

LINGUAL TONSIL HYPERTROPHY IN PATIENTS WITH A HISTORY OF PALATINE TONSILLECTOMY

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Abstract

Objective: To determine the incidence of lingual tonsil hypertrophy in patients with history palatine tonsillectomy, preventing difficult intubation.

Study design: prospective, controlled

Methods: Forty-eight patients with history of palatine tonsillectomy sex/age-matched controls without history of palatine tonsillectomy were examined by indirect mirror or rigid and flexible laryngoscopy. The groups were compared for size of the lingual tonsils.

Results: Hypertrophy of the lingual tonsil were significantly more common in the patients with a history of palatine tonsillectomy (73%) than individuals with intact palatine tonsils (34%) ($p < 0.001$). They complaining of sore throat, lump in the throat, cough, sensation of foreign body, post nasal drip, dysphagia and dyspnea. Three patients had huge lingual tonsils that pushed the epiglottis backward and down to the glottis, and interfering with glottis visualization.

Conclusion: Hypertrophic tonsils are more common in patients with a history of palatine tonsillectomy. Early diagnosis is possible with simple base-of-the-tongue laryngoscopic examination. All patients with a history of palatine tonsillectomy should undergo examination for hypertrophy before general anaesthesia to avoid possible difficulties with intubation.

Keywords: palatine tonsillectomy, lingual tonsil hypertrophy, intubation difficulty

Introduction

The lingual tonsil is lymphoid tissue located on the base of the tongue, between the epiglottis posteriorly and the circumvallate papillae anteriorly. It extends from the faucial tonsillar fossa on one side of the tongue to the same area on the other side of the tongue, and had no definite capsule [1]. The lingual tonsil is part of the Waldeyer's ring, which guards the opening into the digestive and respiratory tracts. It tends to regress with advancing age, but may occasionally increase in size [2]. Hypertrophy of the lingual tonsil was first described by Vesalius in 1543 [2,3]. When enlarged, the lingual tonsils may fill the vallecula and press the epiglottis back and down towards the glottis. The major cause of lingual tonsil hypertrophy is compensatory hyperplasia following palatine tonsillectomy with or without adenoidectomy [2,3]. In an early study of 43 patients after adenotonsillectomy, Elia [4] found that 70% had lingual tonsil hypertrophy. Other possible causes are allergy, alcohol, abuse smoking, infectious mononucleosis and chronic infection [2]. On pathologic study, hyperplasia is usually noted but papillary hyperplasia rare [5]. Hypertrophy of the lingual tonsil may manifest as sore throat, dysphagia, globus sensation, speech changes,

otalgia, foreign body sensation and obstructive sleep apnea [3,5,6]. The differential diagnosis includes ectopic lingual thyroid tissue, thyroglossal duct cyst, dermoid cyst, lymphangioma, angioma, adenoma, fibrous papilloma, lymphoma, carcinoma and minor salivary gland tumor [2].

The true incidence of lingual tonsil hypertrophy has probably been underestimated until recently owing to the difficult-to-visualize anatomic location of the lingual tonsils and the non specific symptoms [2]. Mirror and rigid laryngoscope enable improved indirect or direct visualization of the respectively are for better detection.

The purpose of the study was to evaluate laryngoscopically the incidence of lingual tonsil hypertrophy in patients with history of palatine tonsillectomy and to prevent unexpected difficult or failed tracheal intubation.

Patients and method

Patients

The study group consisted of 48 patients with a history of palatine tonsillectomy examined in the Department of Otolaryngology – Head and Neck Surgery outpatient Clinic of the Rabin Medical Center in Israel. There were 19 males and 29 females aged 8 to 80 years (average, 51 years). Findings were compared with a control group of 81 patients (34 males and 47 females, aged 11 to 86 years; average, 47 years) with intact tonsils examined at the same clinic.

Review of the patients history showed that the tonsillectomy had been done between ages 4 and 37 years (average, 13.9), and between 1 to 75 years (average, 38 years) from the time of the present prospective study. The indications for the palatine tonsillectomy were recurrent tonsillitis in 36 patients and obstructive sleep apnea in 12 patients, who had also history of adenoidectomy.

Presenting symptoms included sore throat (n=21), lump in the throat (n=11), prolong cough (n=4) and dyspnea (n=3) (Table I).

