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Original Article

Investigation of adult patients with tonsillectomy in terms of complication development, comorbidity ratios and seasonal distribution

Erişkin tonsillektomi yapılan hastaların komplikasyon gelişimi, komorbidite oranları ve mevsimsel dağılım yönünden incelenmesi

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ABSTRACT

Objective: This study aimed to evaluate the postoperative bleeding status of the patients who underwent tonsillectomy over 18 years old. It evaluated the reasons for tonsillectomy, additional diseases, and the season in which tonsillectomy was performed.
Material and Methods: One hundred and fifty patients aged 18 years and over who underwent tonsillectomy in the ear, nose, and throat clinic of a tertiary hospital were included in our study. The age, gender, additional disease, post-tonsillectomy haemorrhage (Post-TH), and the season in which tonsillectomy was performed were examined.
Results: A total of 150 patients, 50 females (33.3%) and 100 males (66.7%), were included in our study. The mean age of the patients was 32,49±12,20 years. Bleeding was observed in the postoperative period in 12 patients (8%), except for the first 24 hours postoperatively. It was determined that the most frequent complaint of bleeding in the postoperative period was on the 4th day. It was observed that 15 (10%) patients had an additional disease. A total of 35 (23.3%) patients underwent tonsillectomy due to Obstructive Sleep Apnea Syndrome (OSAS) and 115 (76.7%) patients for recurrent tonsillitis. Tonsillectomy was performed in the spring season for 31 patients (20.7%), winter for 40 patients (26.7%), autumn for 39 patients (26%), and summer for 40 patients (26.7%). No statistical difference between seasonal differences and the tonsillectomies performed was found (p> 0.05). There was no statistical difference between tonsillectomy and the presence or absence of additional diseases (p> 0.05).
Conclusions: We concluded that the presence of comorbidity and seasonal differences did not affect Post-TH in adult tonsillectomy patients.

Keywords: Comorbidity, postoperative bleeding, seasons, tonsillectomy

ÖZ

Amaç: Bu çalışmamızda 18 yaş ve üzeri tonsillektomi yapılan hastaların postoperatif kanama durumları, tonsillektomi nedenleri, ek hastalıkların varlığı ve hangi mevsimde tonsillektominin yapıldığının değerlendirilmesi amaçlanmıştır.
Gereç ve Yöntemler: Üçüncü basamak bir hastanenin kulak burun boğaz kliniğinde 18 yaş ve üzeri tonsillektomi yapılmış 150 hasta çalışmamıza dahil edildi. Çalışmamıza katılan hastaların, yaş, cinsiyet, ek hastalığının olup olmaması, operasyondan sonra kanama olup olmaması, tonsillektominin yapıldığı mevsim incelendi.
Bulgular: Çalışmamıza 50 kadın (%33,3) ve 100 erkek (%66,7) olmak üzere toplam 150 hasta dahil edildi. Çalışmamıza dahil edilen hastaların yaş ortalaması 32,49±12,20 yıl (min:18-max:75) olarak tespit edildi. postoperatif ilk 24 saat haricinde 12 hastada (%8) postoperatif dönemde kanama izlendi. Postoperatif dönemde kanama şikâyeti ortalama 4. günde olduğu belirlendi. Toplam 15 (%10) hastanın herhangi bir ek hastalığının olduğu gözlendi. Toplam 35 (%23,3) hastaya tıkayıcı uyku apne sendromu (OSAS) nedeniyle, 115 (%76,7) hastaya ise rekürren tonsillit nedeni ile tonsillektomi uygulandı. Otuz bir hastaya ilkbahar mevsiminde (%20,7), 40 hastaya kış mevsiminde (%26,7), 39 hastaya

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sonbaharda (%26) ve 40 hastaya ise yaz mevsiminde (%26,7) tonsillektomi uygulandı. Tonsillektomi nedeni ile operasyon mevsimi arasında istatistiksel farklılık izlenmedi (p>0.05). Tonsillektomi nedeni ile ek hastalığın olup olmaması arasında istatistiksel farklılık izlenmedi (p>0.05).
Sonuçlar: Erişkin, tonsillektomi yapılan hastalarda ek hastalık varlığının ve mevsimsel farklılıkların postoperatif kanama üzerinde herhangi bir etkisinin olmadığı sonucuna vardık. Tonsillektomi yapılan erişkin hastalarda postoperatif kanama ile operasyonun yapıldığı mevsim ve kanama bozukluğuna yol açacak hastalıkların haricinde diğer ek hastalıklar açısından anlamlı bir ilişki tespit edemedik.

Anahtar kelimeler: Ek hastalık, mevsimler, postoperatif kanama, tonsillektomi

INTRODUCTION

Tonsillectomy is one of the common surgical procedure performed by otolaryngologists. Although it is more frequently performed in the pediatric age group, it is also substantially performed in adults (1).

