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RESEARCH ARTICLE

Analysis of histopathological results of patients undergoing tonsillectomy and/or adenoidectomy

Tonsillektomi ve/veya adenoidektomi uygulanan hastaların histopatolojik sonuçlarının analizi

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Abstract

Aim: To analyze postoperative histopathological diagnoses of patients undergoing tonsillectomy and/or adenoidectomy and to identify preoperative characteristics associated with malignancy.

Methods: Histopathological reports of 2.223 patients (children and adults) who underwent tonsillectomy and/or adenoidectomy between 2013 and 2020 were retrospectively reviewed. All specimens were submitted for histopathological examination; no patients were excluded. Patients with diagnoses other than reactive lymphoid hyperplasia (RLH) were further evaluated for preoperative risk factors. Follow-up revealed no malignancy among those with RLH.

Results: A total of 1.908 adenoidectomies and 1.214 tonsillectomies were performed. 11 patients (8 men, 3 women) with diagnoses other than 'reactive lymphoid hyperplasia' were identified. The mean age was 64.3±15.0 years (range 45–91 years). In 10 of these patients, at least one of the preoperative findings of asymmetric tonsillar hypertrophy, tonsillar ulceration, or neck mass was present. Surgery was performed on these patients for biopsy due to clinical suspicion of malignancy. Incidental malignancy was detected in one patient. The histopathology result of this patient (62 years old, male), who underwent tonsillectomy and adenoidectomy for obstructive sleep apnea syndrome, was reported as 'suspicious for low-grade lymphoproliferative lesion.' This patient was diagnosed with chronic lymphocytic leukemia in further examinations. No malignancy was observed in any of the adenoidectomy specimens.

Conclusions: Tonsillar asymmetry, ulceration, and cervical mass are strong predictors of malignancy in adults. Incidental hematologic malignancy may also occur with symmetric hypertrophy. Routine histopathological examination is strongly recommended in adults for both clinical and medico-legal reasons. In children, selective histopathology may be acceptable due to negligible incidence and cost-effectiveness considerations.

Keywords: Tonsillectomy, adenoidectomy, surgery, histopathology.

Özet

Amaç: Bu çalışmanın amacı tonsillektomi ve/veya adenoidektomi uygulanmış erişkin ve çocuk hastaların postoperatif histopatolojik tanılarının analiz edilmesi ve malignite tanısı alan hastaların preoperatif özelliklerinin belirlenmesidir.

Yöntemler: Adenoidektomi ve/veya tonsillektomi uygulanmış toplam 2,223 hastanın postoperatif histopatolojik raporları incelenmiştir. Histopatolojik tanısı 'reaktif lenfoid hiperplazi' dışında rapor edilen hastaların preoperatif klinik bulguları retrospektif olarak incelenmiştir.

Bulgular: Toplamda 1,908 adenoidektomi ve 1,214 tonsillektomi uygulanmıştır. Tanısı 'reaktif lenfoid hiperplazi' dışında olan 11 hasta (8 erkek, 3 kadın) saptanmıştır. Yaş ortalamaları 64,3±15,0 (45–91 yaş aralığında) bulunmuştur. Bu hastaların 10'unda preoperatif olarak asimetrik tonsil hipertrofisi, tonsilde ülserasyon ve boyunda kitle bulgularından en az birinin mevcut olduğu bulunmuştur. Bu hastalara ameliyat klinik malignite şüphesi nedeniyle biyopsi amaçlı yapılmıştır. Bir hastada insidental malignite saptanmıştır. Obstrüktif uyku apne sendromu nedeniyle tonsillektomi ve adenoidektomi uygulanmış olan bu hastanın (62 yaş, erkek) histopatoloji sonucu 'düşük dereceli lenfoproliferatif lezyon şüphesi mevcut' olarak raporlanmıştır. Bu hasta ileri tetkiklerinde 'kronik lenfosittik lösemi' tanısı almıştır. Adenoidektomi spesmenlerinin hiçbirinde malignite izlenmemiştir.

