



Histopathological analysis of tonsillectomy specimens: a report from Southeastern Anatolia

Tonsillektomi numunelerinin histopatolojik analizi: Güneydoğu Anadolu'dan bir rapor

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Objectives: This study aims to evaluate the necessity of routine histopathological analyses of tonsillectomy specimens.

Patients and Methods: A retrospective review for 2,004 patients (1,048 males, 956 females; mean age 12.2 years; range 2 to 60 years) who underwent tonsillectomy between January 2009 and May 2013 was carried out at the Diyarbakır Training and Research Hospital, Turkey. Tonsillectomy specimens were fixed with formalin, and stained with hematoxylin and eosin before being sectioned and examined via light microscope. Chronic inflammation and lymphoid hyperplasia were considered non-significant pathological findings. Other pathological diagnoses including infectious processes, and benign and malignant neoplasms were regarded as significant pathological findings.

Results: Non-significant pathological findings -chronic inflammation, lymphoid hyperplasia or both- were observed in 1,972 patients. Significant pathological findings -epidermal cyst, mucocoele, squamous papilloma, granuloma and squamous cell carcinoma- were observed in 32 patients. One patient was diagnosed with squamous cell carcinoma, and another had granulomatous disease diagnosed as tuberculosis.

Conclusion: Histopathological examination is only necessary for patients with preoperative risk factors. Gross examination may be a good alternative since it is cost effective and not time consuming.

Keywords: Histopathology; malignancy; routine; tonsillectomy.

Amaç: Bu çalışmada tonsillektomi numunelerinin rutin histopatolojik analizlerinin gerekliliği değerlendirildi.

Hastalar ve Yöntemler: Diyarbakır Eğitim ve Araştırma Hastanesi'nde Ocak 2009 ve Mayıs 2013 tarihleri arasında tonsillektomi geçiren 2.004 hasta (1.048 erkek, 956 kadın; ort. yaş 12.2 yıl; dağılım 2-60 yıl) için retrospektif bir inceleme yapıldı. Tonsillektomi numuneleri kesitlere ayrılıp ışık mikroskobu ile incelenmeden önce formalin ile tespit edildi ve hematoxilen ve eozin ile boyandı. Kronik enflamasyon ve lenfoid hiperplazi anlamlı olmayan patolojik bulgular olarak kabul edildi. Enfeksiyöz süreçler, iyi huylu ve kötü huylu neoplazmlar gibi diğer patolojik tanılar anlamlı patolojik bulgular olarak dikkate alındı.

Bulgular: Kronik enflamasyonu, lenfoid hiperplaziyi veya her ikisini içeren anlamlı olmayan patolojik bulgular 1.972 hastada gözlemlendi. Epidermal kist, mukosel, skuamöz papillom, granülom ve skuamöz hücreli karsinomu içeren anlamlı patolojik bulgular 32 hastada gözlemlendi. Bir hastaya skuamöz hücreli karsinom tanısı konuldu, bir diğerinde tüberküloz tanısı konulan granülomatöz hastalık vardı.

Sonuç: Histopatolojik inceleme sadece ameliyat öncesi risk faktörleri olan hastalar için gereklidir. Maliyet etkin olup zaman alıcı olmayan makroskopik inceleme iyi bir seçenek olabilir.

Anahtar Sözcükler: Histopatoloji; malignite; rutin; tonsillektomi.



Tonsillectomy with or without adenoidectomy is the most common major surgical procedure performed by otorhinolaryngologists.^[1] Major indications for tonsillectomy are recurrent infection, chronic inflammation and upper airway obstruction. Suspicion of malignancy, although rare, is another indication for tonsillectomy. Although the incidence of unexpected pathologies is extremely low especially in childhood, there is still debate regarding the need for histological examination of all tonsillectomy specimens.^[2] Nevertheless, there could be considerable medicolegal implications if a significant pathological diagnosis was missed. Therefore, there is currently no consensus regarding the routine histopathological evaluation of tonsillectomy specimens. Regardless of the low incidence of unexpected pathologies, if there is any suspicion then histopathological analysis must be carried out. Malignancy that is missed can adversely affect prognosis by delaying treatment of the affected patient.^[3] In addition, diagnosis of granuloma is important because tuberculosis is another disease that needs specific therapy and this diagnosis depends upon histopathological examination.

