



Effect of Rabeprazole on Pachydermia Laryngis in Patients with Laryngopharyngeal Reflux

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ABSTRACT

Introduction

Laryngopharyngeal reflux (LPR) is defined as the retrograde flow of gastric content into larynx and pharynx. It is a multifactorial syndrome. Empiric trial of PPI therapy represents the first step to confirm LPR and to treat it accordingly as all currently available diagnostic tests have poor sensitivity and specificity. However, there is no accepted protocol for the most effective treatment of patients with LPR.

Objective: To study the effect of Rabeprazole on pachydermia laryngis (posterior commissure hypertrophy) in patients with LPR.

Materials and Methods

In this prospective study, 75 subjects diagnosed with LPR using Reflux symptom index (RSI) and Reflux finding score (RFS) tools were recruited. Using RFS, Posterior commissure hypertrophy was scored at presentation and after 8 weeks of rabeprazole therapy. The mean pre- and post-treatment posterior commissure hypertrophy scores for each patient were compared using paired T-test

Results

Posterior commissure hypertrophy did not show statistically significant improvement following 8 weeks of 20mg OD oral rabeprazole therapy.

Conclusion

Eight weeks of oral therapy with Rabeprazole 20mg OD did not show statistically significant improvement in posterior commissure hypertrophy.

Keywords

Laryngopharyngeal Reflux; Reflux Finding Score; Endoscopy.

Laryngopharyngeal reflux (LPR) is a recently described clinical entity which is caused due to the retrograde flow of gastric contents into the throat, i.e., into laryngopharynx.¹

Delahuty² in 1972 describes the posterior commissure hypertrophy as the characteristic “interarytenoid heaping

of mucosa.” Belafsky et.al³ developed a novel diagnostic tool called Reflux Finding Score (RFS) based on the common findings on laryngoscopy in patients with LPR. It is an 8-item scoring system based on the severity, location and presence or absence of the findings on laryngoscopy. This tool is simple to administer, well validated and used by many investigators to diagnose LPR clinically. Belafsky et.al³ in their study graded posterior commissure hypertrophy as mild (1 point) when there is a moustache-like appearance of the posterior commissure mucosa and moderate (2 points) when the posterior commissure mucosa is swollen enough to create

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a straight line across the back of the larynx. Posterior commissure hypertrophy is graded as severe (3 points) when there is bulging of the posterior larynx into the airway and obstructing (4 points) when a significant portion of the airway is obliterated.

The importance of LPR has been increasing in clinical practice as it is implicated as the etiological agent in a variety of conditions like reflux laryngitis to laryngeal carcinoma. It has been estimated that up to 10% of patients presenting to an otolaryngologist's office is LPR and 50% of all patients suffering from hoarseness and voice disorder may have significant LPR.⁴

As most common laryngeal signs of LPRD were noted in the posterior part of the larynx due to its maximum exposure to the regurgitating acid; and also, as pachydermia is one of the most commonly cited laryngeal finding associated with LPR, this study was conducted to see the effect of PPI (rabeprazole) on pachydermia (posterior commissure hypertrophy). Rabeprazole 20mg once daily at night before food was given for 8 weeks of duration.⁵

Materials and Methods

A prospective study was conducted in a tertiary hospital in central Karnataka, for a period of two years from November 2018 to October 2020. Institutional ethics committee approval was obtained for the study. A total of 75 subjects were recruited who presented with symptoms suggestive of LPR after obtaining a valid informed written consent satisfying following inclusion and exclusion criteria.

All patients aged between 18 and 55 years, clinically diagnosed with LPR, were included in the study. People with asthma / COPD/ organic laryngeal disorders not associated with LPR were excluded from this study. After initial clinical evaluation, all the 75 patients underwent laryngoscopic examination using a 90° rigid pharyngolaryngoscope.

Laryngoscopic findings were recorded and scored.

The RFS is an 8-item scoring system based on the presence and the severity of the laryngoscopic findings. If there were no abnormal findings the score will be zero and the maximum score of 26 was given to the severe findings. A score of more than 7 was diagnostic of LPR.

All diagnosed with LPR with pachydermia being one of the laryngeal findings were given Rabeprazole 20mg once daily at night before food for 8 weeks of duration and they were reassessed at 4 and 8 weeks and results were correlated after applying Paired T-test.

Results

Age of the study group ranged from 18 to 55 years (Mean age 39.76). Majority of the subjects (58%) were between 20 to 40 years. There were 38 males (54%) and 33 females (46%) in the study group. Subjective improvement in LPR symptoms were noted after 8 weeks of rabeprazole therapy in all patients.

Out of 71 patients with posterior commissure hypertrophy, 17 subjects showed grade 1 hypertrophy, 46 subjects showed grade 2 hypertrophy and 8 subjects showed grade 3 hypertrophy.