Sonuç: Asimetrik tonsil hipertrofisi, tonsilde ülserasyon ve boyunda kitlenin varlığı malignite açısından önemli preoperatif klinik belirteçlerdir. Bunun yanında lenfoid doku infiltrasyonu yapan hematolojik hastalıklar simetrik tonsil hipertrofisi yapabilir ve tonsillektomi ile insidental tanı alabilir. Özellikle erişkinlerde rutin histopatolojik inceleme önerilir.

Anahtar Kelimeler: Tonsillektomi, adenoidektomi, cerrahi, histopatoloji.

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INTRODUCTION

The palatine tonsils and pharyngeal tonsils, located in Waldeyer's ring, are organs with significant immunological functions. Tonsillectomy and adenoidectomy, the excision of these tissues, are among the most commonly performed surgeries in otolaryngology practice (1). Chronic infections and obstructive symptoms are the primary indications for these surgeries. Tonsillectomy and/or adenoidectomy due to suspicion of malignancy are performed less frequently. Generally, a history of cancer, tonsillar asymmetry, irregularity, visible lesions, accompanying cervical lymphadenopathy, history of radiotherapy, immunodeficiency, unexpected weight loss, fatigue, night sweats, fever and loss of appetite are defined as risk factors for malignancy (2,3). The likelihood of occult malignancy in patients without preoperative risk factors is quite low, generally reported to be less than 1% (4–7). Therefore, the necessity of routine histopathological examination of resected materials in these patients is debated. Numerous studies suggest that routine histopathological examination in children has a low cost-benefit ratio (3,5,8–11). Nevertheless, many clinics prefer to send excised specimens for histopathological examination, possibly due to medico-legal concerns. Additionally, current clinical practice guidelines for tonsillectomy do not provide specific recommendations on this issue (1). Thus, there is no international consensus on this matter, indicating a need for new studies, particularly involving the adult population.

The aim of this study is to analyze the postoperative histopathological diagnoses of adult and pediatric patients who have undergone tonsillectomy and/or adenoidectomy and to determine the preoperative characteristics of patients diagnosed with malignancy.

METHODS

Ethical approval for this study was obtained from the Clinical Research Ethics Committee of the Derince Training and Research Hospital, University of Health Sciences, on 25.06.2020, with decision number 2020/79.

Between 2013 and 2020, the postoperative histopathological reports of a total of 2223 male and female patients of all ages who underwent adenoidectomy and/or tonsillectomy were retrospectively reviewed. No further examination was conducted for patients whose histopathological diagnosis was reported as 'reactive lymphoid hyperplasia.' For patients with benign or malignant diagnoses other than 'reactive lymphoid hyperplasia,' preoperative history, clinical examination findings, and clinical investigations were retrospectively analyzed. Descriptive statistics were used in the study. All excised specimens were submitted for histopathological examination; no patients were excluded. Follow-up revealed no malignancy among patients with RLH.

RESULTS

Of the 2223 patients included in the study, 1254 (56.4%) were male, and 969 (43.6%) were female, with a mean age of 10.7±11.11 years (range 1–91 years). The patient cohort consisted of 317 (14.3%) adults (aged 19–91 years) and 1906 (85.7%) children (aged 1–18 years). The number of patients according to the performed surgery is summarized in Table 1.

Table 1. Number of patients according to the performed surgery

Number of patients	Adenoidectomy	Tonsillectomy	Tube application
669 (%30.1)	+		
340 (%15.3)	+		+
740 (%33.3)	+	+	
159 (%7.1)	+	+	+
315 (%14.2)		+	
Total (2223)	1908	1214	499

All patients except 11 had a histopathological diagnosis of 'reactive lymphoid hyperplasia. The 11 patients (8 men, 3 women) with different diagnoses had a mean age of 64.3±15 years (range 45–91 years). Ten patients diagnosed with lymphoma (7 patients), epidermoid carcinoma (2 patients), or lymphoepithelial cyst (1 patient) had at least one of the preoperative clinical findings of asymmetric tonsillar hypertrophy, tonsillar ulceration, or neck mass, and tonsillectomy was performed for biopsy purposes in all of these patients (Table 2).

