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COMPLICATIONS OF TONSILLECTOMY IN ADULTS

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ABSTRACT

Background: Tonsillectomy is a very common surgery performed by Ear Nose Throat (ENT) surgeons. There are different methods of tonsillectomy .A number of different complications are related to this surgery. **Objective:** To find out the complications of tonsillectomy by dissection method. **Materials and Method:** It was a prospective study carried out in the department of ENT, Medical College for Women and Hospital, Uttara, for a period of six months, from 1st July to 31st December 2023. Only patients admitted for tonsillectomy by dissection method were included in the study. Patients of tonsillitis with enlarged adenoids and other oral pathologies were excluded from this study. Data was collected using pre-designed data collection sheet. Data was processed and analyzed using SPSS software program, version 29 for windows. **Results:** This study showed that there was a preponderance of female patients (61.43%), with maximum patients being in the age group of 21-40 years (52.85%). On the 7th post operative day (POD), throat pain was the main complaint (48.57%), compared to 1st POD where dysphagia predominated (34.28%). **Conclusion:** This study aimed at finding out the different complications of tonsillectomy by dissection method, including parameters like patient factors, time taken by different types of surgeons to perform the surgery. This would help surgeons to become more efficient so as to guide the future ENT surgeons and to minimize the complications for better patient compliance.

Keywords: Tonsillectomy, Dissection method, Complications.

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INTRODUCTION

Tonsillectomy, a very familiar term in otolaryngology, has advanced since ancient history. Tonsillectomy is among the most commonly performed procedures. Head and neck surgeons should keep in mind the possible complications and their outcomes[1]. Lymphatic tissues (like the tonsil) are a barrier to infection. They perform phagocytosis. They have a role in the body's immune system. They should be removed only when they become diseased and pose a threat to good health. Indications for tonsillectomy include the following: (1) obstructions from hypertrophy-causing obstructed nasal breathing, altered voice, snoring, difficult mouth breathing and swallowing, and blocked Eustachian tubes with conductive deafness; (2) quinsy (the localized collection of pus in peritonsillar space between the tonsillar capsule and superior constrictor muscle)[2].

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The palatine tonsils are located at the junction of digestive and respiratory tracts (Figure 1). They are easily accessible. Pathogenic organisms first come into contact with the palatine tonsils. Therefore, infection of the palatine tonsils is very common[4].

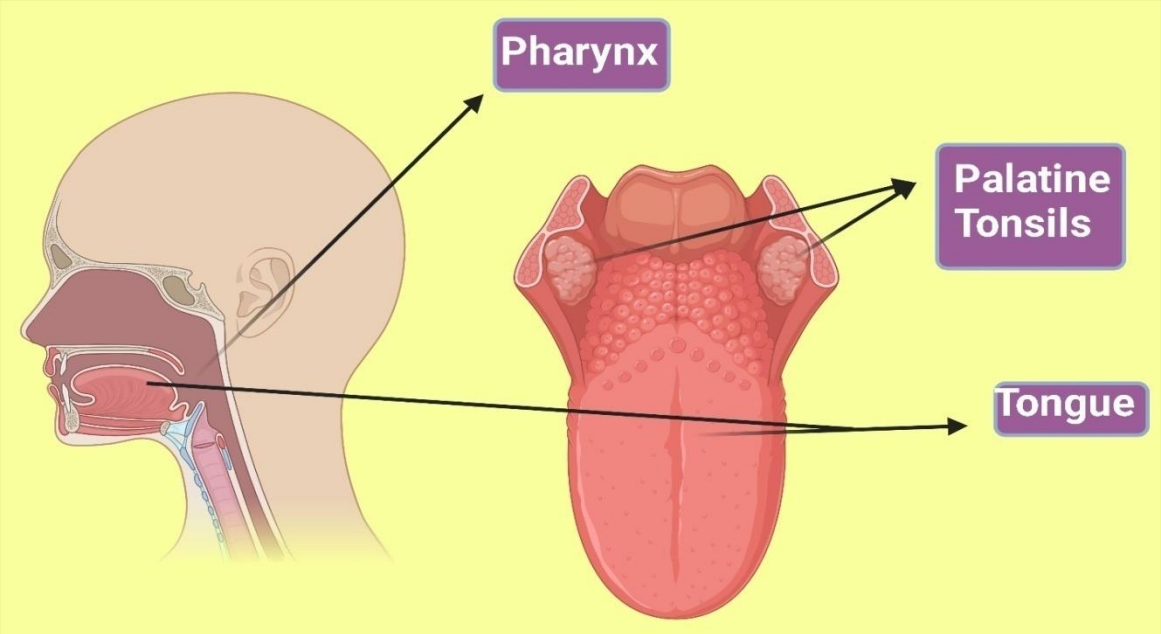

Figure 1 depicts the anatomical location of the palatine tonsils. Notes: The premium version of Bio Render (https://biorender.com/ was used to draw this figure and was accessed on November 17, 2024) with license number *BN27K4HTMW* [3]. Image Credit: Rahnuma Ahmad.

