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Case Report

A Rare Cause Of Pediatric Bilateral Tonsil Hypertrophy: Lymphoma

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Abstract

Tonsillar malignancies are exceptionally rare in the pediatric population, with non-Hodgkin lymphoma being the most frequent type when they do occur. While asymmetric tonsillar enlargement and rapid growth are classic warning signs, bilateral involvement and atypical presentations are possible. We report the case of an 8-year-old boy who presented with bilateral grade 4 tonsillar hypertrophy, cryptic changes, and necrotic-appearing white plaques, but without constitutional symptoms or cervical lymphadenopathy. Despite empirical antibiotic therapy, symptoms persisted. Histopathological evaluation of a punch biopsy revealed diffuse large B-cell lymphoma, confirmed by immunohistochemistry. The patient was subsequently referred to pediatric oncology, where chemotherapy was initiated. This case highlights the necessity of maintaining suspicion for malignancy in pediatric patients with persistent tonsillar hypertrophy, even in the absence of asymmetry or classic risk factors. Early biopsy of suspicious tonsillar lesions is crucial for prompt diagnosis and initiation of appropriate therapy, potentially improving outcomes in this rare but aggressive disease.

Keywords: Lymphoma, Tonsillar Hypertrophy, Pediatrics

INTRODUCTION

Lymphoma is a malignancy arising from lymphoid tissues and organs, which may include lymphoid aggregates located on mucosal surfaces, skin, the gastrointestinal tract, airways, lymph nodes, thymus, or spleen. While most lymphomas originate in lymph nodes, a subset, termed extra-nodal lymphomas, arise from lymphoid tissues outside of lymph nodes (1). Tonsillectomy is one of the most commonly performed surgical procedures in otolaryngology, particularly in children. The primary indications for pediatric tonsillectomy are obstruction due to hypertrophy—accounting for approximately 75% of cases—and recurrent infection, which comprises about 25% (2). Among children undergoing tonsillectomy, lymphoma of the tonsil is exceedingly rare and typically leads to surgery for diagnostic clarification. Asymmetric tonsillar hypertrophy is the most frequent clinical suspicion prompting biopsy in such cases.

The pediatric patient described in this report was referred with bilateral tonsillar hypertrophy and cryptic tonsillitis resistant to medical therapy, ultimately diagnosed as diffuse large B-cell lymphoma on tonsillar biopsy. This rare presentation is discussed here in the context of current literature.

Case

An 8-year-old boy was admitted to our outpatient clinic with complaints of white spots on and around his markedly enlarged tonsils. His history revealed a one-month duration of persistent sensation of a foreign body in the throat, difficulty swallowing, breathing difficulties, and snoring, but notably, no fever. Despite receiving antibiotic therapy at an external center, his symptoms did not improve, prompting referral to the ENT clinic.

On examination, both tonsils were grade 4 hypertrophic according to the Brodsky scale. The medial and anterior surfaces of the tonsils exhibited irregular, deep, and wide crypts, and a large, irregular white plaque with a necrotic appearance was noted on the left tonsil (**Figure 1**). The patient did not experience pain on tongue depression. No cervical masses were palpable, and there was no evidence of peripheral lymphadenopathy, fever, or hepatosplenomegaly. The remainder of the physical examination was unremarkable, and complete blood

