achieve remission and 1 patient with anaplastic large cell lymphoma died. Patients who are alive are still being followed in our institution. The progression of patients with lymphoma is closely associated with the diagnosis, stage and histologic grade of the disease. This series characterized the clinicopathologic features and outcomes of adult patients. Our data have shown that there is relatively good survival in these diseases but more patients must be evaluated for meaningful results. *(Turk J Hematol 2008; 25: 75-8)*

**Key words:** Waldeyer's ring, non–hodgkin's lymphoma, hodgkin's lymphoma.

## *Özet*

Lenfoma, yassı hücreli karsinomadan sonra boyun bölgesinin en sık görülen ikinci tümörleridir. Baş ve boyun bölgesini tutan lenfomaların çoğu non – hodgkin lenfomalardır. Hodgkin lenfomalar Waldeyer halkasında nadirdir. 1999 ve 2006 tarihleri arasındaki tıbbi ve patolojik kayıtlarımızdan daha önce tedavi almamış, yeni tanılı Waldeyer halkası lenfomalı erişkin hastaların bilgilerini geriye yönelik olarak gözden geçirdik. Patolojik örnekler Dünya Sağlık Örgütü (WHO ) histolojik sınıflandırmasına göre uyarlandı. Tüm hastalar hikaye ve fizik muayene, rutin hematolojik ve biyokimyasal tetkikler, göğüs röntgeni, baş – boyun, göğüs, karın ve pelvik tomografilerle evrelendirildi. Hastalar tedavi şemasının bitiminden yaklaşık bir ay sonra hastalık kalıntıları açısından tekrar evrelendirildi. Bölümümüze kayıtlı toplam 11 hasta vardı. Altı hastada tam yanıta, üç hastada kısmi yanıta ulaşıldı. Bir hastada yanıt sağlanamadı. Anaplastik büyük hücreli lenfoması olan bir hasta tedavisi sürerken kaybedildi. On hastamız halen polikliniğimizin takibindedir. Lenfoma hastalarının seyirleri hastalığın evresi ve histolojik türü ile yakın ilişkilidir. Burada erişkin hastalarımızın klinikopatolojik özellikleri ve sonuçları özetlenmiştir. Bu hastalıktaki verilerimiz sağkalımın nispeten iyi olduğunu göstermektedir. Sonuçların anlamlı olabilmesi için daha fazla hastanın değerlendirilmesi gereklidir. *(Turk J Hematol 2008; 25: 75-8)*

**Anahtar kelimeler:** Waldeyer halkası, non-hodgkin lenfoma, hodgkin lenfoma

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## Introduction

Lymphomas are subdivided into Hodgkin's lymphoma (HL) and non-Hodgkin's lymphoma (NHL), and are more specifically classified into subtypes of HL or NHL according to the World Health Organization (WHO) classification. HLs involve the lymph nodes predominantly and only approximately 5% arise in extranodal sites, whereas 30% of NHLs present in extranodal sites. HLs are most commonly located in the lymph nodes of the neck and mediastinum. Lymphoma is the second most common neoplasm of the head and neck after squamous carcinoma. The majority of lymphomas involving the head and neck are NHLs (1).

Waldeyer's ring is a circular band of lymphoid tissue located at the opening of the respiratory and digestive tracts. NHLs of Waldeyer's ring have been well described and are often classified in a group of NHLs arising from mucosa-associated lymphoid tissues (MALT). It is known that more than half of all primary extranodal lymphomas of the head and neck occur in Waldeyer's ring. Moreover, it has been reported that Waldeyer's ring is the primary site of NHL involvement in approximately 5% to 10% of all lymphoma patients (2,3).

In NHLs of Waldeyer's ring, the tonsil is the most frequent site, accounting for 40% to 79% of all primary lesions, followed in frequency by the nasopharynx, whereas lymphomas arising from the base of tongue or soft palate or originating from multiple primary sites are less frequent (3,4).