In one 62-year-old male patient with grade 4 tonsillar hypertrophy who underwent tonsillectomy and

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Table 2. Preoperative clinical characteristics, performed surgery, and histopathological diagnoses of patients with diagnoses other than reactive lymphoid hyperplasia

	Age Gender	Preoperative clinical manifestations	Surgery	Histopathological diagnosis
1	65, Male	Right asymmetrical tonsil hypertrophy and ulcer. 2x2 cm LAP at level 2 on the right at the neck.	Right tonsillectomy	Diffuse malignant lymphoma
2	63, Woman	Ulcer in bilateral tonsil, invading with a mass extending to the base of the tongue of the left tonsil.	Tonsillectomy	Diffuse large B-cell lymphoma
3	52, Male	Right asymmetrical tonsil hypertrophy and ulcer. Conglomerated LAP at right level 2.	Right tonsillectomy	Diffuse large B-cell lymphoma
4	44, Woman	The right tonsil is asymmetrical hypertrophic. 3x3 cm LAP on right level 2.	Right tonsillectomy	Non Hodgkin's lymphoma
5	81, Male	He has been diagnosed with lymphoma. Left tonsil grade 3 asymmetrical hypertrophic. Bilateral diffuse LAP in the neck.	Left tonsillectomy	Diffuse large B-cell lymphoma
6	91, Male	Asymmetrical tonsil hypertrophy.	Left tonsillectomy	Diffuse large B-cell lymphoma
7	81, Woman	Ulcer and asymmetrical hypertrophy of the right tonsil. 3x3 cm LAP on right level 2.	Right tonsillectomy	Hodgkin's lymphoma
8	64, Male	Left asymmetrical tonsil hypertrophy. Neck 3x2 cm and 1x1 cm LAP at level 2 on the left.	Left tonsillectomy	Epidermoid carcinoma
9	59, Male	Multiple LAP on the right side of the neck at many levels.	Right tonsillectomy	Epidermoid carcinoma
10	62, Male	There is a complaint of snoring. AHI in polysomnography: 70. Tonsillar bilateral grade 4 hypertrophied. Adenoid tissue is hypertrophic.	Tonsillectomy and adenoidectomy	Chronic Lymphocytic Leukemia
11	45, Male	15 mm cystic mass on the right tonsil. Adenoid tissue is hypertrophic.	Tonsillectomy and adenoidectomy	Lymphoepithelial cyst (right tonsil)

adenoidectomy for obstructive sleep apnea syndrome, the histopathological result was reported as 'suspicious for low-grade lymphoproliferative lesion.' This patient was diagnosed with chronic lymphocytic leukemia (CLL) in further examinations. No malignancy was observed in any of the adenoidectomy specimens. Malignancy was reported in 0.45% (10 patients) of the entire study group. The rate of incidental malignancy detection was 0.3% in adults and 0% in children.

In one 62-year-old male patient with grade 4 tonsillar hypertrophy who underwent tonsillectomy and adenoidectomy for obstructive sleep apnea syndrome, the histopathological result was reported as 'suspicious for low-grade lymphoproliferative lesion.' This patient was diagnosed with chronic lymphocytic leukemia (CLL) in further examinations. No malignancy was observed in any of the adenoidectomy specimens. Malignancy was reported in 0.45% (10 patients) of the entire study group. The rate of incidental malignancy detection was 0.3% in adults and 0% in children.