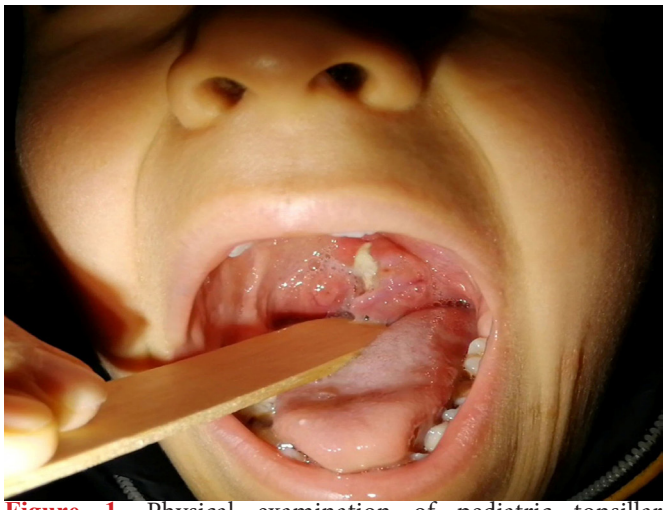

Figure 1. Physical examination of pediatric tonsillar lymphoma

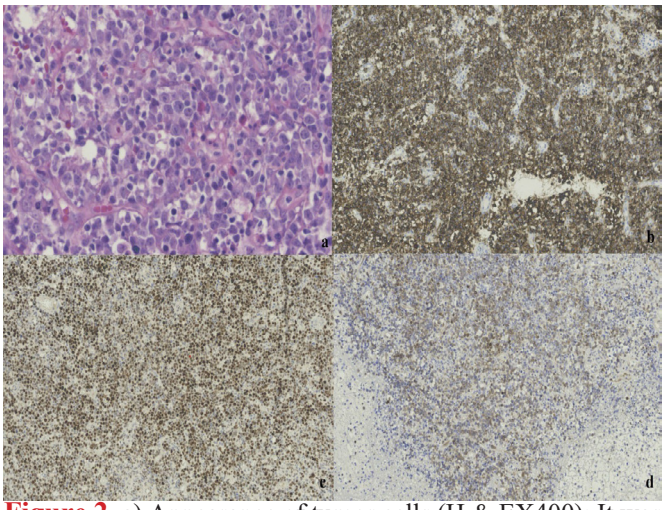

Figure 2. a) Appearance of tumor cells (H & EX400): It was seen that the tumor cells consisted of neutrophil leukocytes among the necrosis areas starting from the surface of the tissue, and basophilic large lymphoid cells among the tingible body macrophages with large nuclei, some single and some containing multiple nucleoli b,c,d) In immunohistochemical examination, lymphoid cells were stained positively with CD20, CD10, bcl-6, and stained focal positively with bcl-2. Negativity was observed with CD3, CD23, CD34, tdt, cyclin D1. Ki-67 proliferation index was 95%.

count and routine biochemistry were within normal limits.

Given the suspicious tonsillar findings, a punch biopsy was obtained from the left tonsil under local anesthesia. Histopathological analysis revealed tumor cells consisting of neutrophil leukocytes within necrotic areas starting from the tissue surface, as well as basophilic large lymphoid cells among tingible body macrophages, some with single and some with multiple nucleoli (**Figure 2**). Immunohistochemical staining demonstrated that the lymphoid cells were positive for CD20, CD10, and bcl-6, with focal positivity for bcl-2. Staining was negative for CD3, CD23, CD34, TdT, and cyclin D1. The Ki-67 proliferation index was 95%.

The patient was promptly referred to a pediatric oncology center, where further evaluation confirmed the diagnosis of diffuse large B-cell lymphoma, and chemotherapy was initiated.

DISCUSSION

Lymphoma is the third most common malignancy in childhood. Pediatric lymphomas are broadly classified into two main categories: Hodgkin's disease (HD) and non-Hodgkin lymphoma (NHL). While nearly all cases of HD originate from lymph nodes, NHL may arise from both nodal and extra-nodal sites. Notably, NHL accounts for approximately 60% of childhood lymphomas (1).

Among otolaryngological procedures, tonsillectomy is the most frequently performed surgery by ENT specialists in children. The primary indications include tonsillar hypertrophy, recurrent infections, obstructive sleep apnea syndrome, and asymmetric hypertrophy—often raising suspicion for malignancy (2).