In this study, we analyzed lymphoma patients with Waldeyer's ring involvement who were treated in our institution.

## Materials and Methods

Between 1999 and 2006, the medical records and pathology data of all newly diagnosed, previously untreated adult patients with Waldeyer's ring lymphomas were retrospectively reviewed. Pathologic specimens were adopted according to WHO histologic classification. All patients were clinically staged with history and physical examination, routine hematologic and biochemical profiles, chest X-ray, and computerized tomography of the head and neck, chest, abdomen and pelvis. Approximately one month after the end of the scheduled initial management, patients were restaged for evidence of residual disease with physical examination, laboratory profiles and relevant radiologic studies.

## Results

A search was made of the files of 176 patients with malignant lymphoma between 1999 and 2006. Of these patients, there were 43 patients with HL and 133 patients with NHL. A total of 11 patients with Waldeyer's ring lymphomas were seen in our institution. Table 1 describes patient and disease characteristics. There were six males and five females, with a male to female ratio of 1.2. The age range was 33 – 74 years (mean: 59.54 years). The median erythrocyte sedimentation rate (ESR) was 32 mm/h. ESR in seven patients was elevated above 20 mm/h. The mean lactate dehydrogenase (LDH) level was 231.09 IU/L, and LDH levels in four patients were higher than 243 IU/L, which is the reference limit. Based on Ann Arbor staging criteria, there were six patients in stage I, four patients in stage II, and one patient in stage III. No patient was determined as stage IV.

The most common histologic diagnosis was extranodal marginal zone B cell lymphoma of the MALT type, occurring in five patients. Four patients had diffuse large B cell lymphoma, one patient had lymphocyte-depleted HL and one patient had anaplastic large cell lymphoma according to WHO. All patients were treated with chemotherapy. One patient with diffuse large B cell lymphoma who received COP protocol also received radiation therapy. Five patients received cyclophosphamide, doxorubicin, vincristine, prednisolone, and rituximab (CHOP–R) protocol; two patients received cyclophosphamide, doxorubicin, vincristine, and prednisolone (CHOP) protocol; two patients received cyclophosphamide, vincristi-

**Table 1. Patient and disease characteristics**

| | |
|---|---|
| Total number | 11 |
| Age | |
| ≤ 60 y | 4 |
| > 60 y | 7 |
| Sex | |
| Male | 6 |
| Female | 5 |
| Primary site | |
| Tonsil | 6 |
| Nasopharynx | 2 |
| Base of the tongue | 2 |
| Parotis | 1 |
| Stage | |
| I | 6 |
| II | 4 |
| III | 1 |
| IV | |
| B symptoms (presence of any) | 4 |
| Performance status | |
| 0 – 1 | 9 |
| 2 | 1 |
| 3 | 1 |
| 4 | |
| Elevated baseline LDH | 4 |
| Low baseline serum albumin | 1 |

ne, and prednisolone (COP) protocol; one patient received cyclophosphamide, vincristine, prednisolone, and rituximab (COP-R) protocol; and one patient with HL received adriamycin, bleomycin, vinblastine and dacarbazine (ABVD) protocol. Complete remission was achieved six patients and partial remission in three patients; one patient did not achieve remission and one patient (9%) with anaplastic large cell lymphoma died. Two patients in partial remission were followed without treatment and the remaining patient in partial remission received radiation therapy. The mean follow-up period was 22 months. Patients who are alive are still being followed in our institution (Table 2).

## Discussion

Lymphoma is not a specific disease entity but represents a spectrum of malignant neoplasms arising from the lymphoid system. It is broadly categorized into HL, characterized by the presence of the Reed-Sternberg cell on histology, and NHL, which can be further subdivided into B cell and T cell types (4,5).

