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Original Article

A Prospective Study on Indications for Tonsillectomy in Childhood in Kirkuk

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Abstract

Background: Childhood tonsillectomy is a common surgery with a risk of life-threatening perioperative complications. Although the appropriate decision of its indications necessitates considerable practical experience, physicians in different medical specialties tend to base their decisions about surgery on various clinical expertise and perspectives. **Objectives:** This study was conducted to draw attention to the prevalence and actual indications for tonsil surgeries in children. **Materials and Methods:** This prospective study included 600 children with tonsillitis of both genders, ages ranging from 5 to 15 years old, during the period from October 2020 to August 2022 in Kirkuk, Iraq. Initially, they were divided into two categories: the first included 525 patients (88%) without the need for surgery, while the other category included 75 patients (12%) who underwent tonsil surgery. Patients with tonsillitis undergoing tonsil surgery, 43 (57%) of them had undergone adenotonsillectomy, compared to 32 (43%) children who underwent tonsillectomy. Patients with recurrent tonsillitis amounted to 20 (62%), while patients with tonsillar hypertrophy reached 12 (38%) among those undergoing tonsillectomy. **Results:** Final obtained data showed that recurrent tonsillitis was significantly more in the age group from 11 to 15 than in the group from 5 to 10 years old. On the contrary, the tonsillar hypertrophy was significantly more in the 5–10 age group than in the other group. **Conclusion:** This study concluded that a high proportion of children with tonsillitis were cured without surgery, compared to a few frequencies that underwent tonsillectomy due to actual indications. Thus, surgery is not performed for all children with tonsillitis except when really needed to avoid consequences during and after surgery in pediatric patients.

Keywords: Adenotonsillectomy, recurrent tonsillitis, tonsillar hypertrophy, tonsillectomy

Introduction

The tonsils are defined as adenoid glands that reside in the backside of throat, and they contribute to making infection-controlling antibodies. Many bacteria and viruses can cause tonsillitis, such as Streptococcus, adenoviruses, measles virus, and others.[1] It should be noted that the clinical presentation of primary tuberculosis is chronic or recurrent tonsillitis with enlarged tonsils.[2,3] It is well known that tonsillectomy is a common childhood surgery where the tonsil is removed completely with their capsule and performed with or without adenoidectomy.[4-6] Prevention of infections is considered one of its indications.[6,7] In this regard, there is no evidence of recurring infections, which is an indication for the child to undergo tonsillectomy, and this is still controversial.[8] For example, based on the listed guidelines of the American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNS), or more tonsils with or without adenoid infections occur annually.[9] Whereas in Scotland, the Intercollegiate Guidelines Network lists tonsillitis five or more per year with symptoms lasting at least 1 year is an actual indicator for tonsillectomy in children.[10] In addition to recurrent tonsillitis and tonsils hypertrophy, tonsil bleeding can be considered an indication for tonsillectomy if it is frequent or causes anemia in the child, but this is rare.[11] Tonsillar hypertrophy (enlarged)

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is one of the main reasons for tonsillectomy in children.[12] It occurs when the lingual tonsil is ≥10 mm in size.[13] It should be noted that tonsil surgery may lead to long-term effects on the repetition of respiratory as well as infectious disorders.[14] Posttonsillectomy consequences are more important than other childhood surgeries.[15,16] This means that unnecessary tonsillectomy in children, according to the guidelines listed by the American Academy of Otolaryngology-Head and Neck Surgery Foundation, is considered a health and medical problem that may directly affect people's health. Therefore, this study evaluated the prevalence of tonsillectomy surgeries and the actual indications in pediatric patients in Kirkuk City.

Materials and Methods

Study design

This prospective study was conducted on 600 pediatric tonsillitis patients attending the specialized outpatient clinic located in Kirkuk (Iraq) during the period from October 2020 to August 2022, and they were diagnosed and treated, both surgically and non-surgically, by a consultant otolaryngologist (Dr. Tunjai Namiq Faiq) with follow-up until recovery. Children with tonsillitis and tonsillar hypertrophy of both genders, ranging in age from 5 to 15 years, were included in this study. Patients younger than 5 and over 15 years old were excluded. Initially, the prevalence of patients undergoing tonsillectomy compared with patients treated without surgery was determined. Then the patients undergoing throat surgery were separated into two groups, the first one included the patients who underwent adenoidectomy, and the second group included the patients who underwent tonsillectomy. On the other hand, the most common indications for tonsillectomy were determined, either recurrent tonsillitis (four to five times within 1 year) or obstructive hypertrophy.

