

Original Research Article

Effects of slough clearance rates post adult tonsillectomy in patients with laryngopharyngeal reflux disease

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ABSTRACT

Background: Laryngopharyngeal reflux is known to be associated with multiple disease of the upper aero digestive tract and can cause serious injury to the mucosa long term.

Methods: Patients diagnosed with chronic tonsillitis and indicated for surgery were evaluated for laryngopharyngeal reflux using reflux symptom index score. When score greater than 13 was suggestive of laryngopharyngeal reflux (LPR) and counselled for 24 hours ambulatory dual probe pH monitoring. When the reflux event was 7 or more were diagnosed having LPR. Patients were divided into two groups Group A patients with chronic tonsillitis and without LPR and Group B patients with chronic tonsillitis and LPR. Postoperatively there slough percentage was calculated as 25%, 50%, 75%, 100% on the postoperative day (POD) 7, 14 and 21. Slough clearance rates were calculated as 100-slough percentage.

Results: There were 40 patients in Group A and 40 patients in Group B. The slough clearance rates of Group A were 46.3, 73.8 and 96.9 on post-operative days 7, 14, 21 respectively. The slough clearance rates of Group B were 30.1, 57.6, 90.1 on POD 7, 14, 21 respectively. The p values comparing slough clearance rates showed 0.00, 0.002, 0.013 on POD 7, 14, 21 which was statistically significant. Group B with laryngopharyngeal reflux had delayed healing than Group A.

Conclusions: Laryngopharyngeal reflux seems to adversely affect healing and complication following tonsillectomy due to lowering of slough clearance rates. Hence we recommend the need for assessment and treatment pre/post operatively of laryngopharyngeal reflux disease in adult patients undergoing tonsillectomy.

Keywords: Laryngopharyngeal reflux, Chronic tonsillitis, Tonsillectomy, Reflux symptom index, Dual probe, Healing, Slough

INTRODUCTION

The roman physician Celsus is the first documented person in history to have done tonsillectomy 2000 years ago.¹ Since then it is one of the common procedures done by otorhinolaryngologists. The technique of tonsillectomy is to approach the tonsillar bed through an incision and to separate the tonsil from the underlying superior constrictor muscle with fascia. This produces an avulsion wound that is exposed to the outside

environment and heals by secondary intention.² However this procedure has complications such as pain, haemorrhage and infection due to the influence of outside environment as the wound is left open to heal.³ Several factors affecting wound healing such as age, sex, technique used (e.g., coablation, laser, etc..) smoking has been studied.⁴

Koufman in his study indicate laryngopharyngeal reflux disease in the pathogenesis of several upper aerodigestive

tract diseases such as chronic laryngitis, vocal nodules, rinks edema, laryngeal spasm, pharyngitis.⁵

We undertook this current study to find out if laryngopharyngeal reflux disease affects the slough clearance rates and effect healing post adult tonsillectomy.

METHODS

It is a prospective, blinded, case-control study that included adult patients between age of 18-50 years of both sexes diagnosed with chronic tonsillitis and planned for tonsillectomy in the Department of Otorhinolaryngology and head and neck surgery at Saveetha Medical College between April 2018 to April 2019. Patients below 18 years, above 50 years, critically ill patients, previous history of peritonsillar abscess, comorbid conditions (hypertension, diabetes mellitus, bronchial asthma, bleeding disorders), patients on anti-reflux medication for the past one month were excluded from the study.

Patients diagnosed with chronic tonsillitis were given reflux symptom index score for evaluation of laryngopharyngeal reflux. Reflux symptom index score if greater than 13 was suggestive of laryngopharyngeal reflux according to Belafsky et al and those patients were counselled to do ambulatory 24 hours dual probe pH monitoring.⁶ Informed consent was obtained. Patient was prepped with 4% xylocaine intranasally, dual probes 10 cms apart was used. The probe was placed under endoscopic guidance, proximal probe at upper oesophageal sphincter and distal probe approximately 5 cms from lower oesophageal junction. Carbonated and caffeinated beverages were restricted during the study. Laryngopharyngeal reflux events were defined as an abrupt proximal electrode pH drop to less than 4. Patients having 7 or more reflux events per 24 hours of the study period in proximal electrode were diagnosed having laryngopharyngeal reflux as described by Vincent et al.⁷

Patients were divided in to two groups. Group A patients diagnosed with chronic tonsillitis and without laryngopharyngeal reflux. Group B patients diagnosed with chronic tonsillitis and laryngopharyngeal reflux.