Hodgkin's lymphoma originates in lymph nodes and has a tendency for contiguous spread along lymph node chains. Extranodal disease is rare. NHL, however, is less predictable, with non-contiguous nodal spread and extranodal disease occurring in up to 33% of patients (4,5). Lymphomas account for approximately 5% of head and neck cancers (19). The neck is also the primary site of NHL in 10% of patients with up to 50% of these being extranodal, occurring mainly in Waldeyer's ring (up to about 5%). In contrast to NHL, HL uncommonly involves Waldeyer's ring. In these, cervical adenopathy is common (65–70%) (6,7). In our total of 176 patients with malignant lymphomas, there were 43 patients with HL and 133 patients with NHL. In these patients, there were 11 with Waldeyer's ring involvement. Waldeyer's ring involvement was detected in 2.3% of patients with HL and in 7.5% of patients with NHL. These results are in agreement with the literature (8). In most of the series, the male/female ratio of the major types of lymphoma is 1.4:1; in our patients the ratio was 1.2:1. The mean age of patients in the present series was 59.54 years, similar to those of other studies. The tonsil is the most common site of involvement (8). According to WHO, extranodal marginal zone B cell lymphomas of the MALT type accounted for 0-3.6%, diffuse large B cell lymphoma for 66–75%, and peripheral T/natural killer cell lymphoma for 6–19% of patients with Waldeyer's ring lymphoma; the percent of HL was not found (9). There were 45.4% with extranodal marginal zone B cell lymphoma of the MALT type, 36.3% with diffuse large B cell lymphoma, 9% with anaplastic large cell lymphoma and 9% with lymphocyte-depleted HL in our patients with Waldeyer's ring lymphoma. There results were different than those reported by WHO, and the reason for the discrepancy is not known. All patients were treated with combination chemotherapy; one patient received radiation therapy in addition to COP protocol. We preferred the combined systemic chemotherapy because radiation therapy was not available in our university during the study period. One patient died with anaplastic large cell lymphoma. Ninety percent of our patients were stage I – II, 36% had B symptoms, and 90% are still being followed in our institution. The progression of patients with lymphoma is closely associated with the diagnosis, stage and histologic grade of the disease. Waldeyer's ring is the primary site in lymphomas of the head and neck. The tonsil is the most common site in Waldeyer's ring. This series characterized the clinicopathologic features and outcomes of adult patients. Our data showed that there is relatively good survival in these diseases but more patients must be evaluated for meaningful results.

**Table 2. Primary site, histology, stage, treatment and response characteristics in patients**

| Patients | Primary site | Histology | Stage | Treatment protocol | Response |
|---|---|---|---|---|---|
| 1 | Base of tongue | DLBCL | I | CHOP – R | CR |
| 2 | Tonsil | DLBCL | I | CHOP – R | CR |
| 3 | Nasopharynx | MALTOMA | III | COP – R | CR |
| 4 | Tonsil | ALCL | II | COP | Exitus |
| 5 | Tonsil | DLBCL | I | COP + RT | PR |
| 6 | Parotis | MALTOMA | I | CHOP – R | CR |
| 7 | Base of tongue | LD – HL | II | ABVD | PR |
| 8 | Nasopharynx | MALTOMA | II | CHOP – R | NR |
| 9 | Tonsil | MALTOMA | I | CHOP | CR |
| 10 | Tonsil | MALTOMA | II | CHOP | PR |
| 11 | Tonsil | DLBCL | I | CHOP - R | CR |

DLBCL: Diffuse large B cell lymphoma. MALTOMA: Extranodal marginal zone B cell lymphoma of the MALT type. ALCL: Anaplastic large cell lymphoma. LD–HL: Lymphocyte-depleted type Hodgkin's lymphoma. CHOP: Cyclophosphamide, doxorubicin, vincristine, prednisolone. R: Rituximab. COP: Cyclophosphamide, vincristine, prednisolone. ABVD: Adriamycin, bleomycin, vinblastine, dacarbazine. RT: Radiotherapy, CR: Complete remission, PR: Partial remission. NR: Non-response.

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