There are wide variations in the rates of tonsillectomy by geographical region. As for example, in the developing countries, incidence of surgery is lower. This could be due to illiteracy, lack of awareness and less access to healthcare facilities[5]. Table 1 displays the indications of tonsillectomy. The techniques of tonsillectomy are mentioned in Table 2.

Table 1: Indications of tonsillectomy

Indications of tonsillectomy as per SIGN guideline	• Recurrent acute tonsillitis 1. Five or more episodes of tonsillitis per year. 2. Symptoms for at least a year. 3. Episodes of tonsillitis are disabling and prevent normal functioning[6].
Other indications	• Asymmetrical adult tonsil with no cervical lymphadenopathy[7]. • As an oncological procedure for carcinoma-tonsil • Adult with gross tonsil hypertrophy and obstructive sleep apnea (osa) or as part of UPPP[8]. • As a route of approach for glossopharyngeal neurectomy in glossopharyngeal neuralgia. • For removal of styloid process in styloid –hyoid syndrome.

UPPP: Uvulopalatopharyngoplasty

Table 2 : Techniques of tonsillectomy

Techniques of tonsillectomy:	
1.	Cold dissection
2.	Diathermy or electrocautery dissection
3.	Harmonic scalpel (ultrasound) tonsillectomy
4.	Laser dissection tonsillectomy
5.	Cryosurgery
6.	Coblation method[9]

ENT surgeons perform tonsillectomy very frequently. So it is very important that the risks of surgery should be kept in mind. This is to ensure proper surgical technique and adequate skill on the part of the surgeon. It is also important for the patient, in terms of improving quality of life. It will allow proper mental and physical growth and development of the patients.

THE BASIC ANATOMY OF THE TONSILS

It is necessary to know the details of the basic anatomy of tonsils to perform tonsillectomy successfully. The palatine tonsils are ovoid masses of lymphoid tissues which are two in number and are located in the lateral wall of the oropharynx, between anterior and posterior faucial pillars. Their surfaces include medial, lateral, upper and lower surface. The medial surface is covered by non-keratinized stratified squamous epithelium.The epithelium dips into the substance of the tonsil and forms 12-15 crypts.The largest crypt is called the crypta magna. The crypts may get filled with cheesy material, bacteria and food particles. The lateral surface is covered by fibrous tissue. Loose areolar tissue is present between the capsule and the tonsil bed, which is the dissection plane for tonsillectomy. The palatine tonsil is supplied by the tonsillar branch of facial artery, ascending pharyngeal branch of external carotid artery, ascending palatine branch of facial artery, dorsal lingual branch of lingual artery, descending palatine branch of maxillary artery. The venous drainage of the palatine tonsil includes paratonsillar vein, common facial vein, pharyngeal venous plexus[10].

MATERIALS AND METHOD

It was a prospective study carried out in the department of ENT, Medical College for Women and Hospital, Uttara, for a period of six months, from 1st July to 31st December 2023. A total of 70 patients in the age group of 0 to 50 years suffering from tonsillitis who underwent tonsillectomy were included in the study. Only patients admitted for tonsillectomy by dissection method were included in the study. Patients of tonsillitis with enlarged adenoids and other oral pathologies were excluded from this study. Data was collected by a pre-designed questionnaire which was in a structured form. Data was processed and analyzed using SPSS software program, version 29 for windows. Patients of tonsillectomy admitted for other surgeries like submucosal diathermy, antral washout, turbinectomy, septoplasty, polypectomy and submucosal resection were excluded. Data collection sheet included history, clinical examination, investigation reports, operative/procedure notes and post-operative follow up. A visual analogue scale for pain score was provided to each patient for the 1st to the 7th post operative day. This scale for pain is a straight line with one end meaning no pain and the other end meaning the worst pain imaginable. The patient marks a point on the line that matches the amount of pain he or she feels.