In this study, we evaluated the necessity of routine histopathological analyses of tonsillectomy specimens based on a retrospective review of patients and in light of the literature.

PATIENTS AND METHODS

A retrospective review of 2,004 patients (1,048 males, 956 females; mean age 12.2 years;

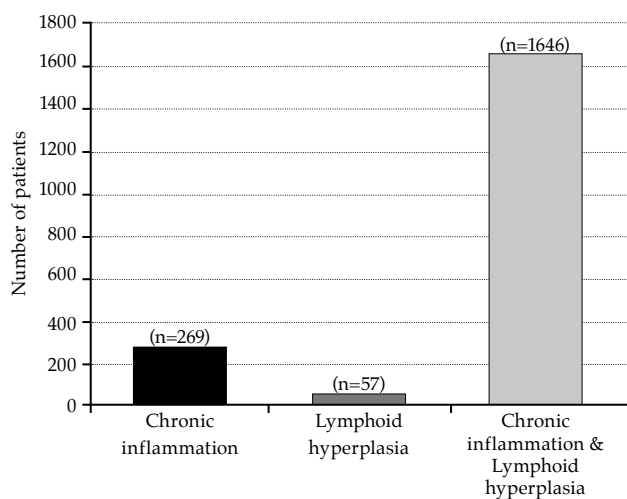


Figure 1. Distribution of non-significant pathologies.

range 2 to 60 years) who underwent tonsillectomy between January 2009 and May 2013 was carried out at the Diyarbakir Training and Research Hospital, Turkey. The patient records were reviewed and the following information was extracted: age, sex, indication for surgery and histopathological findings. Of these, 1,654 patients were under 18 years of age and 350 patients were over 18 years. Tonsillectomy specimens were fixed with formalin, and stained with hematoxylin and eosin, before being sectioned and examined via light microscopy. The pathology findings reported as chronic inflammation and lymphoid hyperplasia were considered non-significant pathological findings. Other pathological diagnoses, namely infectious processes, and benign and malignant neoplasms, were regarded as significant pathological findings. We then determined whether the pathological findings were expected or not according to preoperative signs of the patients.

RESULTS

The clinical indications for surgery included: tonsillitis (n=1102, 55%), sleep apnea (n=702, 35%), suspicion for malignancy (n=31, 1.5%), no clinical history provided (n=105, 5.2%), tonsillar mass (n=24, 1.2%), and tonsillar asymmetry (n=40, 2%). Non-significant pathological findings, chronic inflammation, lymphoid hyperplasia or both, were seen in 1,972 patients (Figure 1). Significant pathological findings, epidermal cyst, mucocele, squamous papilloma, granuloma and squamous cell carcinoma were seen in 32 patients (Figure 2). With regards to the significant pathological findings, only one patient had malignancy, and was diagnosed with squamous cell carcinoma (Figure 3); the other 31 patients had

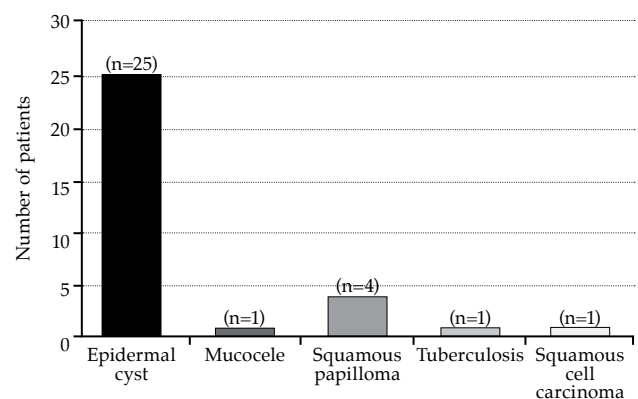


Figure 2. Distribution of significant pathologies.