Recent data indicate that the incidence of palatine tonsil cancer in the pediatric population is exceptionally low, at 0.021 per 100,000 children per year. Most cases present with unilateral hypertrophy (79.7%) and predominantly affect males. Non-Hodgkin lymphoma represents 84.1% of these malignancies, with Burkitt lymphoma (31.1%), diffuse large B-cell lymphoma (26.8%), and follicular lymphoma (10.1%) being the most common subtypes (3). Within Waldeyer's ring, non-Hodgkin lymphoma is the most prevalent pediatric malignancy, frequently manifesting as asymmetrical tonsillar hypertrophy. Guimarães et al. reported asymmetric tonsillar hypertrophy in 73.2% of pediatric lymphoma cases (4). In another study, 72.7% of children with lymphoma exhibited tonsillar enlargement, 30.3% had cervical lymphadenopathy, and 16% presented with B symptoms (5). Male sex has also been identified as a significant risk factor for malignancy, particularly non-Hodgkin lymphoma (6).

In our case, both tonsils were grade 4 hypertrophic, and there was no asymmetric enlargement, contrary to the most common clinical presentation described in the literature. Features that raised suspicion for malignancy included failure to respond to medical therapy, the presence of necrotic-appearing white plaques within large, deep, and irregular crypts on the medial tonsillar surfaces, and a painless examination. The patient's male sex also contributed to the clinical suspicion. Given these findings and the surgical risks associated with tonsillectomy in the setting of potential malignancy, a punch biopsy was preferred.

Lymphoma remains the most common head and neck cancer in children, with palatine tonsil asymmetry recognized as the typical manifestation of tonsillar lymphoma (7). However, several studies indicate that the association between tonsillar asymmetry and lymphoma

is not always straightforward. For example, Guimarães et al. found no lymphoma in a group of 13 children with asymmetric tonsils, and no significant difference in tonsil size compared to children without asymmetry (4,8). Clinical asymmetry may sometimes be attributable to variations in tonsillar fossa depth or the anatomy of the anterior tonsillar pillar (9).

Importantly, asymmetric palatine tonsil hypertrophy is often benign, with lymphoid hyperplasia commonly identified in postoperative histopathological analysis (10). In light of our findings and literature data, clinicians should consider not only the size difference between the tonsils but also any irregularities or suspicious features within the tonsil itself, such as those found on the medial surface. Clinical history and thorough examination should always guide decision-making.

Despite systematic reviews and meta-analyses, controlled or cohort studies evaluating the diagnostic value of clinical symptoms for pediatric tonsillar lymphoma are lacking due to the rarity of this condition. Nevertheless, the available evidence suggests a relationship between tonsillar asymmetry and lymphoma in children, albeit with a low absolute risk. For early diagnosis, children presenting with tonsillar asymmetry should be carefully evaluated, with further assessment for additional findings suggestive of lymphoma. If one or more of the following features are present, collaboration between ENT specialists and pediatricians is recommended:

1. One tonsil being two or more grades larger than the other (per Brodsky scale)
2. Asymmetrical or irregular surface on the medial aspect of the tonsil
3. Rapidly enlarging, painless tonsils
4. Associated cervical lymphadenopathy
5. Male sex

These criteria may help guide the early identification and management of tonsillar lymphoma in the pediatric population.

CONCLUSION

Although lymphoma is primarily managed with medical therapy, surgical intervention remains essential for both diagnosis and, in selected cases, treatment. Early initiation of appropriate therapy is critical given the rapid progression of this malignancy. Surgeons play a vital role in recognizing the clinical features of palatine tonsil lymphoma and should facilitate timely diagnosis by planning prompt biopsy procedures. Importantly, the surgical role extends beyond biopsy, but major surgical interventions should not delay the initiation of definitive medical treatment in a disease that relies on biopsy for diagnosis and responds best to early, targeted therapy.

DECLERATIONS

This case report was conducted in accordance with the ethical standards of human research and the principles set forth in the World Medical Association Declaration of Helsinki. Written informed consent was obtained from the patient's legal guardians for publication of the case details and accompanying images. All efforts have been made to ensure patient anonymity, and no identifying information has been disclosed.

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