

Gum hypertrophy - an unusual presenting feature in a case of precursor T-cell acute lymphoblastic leukemia

Diş eti hipertrofisi ile giden bir prekürsör T hücreli akut lenfoblastik lösemi olgusu

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Abstract

Acute lymphoblastic leukemia/lymphoma, the malignant transformation of T-cell or B-cell precursors, is the most common diagnosis in pediatric oncology. Precursor T-cell acute lymphoblastic leukemia/lymphoma commonly affects adolescents, and is associated with mediastinal mass in over half of the cases, with early dissemination to bone marrow, gonads and the central nervous system. We present a rare case of precursor T-cell acute lymphoblastic leukemia/lymphoma with initial oral manifestation, presenting with the unusual features of gum hypertrophy and involvement of upper jaw and palate in a 10-year-old boy. This report discusses the clinical presentation, histopathologic and immunologic features, and diagnosis of this malignancy. (*Turk J Hematol 2008; 25: 201-4*)

Key words: Precursor T-ALL, gum, jaw, oral cavity

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Özet

T veya B hücre öncüllerinin malin transformasyonu sonucu oluşan akut lenfoblastik lösemi/lenfoma pediatrik onkolojinin en sık rastlanılan hastalığıdır. Prekürsör T hücreli akut lenfoblastik lösemi/lenfoma sıklıkla adölesan çağda görülür; olguların yarısından çoğunda mediastinal kütle ve buna eşlik eden kemik iliği, gonad ve merkezi sinir sistemi tutulumu mevcuttur. Bu yazıda, 10 yaşında bir erkek çocukta dişeti hipertrofisi, üst çene kemiği ve damak tutulumu ile ortaya çıkan nadir bir öncül T hücreli akut lenfoblastik lösemi/lenfoma olgusu sunulmaktadır. Olgu vasıtasıyla bu malinitenin klinik bulguları, histopatolojik ve immünolojik özellikleri ve ayırıcı tanısı tartışılmıştır.

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Anahtar kelimeler: Prekürsör T-ALL, diş eti, çene, ağız içi boşluğu.

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Introduction

Acute lymphoblastic leukemia (ALL) is the commonest pediatric hematological malignancy. Precursor T-cell ALL/lymphoma accounts for 15% of ALL and 80%-90%

of lymphomas in the pediatric age group. It is commonly seen in adolescent males, often with a high total leukocyte count, and mediastinal mass in over half the cases [1]. Other well-known sites of involvement at presentation are the lymph nodes, skin, liver, spleen, bone, nasophar-

ynx and gonads [2]. Though involvement of the oral cavity, jaws and the gums is a well-known finding in Burkitt and other B-cell lymphomas and acute myelomonocytic leukemias, it is a very rare finding as a presenting feature in precursor T-cell acute lymphoblastic leukemia (T-ALL), with only three documented cases in the world literature. We report a rare case of precursor T-ALL in a 10-year-old boy who presented with swelling of the gums, upper jaw and palate.

Case Report

A 10-year-old boy presented with painless swelling of the upper jaw and gums, with gradual increase in size over two months, with history of difficulty in swallowing and inability to close the mouth. He was admitted to a dental health care center, where a biopsy of the gums was done. He was referred to our hospital, which is a tertiary care center for oncology, with a diagnosis of non-Hodgkin lymphoma involving the gum.

On examination, the child was moderately built and poorly nourished, and showed marked swelling of the gums with swelling of both maxillae (Figure 1). Swelling of the palate on the right side was also noted (Figure 2). There was moderate



Figure 1. Photograph of the child shows swollen gums



Figure 2. Photograph shows swelling on the right palate

enlargement of bilateral cervical lymph nodes and mild enlargement of the axillary lymph nodes. X-ray of the chest was normal. Abdominal ultrasound showed mild hepatosplenomegaly and mild bilateral renal enlargement. Complete blood count showed hemoglobin of 105 g/L, total leukocyte count of 25×10^9 cells/L and platelet count of 50×10^9 /L with a differential count of 10% blasts, 43% neutrophils, and 47% lymphocytes in the peripheral smear. Bone marrow aspiration revealed a hypercellular marrow with blasts forming 90% of the nucleated marrow cells, with a marked decrease in the normal hemopoietic cells. The blasts showed round to irregular nuclei with coarse chromatin, inconspicuous nucleoli and scanty cytoplasm (Figure 3A). Cytochemical stains for myeloperoxidase (MPO) and periodic acid Schiff (PAS) reagent were both negative. Meanwhile, the slides and paraffin blocks of the previous gum biopsy were obtained for review, which showed dense monotonous infiltrates by blasts, with round nuclei and scanty cytoplasm in the subepithelium of the gum with frequent mitoses. Focally, there was infiltration of the overlying epithelium, with groups of blasts lying within the squamous epithelium (Figure 3B). Immunohistochemistry done on the gum biopsy showed the neoplastic cells strongly expressing leukocyte common antigen (LCA), CD3 (Figure 3C), terminal deoxynucleotidyl transferase (TdT) (Figure 3D), and CD5. The tumor cells were negative for CD20, MPO, CD68 and desmin. Trepine biopsy of the marrow showed markedly hypercellular marrow with replacement of the normal marrow by blasts. The bone marrow blasts showed precursor T-cell immunophenotype with expression of TdT, CD3 and CD5, and they were negative for MPO, CD20, and CD68.

Cytogenetic analysis of the marrow aspirate was also done, which showed the karyotype, 46 XY del (6)q(25). Cerebrospinal fluid analysis was negative for malignant cells. Serum uric acid was increased to 11.9 mg/dl (normal: 3.4 to 7 mg/dl) and serum lactate dehydrogenase (LDH) was increased to 11,000 U/L (normal: 240 to 480 U/L). Liver function tests were normal.