benign pathologies. The patient with malignancy was 60 years of age, and preoperatively there was suspicion for malignancy because of asymmetry between the tonsils. Another patient was diagnosed with tuberculosis. This patient was 23 years of age, and preoperatively there was congestion of the tonsils, cervical lymphadenopathy, and complaints of fatigue and night sweating (Figure 4).

DISCUSSION

Tonsillectomy is the most common surgery performed by otorhinolaryngologists, and there has been a long-standing controversy regarding the necessity of histopathological examination of all tonsillectomy specimens. Strong et al.^[4] surveyed members of the American Academy of Otolaryngology Head and Neck Surgery and found that 38% of responders routinely ordered histopathological examinations for the pediatric population and 67% of responders routinely ordered histopathological examinations in the adult population. These findings indicate a decrease in the tendency to order routine histopathological examinations, especially in the pediatric population. The rate of unexpected malignancy in tonsillectomy specimens from both children and adult patients varies between 0 and 1%.^[5,6] In a study by Reiter et al.,^[7] of 1,280 adult patients who underwent tonsillectomy, no malignancies were encountered on histological examination, but 31 patients were diagnosed with asymmetric tonsil hypertrophy, and two cases of malignant lymphoma were reported. In a study by

Felippe et al.,^[8] of 2,103 pediatric and adult patients who underwent tonsillectomy, four cases (0.19%) of malignancy were encountered on histological examination; these four patients had preoperative risk factors including tonsillar hypertrophy and cervical lymphadenopathy. In our study of 2,004 patients, we only encountered one malignancy which was squamous cell carcinoma; the affected patient had risk factors that included asymmetric tonsillar hypertrophy, cervical lymphadenopathy and weight loss.

Histopathological diagnosis is not only important to detect or rule out malignancy, it is also important for suspected cases of tuberculosis, which is a condition that requires special therapy. In our study, we encountered one tuberculosis case; the affected patient had preoperative risk factors, including congestion of the tonsils, cervical lymphadenopathy, fatigue and night sweating.

The percentage of unexpected malignancies detected in our study (0.04%) was similar to the values reported in previously published literature: 0.18%,^[2] 0.07%,^[3] and 0.006%.^[9] Together, these findings demonstrate that while the incidence of occult malignancy in routine tonsillectomy specimens is extremely low, it is not zero. If a patient has preoperative risk factors, the importance of histopathological examination of tonsillectomy specimens must not be ignored.

With regards adult tonsillectomy specimens, Beaty et al.^[10] presented some risk factors for malignancy based on an evaluation of 476 tonsillectomy specimens of adult patients. These are: tonsillar asymmetry, history of cancer, neck mass, unexplained weight loss, a visible lesion of the tonsils, fatigue, night sweats, fever and

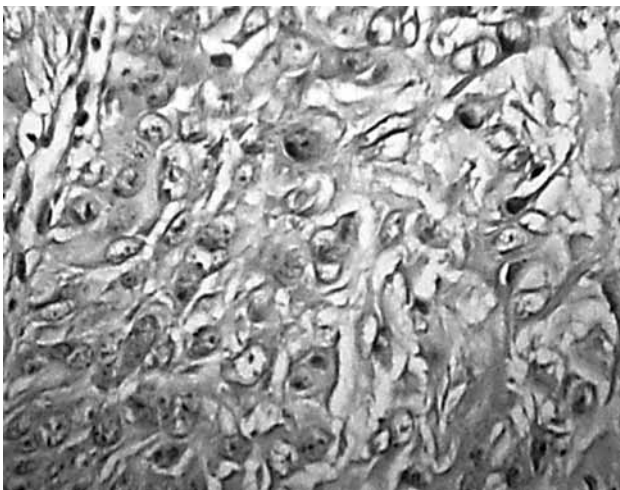


Figure 3. Histopathological slide, (H-E x 40) indicating squamous cell carcinoma.