DISCUSSION

The detection of occult malignancy in an adult patient who underwent tonsillectomy and adenoidectomy for obstructive sleep apnea syndrome is the most notable finding of this study. This case exemplifies the potential role of histopathological examination of tonsils in diagnosing hematological diseases. In a 62-year-old male patient with grade 4 symmetric tonsillar hypertrophy, the histopathological result was reported

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as 'suspicious for low-grade lymphoproliferative lesion,' and further examinations confirmed a diagnosis of chronic lymphocytic leukemia (CLL). The literature reports cases of hematological malignancies detected in tonsillectomy specimens, but incidental diagnoses are very rare. Kaur et al. reported incidental detection of CLL in a patient who underwent pharyngoplasty and tonsillectomy for velopharyngeal insufficiency, noting that the tonsils were not hypertrophic and there were no obstructive symptoms (12). Bertaggia et al. (13) reported a case of T-cell prolymphocytic leukemia causing bilateral tonsillar involvement with obstructive symptoms. Bozan et al. (14) reported a destructive lesion in the soft palate, uvula, and tonsils due to CLL. Ampil et al. (15) identified CLL in a case presenting with a tonsillar mass. Our case and similar cases demonstrate that tonsillar hypertrophy, even if symmetric, may be indicative of an underlying hematological disease. Routine histopathological examination may be recommended in adults undergoing tonsillectomy and/or adenoidectomy, even in the absence of preoperative risk factors, particularly in those with hypertrophic tonsils. In recent years, coblation tonsillectomy, increasingly performed in adults for obstructive symptoms, poses a disadvantage in this regard, as it does not allow for histopathological diagnosis.

The incidence of occult malignancy in tonsillectomy specimens in children and adults is reported to be between 0% and 1% (4). In our study, this rate was 0.3% in adults and 0% in children. Rokkjaer et al. (5) reviewed 37 articles involving 72.322 patients and found that 11 patients (0.015%) received a malignant histopathological diagnosis without preoperative suspicion. Of these, 7 were diagnosed with lymphoma, 2 with squamous cell carcinoma, and 2 with lymphosarcoma. Four patients were under 16 years old, five were over 47 years old, and the age of the remaining two was not specified. In the study by Kayabasi et al. (6), 484 patients aged 3 to 69 years were examined, with only one patient undergoing tonsillectomy due to suspected malignancy. Postoperatively, 3 (0.02%) patients were diagnosed with malignancy. In a study by Aydın et al. (7), the pathology results of 856 patients over 12 years old who underwent tonsillectomy were evaluated, and malignancy was detected in 50 patients (6%), but no incidental malignancy was found. Consistent with other studies, our study found that the most common tonsillar malignancies were lymphoma (7 patients) and epidermoid carcinoma (2 patients). One patient was diagnosed with a lymphoepithelial cyst. In these patients, tonsillectomy was performed for biopsy due to preoperative clinical suspicion. One patient was incidentally diagnosed with CLL. Consistent with other studies, no malignancy was found in adenoidectomy specimens.

High-risk factors for tonsillar malignancy in adults are generally defined as a history of cancer, tonsillar asymmetry, irregularity, visible lesions, accompanying cervical lymphadenopathy, unexpected weight loss, fatigue, night sweats, fever, and loss of appetite (2,3). In our study, asymmetric tonsillar hypertrophy, tonsillar ulceration, and the presence of a neck mass were identified as important preoperative clinical markers for malignancy. All patients diagnosed with malignancy were adults (aged 45–91 years). Additionally, as seen in our single patient with incidental malignancy, hematological diseases infiltrating lymphoid tissue may cause symmetric tonsillar hypertrophy, particularly in adults, and should be considered.

CONCLUSION

Asymmetric tonsillar hypertrophy, tonsillar ulceration, and the presence of a neck mass are important preoperative clinical markers for malignancy. Although rare, incidental hematologic malignancies may occur even in symmetric hypertrophy. Routine histopathological examination should be strongly recommended in adults, not only for clinical safety but also for medico-legal assurance. In children, selective histopathology may be acceptable, given negligible incidence and cost-effectiveness.

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Ethical Approval: This study was approved by the Clinical Research Ethics Committee of Derince Training and Research Hospital, University of Health Sciences, on June 25, 2020, with decision number 2020/79.

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