Ethical approval

Informed consent was obtained from the parents of all studied participants, besides the approval of the Ethics Committee of the local health directorate. This study was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Surgical procedures

Surgery was done under general anesthesia with endotracheal intubation. Adenotonsillectomy surgery was done by cold steel method as shown in Figure 1; the Boyle Davis gag was inserted and held in place by Draffin bars. Then Adenoidectomy was done using curate under the soft palate by moving the curate from superior to inferior, and after complete removal, the nasopharynx was packed with ribbon gauze and removed after the completion of the tonsillectomy.

As for the tonsillectomy surgery [Figure 2], the tonsils were pulled medially, and the first mucosal incision was made by scissor, then the incision was extended superiorly and inferiorly, and the lateral borders of the tonsil were defined by spreading the blades of the scissors. While maintaining medial traction, a tonsil dissector was used to dissect the pharyngeal muscle tissue laterally and away from the tonsils. After removal of the tonsils, the inferior pedicle was tied using silk and a knot pusher. Hemostasis was secured by ligation or cauterization, and the tonsil fossa was packed with a gauze swab, the same as at the other site.

Statistical analysis

Using the Statistical Package for the Social Sciences, SPSS program version 26 (IBM Company, Chicago, IL, USA) the results were analyzed descriptively and presented in the form of frequencies and percentages. By applying the Chi-square test, statistically significant differences were found among data at a *P*-value less than 0.05.

Results

Of all pediatric patients (600) participating in this study, 525 (88%) were confirmed without actual indications for surgery. In contrast, 75 (12%) of them underwent the necessary surgery, as illustrated in Figure 3.

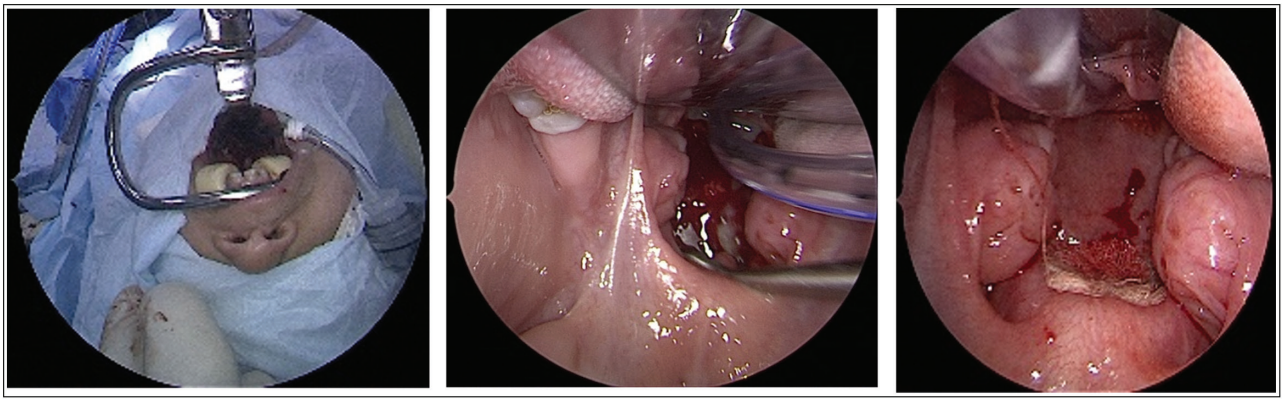

Figure 1: Adenotonsillectomy surgery steps

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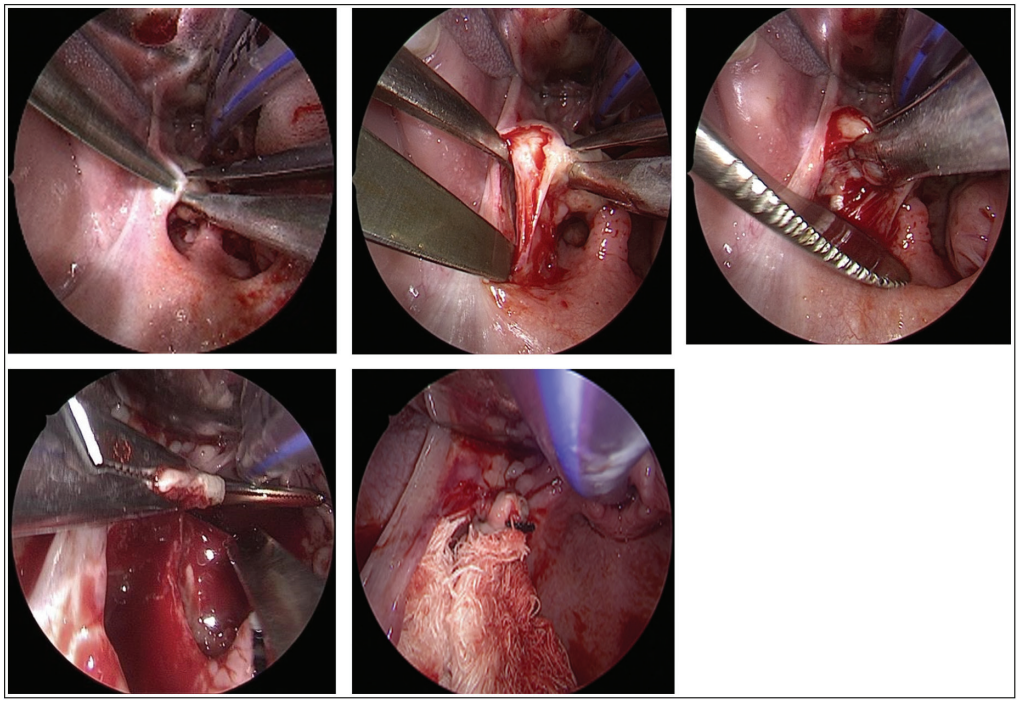