RESULTS

This study showed that there was a preponderance of female patients (61.43%) as shown in Table 3. Maximum number of patients (52.85%) were in the age group of 21-40 years (Table 3). O+ve blood group prevailed in most patients (68.57%) and 50 out of 70 patients were students (71.43%).According to Table 4, 54 patients were operated within a time frame of between 20-40 minutes (77.14%) and 42.86% of surgeries were performed by

senior surgeons. Table 5 showed that on the 7th POD (Post-operative day), throat pain was the main complaint (48.57%), compared to 1st POD where dysphagia predominated. Also, reactionary hemorrhage was found in 1.43% of patients on 1st POD and secondary hemorrhage was found in 7.14% of patients on the 7th POD. As can be seen in Table 6, Maximum patients (17) had a pain score of 5 on the 1st POD and 30 patients had a pain score of 1 on the 7th POD.

Table 3 : Sociodemographic characteristics of patients (n=70).

		No. of patients	Percentage (%)
Sex	**Male**	27	38.57
	Female	43	61.43
Age	0 - 20 years	30	42.85
	21 - 40 years	37	52.85
	41 - 50 years	03	4.29
Blood Group	O +ve	48	68.57
	B +ve	12	20.44
	A +ve	10	10.99
Occupation	Student	50	71.43
	Housewife	20	28.57

- There was a preponderance of female patients (61.43%)
- Maximum number of patient were in the age group of 21-40 years (52.85%)
- O+ve blood group prevailed in most patients (68.57%)
- Maximum patient were students (71.43%)

Table 4 : Types of surgeons and duration of operation (n=70).

Position of Surgeons	No. of operations	Percentage (%)
Resident	22	31.43 %
Junior	18	25.71 %
Senior	30	42.86%
Duration of Operation	**No. of patients**	
20-40 minutes	54	77.14 %
41-60 minutes	16	22.86 %

- 54 patients were operated between 20-40 min (77.14%)
- 42.86 % of operations were performed by senior surgeon.

Table 5 : Complications of tonsillectomy (n=70).

During Operation	No. of patients	Percentage (%)
Reactionary Haemorrhage	**1**	**1.43**
On 1st POD		
• Instrumental injuries	8	11.43%
• Dysphasia	24	34.28%
• Nasal Regurgitation	24	34.28%
• Otalgia	9	12.86%
On 7th POD		
• Throat pain	34	48.57%
• Dysphagia	16	22.86%
• Secondary haemorrhage	5	7.14%

- On the 7th POD, throat pain was the main complaint (48.57%).
- Compared to 1st POD (post-operative day) where dysphasia predominated (34.28%)

Table 6 : Pain score on 1st and 7th post-operative day (POD) (n=70)

No. of patients		Pain score
1st POD	7th POD	
16	00	0
02	30	1
02	20	2
03	10	3
10	08	4
17	02	5
12	00	6
06	00	7
02	00	8
00	00	9
00	00	10

DISCUSSION

Recurrent tonsillitis is described as the occurrence of more than five or six episodes of acute tonsillitis per year or three episodes per year for two years[11-13]. One of the most common indications of tonsillectomy, especially in adult patients, is recurrent tonsillitis, and despite the absence of strong evidence from randomized clinical trials, most otolaryngologists believe that tonsillectomy is an effective treatment for this disease and should be offered to patients, unless there are contraindications[14-16].

In our study, among the complications of tonsillectomy, reactionary haemorrhage was 1.43%, whereas secondary haemorrhage was found in only five patient (7.14%). In one study, over a period of 1 year, 145 patients underwent cold dissection tonsillectomy. Here, reactionary haemorrhage was 0% (in contrast to our study), and secondary haemorrhage was 5.5%. This difference could be due to the fact that our study period was 6 months and total number of patients was 70. According to this study, cold dissection tonsillectomy is defined as removal of the tonsils using cold surgical instruments. Haemostasis was achieved by using bipolar diathermy, ligature or a combination of both. This technique used was similar to our study. Discharge from the hospital was usually one day after tonsillectomy (this correlates with our study)[17]. Chowdhury et al found reactionary haemorrhage to be 0% using ultrasonic harmonic scalpel tonsillectomy, differing from our study[18]. In a study, cold dissection and diathermy/ligation haemostasis technique was complicated by secondary haemorrhage in 57 out of 3087 cases (1.85%). This figure was different from our study[19]. In our study 5 out of 70 patients suffered from secondary haemorrhage (7.14%). In another study, over a period of 1 year and 2 months, out of 100 patients, mostly children (age-9-16 years), overall incidence of secondary haemorrhage by cold dissection technique was 2%, in contrast to this study where it was 7.14%[20]. It was observed in a research that out of 4662 patients, only 63 patients had tonsillectomy alone. Overall incidence of post tonsillectomy haemorrhage was 1.93%. This contrasts with our study, firstly because here tonsillectomy was performed along with myringotomy and adenoidectomy. Secondly, they used 3 dissection techniques (forceps monopolar, cold knife and needle point monopolar)[21]. Also in this study, most post-tonsillectomy haemorrhages occurred between 5th-8th post-operative day. Our study had only five cases of secondary haemorrhage on 7th post-operative day. It is still the surgeon's responsibility to minimize surgical trauma, achieve absolute haemostasis, and then manage the post operative course on an individual basis. If post tonsillectomy bleeding occurs, it must be evaluated promptly and managed aggressively, especially in children[21].