While the absolute indications for tonsillectomy in adults are malignancies, unstoppable haemorrhages originating from the tonsils and tonsillar hypertrophy (especially in obstructive sleep apnea syndrome (OSAS)) causing severe airway obstruction, the relative indications are known as recurrent chronic tonsillitis, tonsil stones, and peritonsillar abscess (2).

Although tonsillectomy is an easy surgical method, serious complications can be seen in 2-5% (2). The most common complications are pain, bleeding at the operation site, nausea, vomiting, and dehydration. Bleeding is the most serious complication and often ends spontaneously without intervention (3). A study found that the risk factors for post tonsillectomy hemorrhage (Post-TH) and other complications include advanced age, male gender, smoking, and use of non-steroidal anti inflammatory drugs (NSAI) during the operation (3).

Generally, the rate of Post-TH is around 4.5% in the literature (4). The primary and secondary bleeding rates are 0.2-2.2% and 0.1-3.5%, respectively (5). Primary bleeding is generally considered to be due to insufficient hemostasis during surgery. Secondary bleeding is associated with the separation of scabs during wound healing after tonsillectomy (6,7).

Studies have also shown that seasonal factors affect Post-TH. A study reported that bleeding in the first three days after tonsillectomy is more common in autumn and summer than in winter months (8).

This study aimed to evaluate the postoperative complications in patients 18 years of age and older who underwent tonsillectomy and evaluate the effects of additional diseases and seasonal differences on these complications.

MATERIAL AND METHOD

Necessary permissions were obtained from the Bolu Abant İzzet Baysal University clinical research ethics committee (2019/289). This study was conducted as a retrospective study. This study was carried out with patients who applied to the İzzet Baysal Training and Research Hospital Otorhinolaryngology Outpatient Clinic between January 2014 and October 2019 and underwent a tonsillectomy aged 18 years and over. One hundred and fifty patients who underwent tonsillectomy under general anaesthesia using the cold knife and blunt dissection technique and whose bleeding control was performed with the help of bipolar cautery were included in the study.

Within the scope of the study, the patients' ages, comorbidities, postoperative complications, and surgical indications were examined.

Statistical analysis

Statistical analysis of the data was made with the SPSS Windows 21.0 program. For numerical data, the arithmetic mean ± standard deviation was calculated. The qualitative data were expressed as a percentage. T-test and chi-square tests were

used for comparison between groups. The P-value <0.05 was considered significant.

RESULTS

The study included 150 patients, 50 women (33.3%) and 100 men (66.7%). The mean age of the patients was found to be 32,49±7,2 years.

When the indications for tonsillectomy were examined, surgery was performed in 35 (23.3%) patients for OSAS and 115 (67.7%) patients for recurrent tonsillitis (Table 1).

In total, 15 (10%) patients were found to have an additional disease. When comorbid diseases are evaluated, 6 (4%) patients had diabetes mellitus, 3 (2%) patients had asthma, 2 (1.3%) patients had hypertension, 1 (0.7%) patient had Crohn's disease, 1 (0.7%) patient had rheumatoid arthritis, and 2 (1.3%) patients had thyroid dysfunction (Table 2).

If we look from the viewpoint of the surgery season, 31 patients (20.7%) were operated on in spring, 40 patients (26.7%) in winter, 39 patients (26%) in autumn, and 40 patients (26.7%) in summer (Table 1, Figures 1 and 2).

Except for the first 24 hours, Post-TH was detected in 12 patients (8%) after tonsillectomy. Bleeding was not observed in any patients with additional diseases (Table 2). The median bleeding day in the postoperative period was on the 4th day (min: 2-max: 9).

No relationship was found between seasonal differences and postoperative haemorrhage (p=0.094). Additionally, no relationship was found between seasonal differences and tonsillectomy indication (p=0.611) (Table 3). No relationship was found between the presence of additional diseases and tonsillectomy indication (p=0.079). No relationship was found between the length of hospital stay and seasonal differences (p=0.089).

Table 1. Tonsillectomy indications and relationship between seasonal changes and gender differences.

		Gender		
		Male (N)	Female (N)	Total (N)
Season	Spring	26	5	31 (20.7%)
	Winter	24	16	40 (26.7%)
	Autumn	25	14	39 (26%)
	Summer	25	15	40 (26.7%)
The reason for tonsillectomy	OSAS	27	8	35 (23.3%)
	Recurrent tonsillitis	73	42	115 (76.7%)

**OSAS: obstructive sleep apnea syndrome*

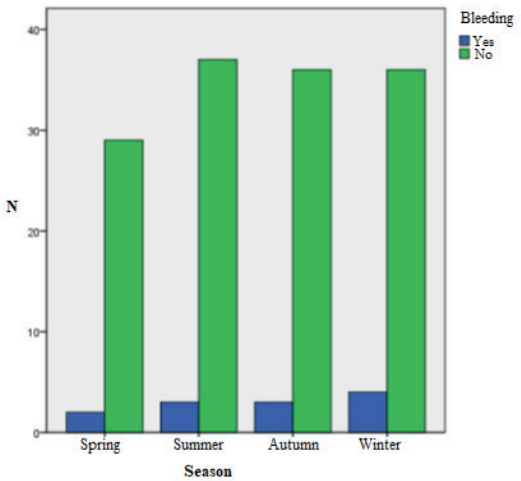

Figure 1. Distribution of seasonal differences in terms of post-tonsillectomy haemorrhage.