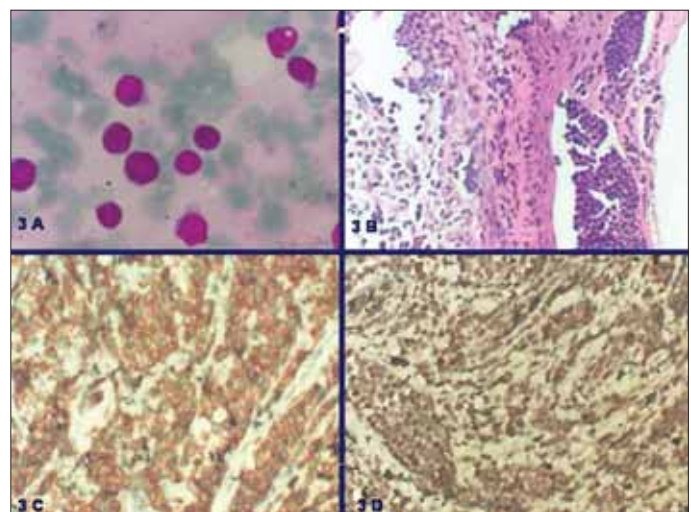


Figure 3. a) Bone marrow aspiration shows sheets of lymphoblasts (Wright's stain X1000) b) Biopsy from the gum shows intraepithelial cluster of neoplastic cells and infiltration into the subepithelium (hematoxylin and eosin X400) c) Neoplastic cells show positive staining for CD3 (immunoperoxidase stain, ABC technique, X400) d) Neoplastic cells show nuclear positivity for TdT (immunoperoxidase stain, ABC technique, X400)

Correlating the hematological, histological and immunohistochemical findings, a diagnosis of precursor T-ALL with involvement of the gum and upper jaw was made. The patient was treated with the standard protocol for ALL, and he attained complete remission after induction therapy with marked reduction in the gum swelling.

Discussion

We report a rare case of precursor T-ALL, with predominant involvement of the gum, maxilla and palate at presentation. To the best of our knowledge, this is only the fourth such case to be reported in the world literature.

Involvement of the oral cavity and jaws by lympho-hemopoietic malignancies is a well-known finding. According to a large study by Epstein et al. [3], lymphomas form the most frequent nonepithelial malignancies in the oral cavity and maxillofacial region, the majority of them arising from B lymphocytes. In a study of 40 cases of primary non-Hodgkin lymphomas of the oral cavity by van der Waal et al. [4], all cases were of the B cell type. Yin et al. [5], in a study of 34 cases of primary non-Hodgkin lymphomas of the oral cavity, found 27 cases of B-cell lymphoma, 3 cases of T-cell lymphoma and 4 cases of NK/T-cell lymphoma. In children, the most common non-Hodgkin lymphomas are lymphoblastic lymphoma, Burkitt lymphoma and large cell lymphomas, including immunoblastic and anaplastic large cell lymphomas [6]. Gum and jaw infiltration is also very commonly seen in acute myeloblastic leukemias with monocytic differentiation [7] and in Burkitt lymphomas [8]. Involvement of the oral cavity by either B-cell or T-cell lymphoblastic lymphomas is very rare. T-cell lymphoblastic lymphoma is the most common type of lymphoblastic lymphoma. T lymphoblastic leukemia/lymphoma, a high-grade neoplasm arising from precursor T lymphocytes affecting adolescents and young adults, with small to medium sized blasts with irregular nuclear contour, coarse chromatin and inconspicuous nucleoli, presents with a mediastinal mass in 50% of cases; other well-established sites of involvement include the lymph nodes, skin, bone, nasopharynx, gonads, liver and spleen [2]. T lymphocytes are known to home to sites like skin and mucosae. Results emerging from the investigations of homing receptors and adhesion molecules on T lymphocytes will help us understand the recirculating pathways of malignant T-cells to lymphoid organs and extra nodal sites [9]. A literature survey showed only three documented cases of T lymphoblastic leukemia/lymphoma involving the jaws and oral cavity [10-12]. Cox et al. [13] reported a single case of B lymphoblastic lymphoma involving the oral cavity in a 46-year-old female. Karimi and Eshghi [10] from Iran reported a case of T-cell lymphoblastic leukemia/lymphoma in a six-year-old child with huge enlargement of the maxilla and mandible, and Wolvius et al. [11] reported a case of T-cell ALL in an 18-month-old child with initial oral presentation. Oliver et al. [12] reported the case of a two-year-old child with Down's syndrome with jaw involvement showing Burkitt-like cytomorphological features, but immunophenotypically they were of the T-cell type. In the present case, a 10-year-old boy presented with chief complaints of

swelling of the gum and upper jaw. A diagnosis of precursor T-ALL involving the gum, palate and upper jaw was made, based on the morphology and immunophenotype of bone marrow blasts, and the histological and immunohistochemical findings in the gum biopsy. The neoplastic cells were negative for MPO and CD68, excluding acute myelomonocytic leukemias. Burkitt lymphoma was ruled out as the blasts were negative for the B-cell marker CD20, and the typical t(8;14) translocation was absent. The presence of the cytogenetic marker 6q deletion was an additional feature in the diagnosis of ALL, which is seen in about 11% of ALL [14].

In conclusion, we report a rare case of T lymphoblastic leukemia/lymphoma with involvement of gums and maxilla as the chief presenting complaint. Though rare, T-ALL should be included in the differential diagnosis of lymphomas and leukemias infiltrating the oral cavity and gums, as these neoplasms show excellent response to the current chemotherapeutic regimens [15].

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