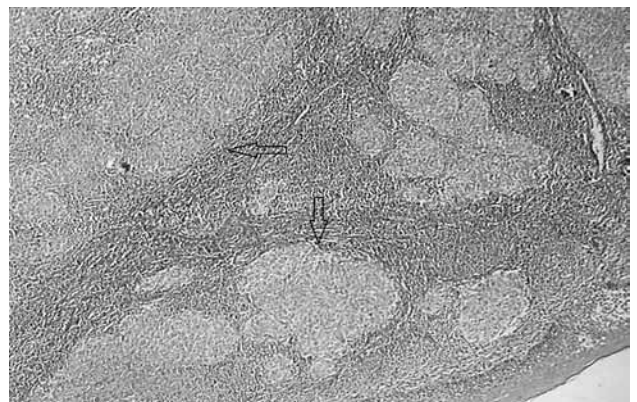


Figure 4. Histopathological slide, (H-E x 10) suggesting tuberculosis (arrows indicate granulomas).

anorexia. Younis et al.^[11] reported no malignancy in a sample of 2,099 pediatric patients, and of the sample of 349 adult patients (over 18 years), 40 (11.8%) had malignancy. All of the patients with malignancy in that study had preoperative risk factors. Those authors concluded that macroscopic evaluation is sufficient; microscopic evaluation of tonsillectomy specimens should only be carried out for patients with preoperative risk factors. Oluwasanmi et al.^[12] recommended that histopathological analysis of tonsillectomy specimens is necessary for patients with no history of recurrent tonsillitis, those with large tonsils and those over 40 years of age.

In children, the most common malignancy of the tonsil is lymphoma; in adults it is squamous cell carcinoma. Smitheringale^[13] reported seven pediatric cases of Waldeyer's ring lymphoma over a 12-year period. Garavello et al.^[2] reported two cases of (18%) non-Hodgkin lymphoma among 1,123 pediatric patients. Willams and Brown^[14] found only three lymphoma cases among 4,070 pediatric patients. These latter authors have stated that histopathological evaluation should only be carried out for patients who have malignancy risk factors, and claimed that gross evaluation is sufficient for patients with no such risk factors. While non-Hodgkin lymphoma involves Waldeyer's ring and therefore the palatine tonsils, Hodgkin lymphoma rarely presents primarily at the site of Waldeyer's ring. Erdag et al.^[15] encountered no cases of malignancy among 2,743 pediatric patients. In our series, we too found no malignancy in our sample of 1,654 pediatric patients, although one case of squamous cell carcinoma was diagnosed among the 350 adult patients.

The routine analysis of tonsillectomy is costly. Thorne^[16] who found no malignancy among 5,235 specimens of tonsillectomy material, claimed that the routine analysis of pediatric tonsillectomy specimens is an unnecessary expense. Nevertheless, there are likely to be considerable medicolegal implications in cases where a significant pathological diagnosis is missed. We therefore suggest that the presence of any preoperative risk factors warrants histopathological examination, the findings of which should not be ignored.

In conclusion, there is still controversy regarding the routine histopathological examination of

tonsillectomy specimens. The malignancy rates reported in previous studies are low. In our study, the malignancy rate was also low (0.04%) and the patients affected had preoperative risk factors. Another important disease to consider is tuberculosis; the histopathological diagnosis of granuloma is important because of the specific therapy required to treat this condition. In our study, the tuberculosis rate was also low (0.04%) and again the patient had preoperative risk factors. Therefore, we suggest that histopathological examination is necessary only for patients who have preoperative risk factors. Gross examination is seen as a good alternative to histopathological examination because it is cost effective and is not time consuming.

Declaration of conflicting interests

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