Method

All patients underwent base-of-tongue examination by either the rigid or flexible laryngoscope or the laryngeal mirror. Xylocaine (10%) spray was used in patients with a gag reflex before the examination. Tonsil size was documented as follows: size 0 – lingual tonsil is not visible; 1 – small lingual tonsil; 2 – large lingual tonsil but not attached to the epiglottis; 3 – very large tonsil attached to the epiglottis and filling the vallecula. Hypertrophy was defined as size 2 or size 3.

Statistics

The difference between the number of patients with hypertrophic lingual tonsil (size 2-3) in patient and

control groups was calculated by chi-square test; $p < 0.05$ was considered statistically significant.

Results

Ten percent of the patients had gag reflex and required pre-treatment with Xylocaine (10%) spray.

Table II shows the distribution by size of the lingual tonsil in 48 patients with a history of palatine tonsillectomy and the control group.

Most of the patients (73%) were found to have hypertrophy of the lingual tonsils (size 2-3) compared to (34%) of the control group. This difference was statistically significant (chi-square=14.7, $p < 0.001$).

The symptoms alone or in combination in the patients with size 3 lingual tonsil were: sore throat (n=8), mass in the throat (n=5), feeling of foreign body (n=4), dysphagia (n=2), cough (n=1). Three patients in this subgroup had huge lingual tonsils displacing the epiglottis posteriorly, which made visualization of the vocal cord difficult.

Discussion

The incidence of lingual tonsil hypertrophy is believed to be low, although it may often be undetected [2,7]. The etiology is largely unknown, but the patient often has a past history of palatine tonsillectomy [2,4,8]. It is speculated that the lingual tonsils swell as compensation to removed palatine tonsils [7].

Table I. Presenting symptoms in 48 patients with history of palatine tonsillectomy

Symptoms	N	%
Sore throat	21	43.75
Lump in the throat	11	22.92
Cough	4	8.33
Foreign body sensation	4	8.33
Postnasal drip	4	8.33
Dyspnea	3	6.25
Dysphagia	2	4.16

Table II. Size of the lingual tonsil in 48 patients with history of palatine tonsillectomy and 48 sex/age matched controls

Size	Patients		Controls		p
	N	%	N	%	
0	3	6	9	19	
1	8	17	20	42	
2	20	42	12	25	
3	17	35	7	14	
average	2.18		1.66		<0.001

p = Student *s-t* test

We evaluated the size of the lingual tonsil, directly or indirectly in patients with a history of palatine tonsillectomy and compared the finding to controls with an intact palatine tonsil. A significantly greater incidence of hypertrophic lingual tonsil (size 2 and 3) was noted in the patient group (73% vs. 39%, $p < 0.001$). In 3 patients with a size 3 tonsil, the epiglottis was displaced backwards and down and the vocal cords could not be visualized.

Lingual tonsillar hypertrophy, especially when unexpected, make ventilation and tracheal intubation difficult either the laryngeal mask nor the intubating laryngeal mask is always helpful [9,10].

Treatment of acutely inflamed lingual tonsil rarely requires surgery, though surgical removal of the lingual tonsils is a therapeutic option in patients with recurrent infection. It is absolutely indicated when lingual tonsil hypertrophy is associated with obstructive sleep apnea. Lingual tonsillectomy may be performed with various techniques, including sharp dissection, snare, cryosurgery, or CO₂ laser [3,6,7,11].

Tracheal intubation and ventilation via facemask may be difficult in patients with lingual tonsillar hypertrophy [8,9,10,12,16]. Jones et al [8] reported a death after failed tracheal intubation and failed ventilation of a patient because of unnoticed large lingual tonsillar hypertrophy. The only apparent symptom in their patient was a nasal voice. Asai et al [13] reported a patient with lingual tonsil hypertrophy in whom intubation using a laryngoscope, laryngeal mask and intubating laryngeal mask failed.

There are several situations in which both laryngeal mask and tracheal intubation using a laryngoscope is difficult [13,14] such as limited mouth opening, mandible subluxation, restricted head and neck movement [15,16,17], thyromental distance and lingual tonsillar hypertrophy as mentioned in our study.

Surgical treatment is usually not indicated unless there symptomatic airway obstruction [2,18].

In conclusion our study shows that palatine tonsillectomy is associated with lingual tonsil hypertrophy and considers that as a sequel of tonsillectomy even many years after the initial surgery.

We recommend that patients with history of palatine tonsillectomy undergo examination of the base of tongue for enlarged lingual tonsil or lingual tonsillitis; this can be done simply, with either direct or indirect laryngoscopy. Early detection of lingual hypertrophy can prevent difficult or blind intubation during elective surgery under general anaesthesia.

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