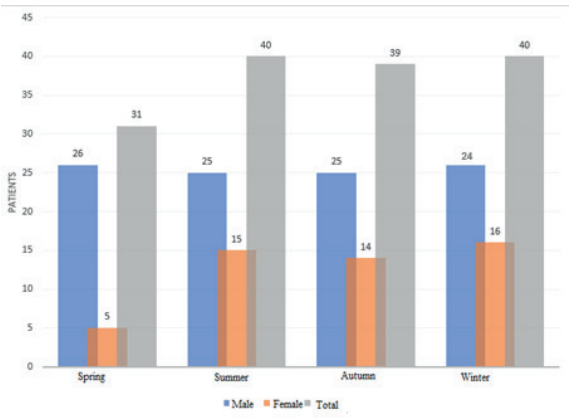

Figure 2. Distribution of patients who underwent tonsillectomy by seasons and gender.

Table 2. Distribution of the presence of additional disease in terms of post-tonsillectomy haemorrhage (Post-TH).

			Post-TH	
			Yes	No
Comorbidities N (%)	Yes	Asthma (3 (%2))	0	15
		Crohn's Disease (1 (%0,7))		
		Diabetes Mellitus (6 (%4))		
		Hypertension (2 (%1,3))		
		Rheumatoid Arthritis (1 (%0,7))		
		Thyroid disorder (2 (%1,3))		
	No	135 (%90)	12	123

Table 3. The relationship between seasonal differences and postoperative tonsillectomy haemorrhage (Post-TH) and seasonal differences and tonsillectomy indication.

		Post-TH		P
		Male (N)	Female (N)	
Season	Spring	3 (9.6%)	28 (90.4%)	0.094
	Winter	4 (10%)	36 (90%)	
	Autumn	3 (7.6%)	36 (92.4%)	
	Summer	2 (5%)	38 (95%)	
The reason for tonsillectomy	OSAS	3 (8.6%)	32 (91.4)	0.611
	Recurrent tonsillitis	9 (7.8%)	106 92.2%)	

DISCUSSION

This study aimed to evaluate whether the existing comorbidities and seasonal differences affect Post-TH.

The different definitions of post TH in conducted studies has been affected the reported incidence rates. In some studies, haemorrhage in the first 24 hours postoperatively is considered post-TH, while in some studies, haemorrhage without the first 24 hours is evaluated. Several early Post-TH studies declared 0.46%, 0.8%, and 1% incidence rates of patients requiring post surgical treatment following cold blade tonsillectomies. Therefore, Post-TH rates vary between 0.28% and 20% in the literature (6). This is a very wide range. Our study included all haemorrhages that would require surgical or conservative treatment and found this rate as 8% without the first postoperative 24 hours.

A study showed that Post-TH was most common on the 5th and 6th days and could occur up to the 20th postoperative day (7). Another study showed that haemorrhage was most common on the 6th and 7th days (9). Our study found the fourth day to be the most frequent.

Studies have indicated that the surgeon's experience, additional diseases that may cause bleeding disorders, smoking, male gender, advanced age, and tonsillectomy performed after recurrent tonsillitis are risk factors for haemorrhage (3,7). In this study, we have seen that additional diseases may not cause Post-TH. Only 15 patients had an additional disease out of the 150 patients. However, studies with larger groups may show different results.

The incidence of upper respiratory tract infections increases in the spring and winter. Consequently, the possibility of recurrent tonsillitis in patients and an exacerbation in the course of the disease may be observed in OSAS patients in spring and winter. For this reason, studies have shown that tonsillectomy rates are higher in OSAS patients in winter and spring (10). On the contrary, a different study showed that the numbers of tonsillectomies were similar in all seasons (11). In this study, we could not find any relationship between the indications for tonsillectomy and the seasons.

Studies in the literature show that temperature and relative humidity affect haemorrhage. It has been shown that the incidence of Post-TH is higher in tonsillectomy performed at temperatures above 20 degrees (8). Another study found that surgery performed in late spring or summer was associated with a significantly higher incidence of Post-TH due to the high temperatures in these months (12). However, some researchers argue

against this situation (11). In this study, we determined that seasons do not affect Post-TH.

In addition, the limitation of our study is that only Post-TH was evaluated in terms of complications and that other complications that may develop were not evaluated.

CONCLUSION

We have seen that additional diseases doesn't increase the post TH rate.. We also found no relationship between Post-TH and seasonal differences in adult tonsillectomy patients. The low number of patients in terms of comorbidity may have affected our results.

Ethics Committee Approval: The study protocol was approved by the Bolu Abant İzzet Baysal University Clinical Research Ethics Committee (2019/289).

Conflict of Interest: The authors have declared that they have no conflict of interest.

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