Figure 2: Tonsillectomy surgery steps

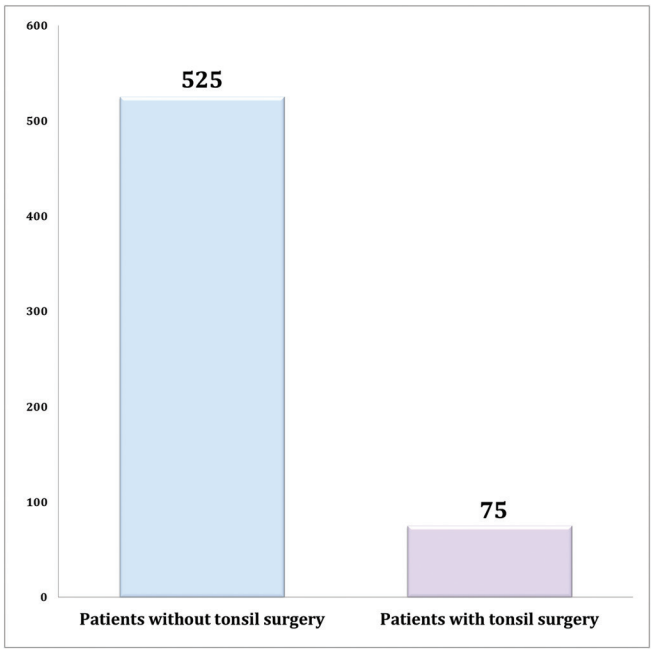

Figure 3: Frequency of tonsillitis patients undergoing tonsil surgery

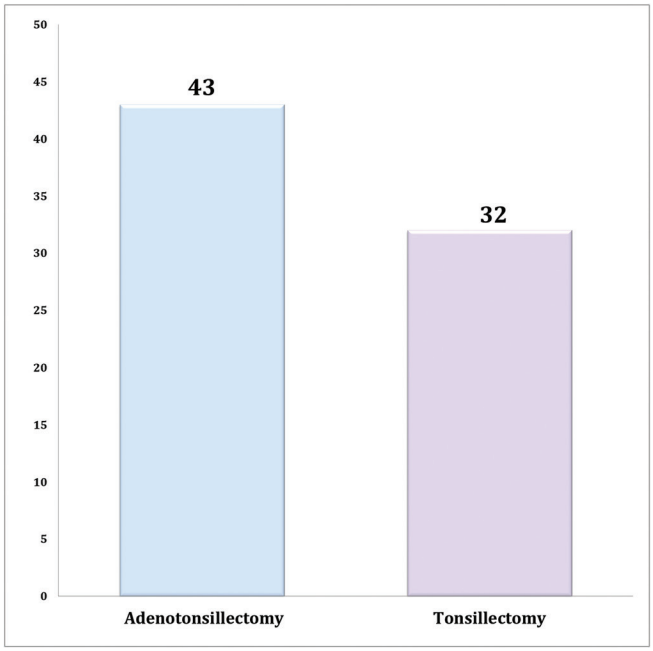

Figure 4: Frequency of tonsillectomy among patients undergoing tonsil surgery

Also, the results showed that adenotonsillectomy was performed on 43 (57%) patients, while tonsillectomy was done on 32(43%) patients, as shown in Figure 4.

As for the tonsillectomy patients, 20 (62 %) of them had recurrent tonsillitis *versus* 12 (38%) had tonsillar hypertrophy [Figure 5].