Both group A and group B patients underwent pre anaesthetic workup and were planned for tonsillectomy. The tonsillectomy procedure was standardized and done by dissection and snare method using pressure and ligation for cautery for haemostasis without use of electro cautery by a single senior otorhinilaryngologist. Post operatively all patients were given standard regimen of inj. amoxicillin-clavuanic acid (in dose determined by the patients weight) and oral paracetamol 500 mg and pantoprazole 40 mg quarterly 12 h three doses.

The senior surgeon assessed the percentage of slough in the tonsillar fossa on postoperative day (POD) 7, 14 and

21 in both the groups and was graded 25%, 50%, 75%, 100% appropriately and the slough clearance rates were calculated as 100 minus the slough percentage.

Mean and standard deviation were estimated from the sample of each study group. Independent sample test and Mann-Whitney U test was used to find the level of significance between group A and group B. In this study $p < 0.05$ was considered as the level of significance.

RESULTS

Group A had 40 patients diagnosed with chronic tonsillitis without laryngopharyngeal reflux and group B had 40 patients with chronic tonsillitis and laryngopharyngeal reflux. The mean age of Group A was 25.95 and Group B was 26.95. The male male-female ratio was 3:2 in Group A and 9:1 in Group B.

Table 1: Slough clearance rates.

	POD 7	POD 14	POD 21
Group A	46.3	73.8	96.9
Group B	30.1	57.6	90.1
P value	0.00	0.002	0.013

The corresponding p values were statistically significant. Group B had delayed healing than Group A.

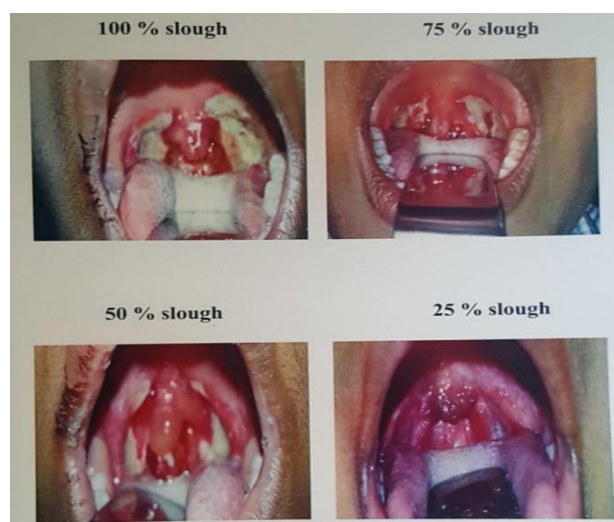


Figure 1: Clinical findings.

DISCUSSION

Delayed slough clearance rates was observed in Group B as compared to Group A this may be due to proteolytic effect of the refluxate which is known to have proteolytic effect causing marked damage to the surface epithelium by breaching the epithelial barrier.⁷ The same principle can be applied to the post tonsillectomy wound when exposed to refluxate. In this study we found that the slough clearance rates were slower in Group B patients with laryngopharyngeal reflux disease with p values of

0.00, 0.002 and 0.013 which statistically different as of Group A without laryngopharyngeal reflux disease on post-operative days 7, 14 and 21. Studies have shown the use of sucralfate as post-operative medication in patients undergoing tonsillectomy to alleviate pain and promote epithelisation of the tonsillar bed.⁸ In addition to delayed slough clearance laryngopharyngeal reflux can also cause other complications such as pain and haemorrhage in tonsillectomy patients.⁷

Though this study we recommend certain perioperative measure to lessen the harmful effects of laryngopharyngeal reflux on healing post tonsillectomy such as dietary modification (to avoid fats, coffee, chocolate, alcoholic drinks, smoking), avoidance of taking food 2 hours prior to going to bed or lying down, tight clothes around the waist.⁹ Drug therapy includes prokinetics to speed gastric emptying and proton pump inhibitors per operatively and post operatively to suppress acid production and reflux.¹⁰

There has not many studies done comparing healing effects of laryngopharyngeal reflux on tonsillar fossa post tonsillectomy. However a study done by Elwany et al showed that patients with laryngopharyngeal reflux had significantly higher pain score and delayed healing in the 7th and 14th postoperative days with p values of (p=0.016 and p=0.029, respectively) which was statistically significant.¹¹

CONCLUSION

Laryngopharyngeal reflux seems to adversely affect healing and complication following tonsillectomy due to lowering of slough clearance rates. Hence we recommend the need for assessment and treatment pre or postoperatively of laryngopharyngeal reflux disease in adult patients undergoing tonsillectomy.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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