Incidence of post- tonsillectomy haemorrhage in relation to the experience of the surgeon was noted in a study. Here operations were performed by consultants, specialist registrars, and senior house officers. Our study also included a team of

senior surgeons, residents and junior surgeons. This study revealed no difference in duration of surgery, but in our study, duration of operation was increased for junior surgeons in spite of being under senior supervision. This is probably due to lack of experience and skilled hand[17]. In another study performed for 1 year and 4 months duration, mean duration of surgery was 45.04 minutes, using cold dissection technique, in contrast to our study where the duration was between 20-40 minutes (reason could be that maximum number of operations were performed by senior surgeons)[11]. Pain score (post-operative) was observed for tonsillectomy patients in a study done by Stephen et al [22]. In our study, on 1st post-operative day, 17 patients had a pain score of 5, 16 patients had a pain score of 0. These 16 patients were children (age-5-12 years). This shows that pain score was more in case of adults. This could be due to anxiety in adults. On 7th POD, pain score was 1 in 30 patients. This record is not as accurate as it should have been as some patients failed to show up on the 7th follow up day. For this reason, a mean pain score could not be obtained. Stephen et al, using 3 techniques, the mean pain score over a 10 day period was 4.30(for electrocautery tonsillectomy), 4.66 (for ultrasonic tonsillectomy), and 3.27 (for coblation tonsillectomy)[22]. The first 2 mean scores were very close to pain score of 1st post-operative day in our study. This shows that there is not much difference in the pain score between different methods of tonsillectomy. Back et al found no significant difference in pain score among 40 patients comparing coblation with cold dissection/electrocautery haemostasis method. As expected, none of the 3 surgical methods in this study resulted in a pain-free recovery[23]. The use of VAS (visual analogue scale) is a reliable method for reporting pain and other symptoms. VAS is based on six symptoms-pain, swelling sensation of soft palate, difficulty drinking, difficulty eating, difficulty opening the mouth, difficulty speaking. The patient is given a scale where patient draws a vertical line crossing a 100 mm line where 0 indicates no symptoms and 100 indicates very intense symptoms[23]. Meticulous, gentle surgical technique (staying in the proper surgical plane, gentle handling of tissues, preserving pharyngeal mucosa, and so on) is universally accepted as a significant factor in postoperative pain and healing. However, when surgeons use equivalent surgical technique, the instrument used may result in additional benefit to the patient[22].Pain score in another study on the 1st post-operative day was 4.7 (very close to our study) using ultrasonic harmonic scalpel tonsillectomy[18]. According to one study, pain score on 1st post-operative day was 6.8±2.50 in contrast to our study[11] where it was 5. In another research work, out of 200 patients, 84 were male and 116 were female, showing a female preponderance as is the case in our study (out of 70, 43 were female and 27 were male)[18]. In a previous study, trauma to upper lip, injury to tongue, injury to posterior pillar of tonsil was found in 3% cases. Joarder reported various injuries occurred in 8% cases[24]. In our study, instrumental injuries found were 11.43%. This included dislodged teeth, injuries to tongue, soft palate, uvula, pillars and posterior pharyngeal wall. This could be explained by the fact a good number of operations were performed by resident and junior surgeons.

CONCLUSION

Complications of tonsillectomy remain a concern for all otolaryngologists. This study was a small contribution in this field to create awareness among surgeons regarding patient factor, technique of surgery, outcomes of surgery and post-operative benefits to the patient. Surgeons should develop adequate knowledge, experience and skills not only to become efficient surgeons, but also to provide the patients, especially in our country, where illiteracy and unawareness predominate,

with the best possible services. An efficient and expert surgeon also has a supreme role to supervise, guide and train juniors to become qualified surgeons, hence provide safe surgeries and minimal complications.

CONFLICT OF INTEREST

There is no conflict of interest

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