Recurrent tonsillitis was significantly higher in the ages between 11 and 15 years old (46 %) compared to those aged 5–10 years (16%). On the other hand, tonsillar hypertrophy in the 11–15 years old (10%) was significantly lower compared to the 5–10 years old (28%) with *P* value = 0.006, as presented in Table 1.

Discussion

Absolutely not all tonsil infections are indications for tonsillectomy, as all viral infections that can infect the tonsils are not indications for tonsil surgery, such as influenza, mononucleosis, herpes, measles, and acute HIV

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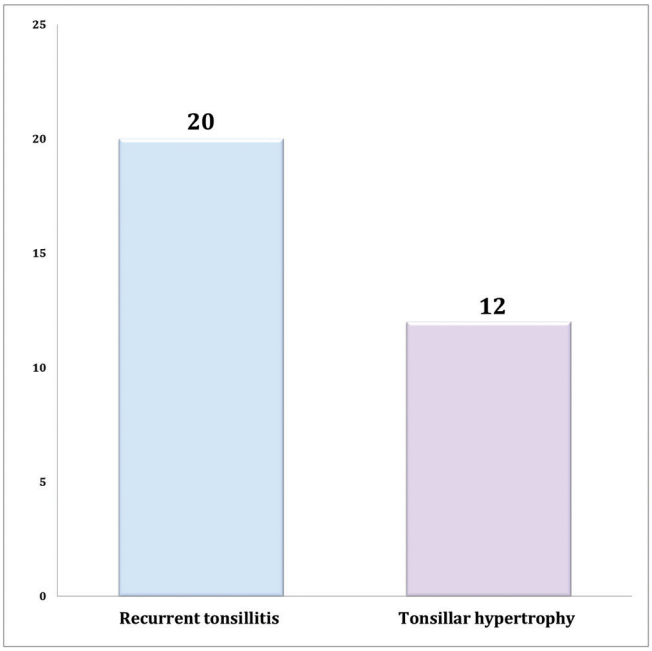

Figure 5: Indications of tonsillectomy for study patients

Table 1: Distribution of indications for tonsillectomy in patients by age and gender

Variables		Recurrent tonsillitis 20 (62%)	Tonsillar hypertrophy 12 (38%)	Total 32 (100%)	*P*-value
Age	5–10	5 (16%)	9 (28%)	14 (44%)	0.006
	11–15	15 (46%)	3 (10%)	18 (56%)	
Gender	Male	9 (28%)	3 (10%)	12 (38%)	0.258
	Female	11 (34%)	9 (28%)	20 (62%)	

infection.[9,17,18] In a cohort, a retrospective study by Šumilo *et al.*[19] on 1,630,807 children less than 15 years of age, they found that the ratio of evidence-based indications for tonsillectomy was 4.2 per 1000 individuals (13.6%) who underwent tonsillectomy. They also concluded that not many children had actual evidence-based indications for tonsils surgeries in the United Kingdom.Among the clinically important bacterial diseases that affect the tonsils are streptococcal pharyngitis and scarlet fever.[20,21] However, there is no need to remove the tonsils in the acute stage of these cases, but it is possible to rely on antibiotics. For recurrent tonsillitis, clinically apparent purulent tonsillitis detected by culture or GAS rapid antigen assay is considered to be a recurrence of tonsillitis. In this case, a tonsillectomy is performed for strictly defined indications.[22,23] In a previous study, Foki *et al.*[24] surveyed 180 patients aged 1–14 years retrospectively, and they concluded that tonsillectomy is effective for patients with recurrent tonsillitis and carries a lower threat of postoperative consequences. Another study conducted in Azerbaijan by Altintas[25] on 50 pediatric patients less than 15 years of age had tonsillectomy diagnosed as recurrent/chronic tonsillitis or tonsillar hypertrophy. One of the most common indications for tonsils surgeries in childhood is sleep apnea caused by tonsillar hypertrophy.[26,27] Here, there is a problem in determining the indications of tonsillectomy for reasons, including the absence of an objective procedure to measure tonsil hypertrophy or even adenoids. As the large tonsils may be judged differently between the examiners, that is, two contradictory diagnoses, a physiological or pathological condition, and therefore the treatment decision on them is inaccurate.[28,29] Our findings are consistent with American of Otolaryngology-Head and Neck Surgery Foundation guidelines about actual tonsillectomy indications.

Conclusions

Most cases of tonsillitis in children can be treated conservatively, as few actual indications for throat surgery have been recorded in patients with tonsillitis. This study came out with a recommendation to avoid insisting on tonsillectomy in children unless there are actual indications for surgery, and thus unnecessary surgery will be greatly reduced.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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