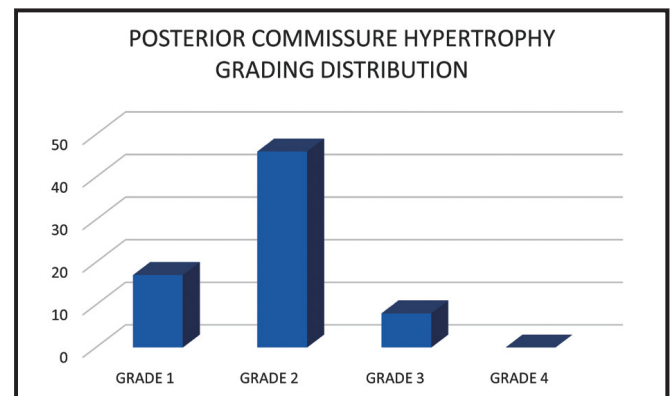


Fig. 1. Posterior commissure hypertrophy grading distribution

Among 71 patients only two patients (8.6%) showed complete resolution of posterior commissure hypertrophy after 8 weeks of treatment. A total of 67 patients (43.47%) did not show any change in grading of posterior commissure hypertrophy. And 4 patients (47.82%)

showed down grading of posterior commissure hypertrophy.

Table I lists the mean pre- and post-treatment posterior commissure hypertrophy scores for each patient. A paired T-test was used to compare the difference in pachydermia/posterior commissure hypertrophy scores following 20mg OD Rabeprazole therapy. There was no statistically significant difference between pre- and post-treatment ($P=0.06$), indicating no significant change in the posterior commissure appearance after treatment.

Table I: The mean pre- and post-treatment posterior commissure hypertrophy scores

PCH	MEAN RFS SCORE OF PCH AT PRESENTATION	MEAN RFS SCORE OF PCH AFTER 8 WEEKS	MEAN DIFFERENCE	P-VALUE
	1.773	1.706	0.99	0.06

($P < 0.05$ Significant)

Laryngoscopic images showing different grades of posterior commissure hypertrophy:

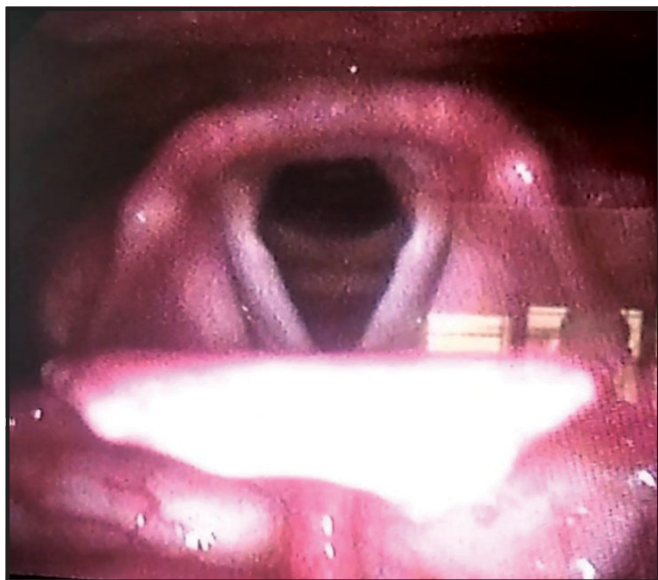


Fig. 2. Laryngoscopic image in which there is grade I posterior commissure hypertrophy.

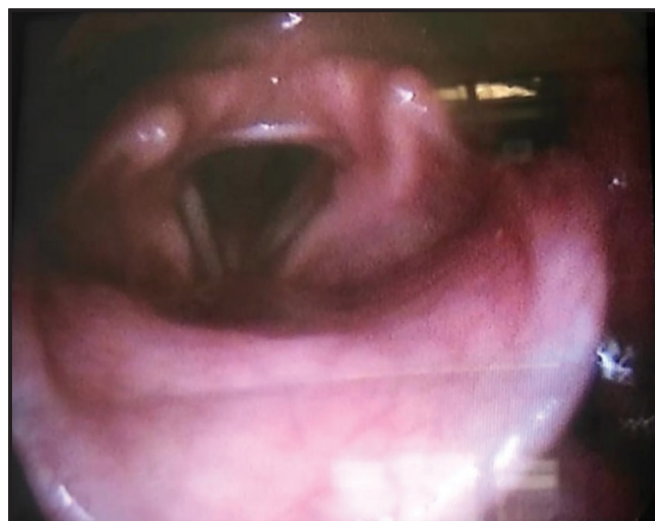


Fig. 3. Laryngoscopic image in which there is grade II posterior commissure hypertrophy



Fig. 4. Laryngoscopic image in which there is Grade III posterior commissure hypertrophy

Discussion

The RFS is a most reliable and validated tool used in diagnosing LPR. It involves entire larynx to create an overall reflux score. In this study we chose to study the changes only in posterior commissure hypertrophy because it is one of the most frequently cited laryngeal findings associated with LPR and also it is noted in the posterior larynx, which is the site of maximum acid exposure due to its anatomical proximity to oesophageal inlet.

Kambic and Radsel,⁶ in 1984 using the term “acid posterior laryngitis,” further established posterior commissure hypertrophy as a clinical indicator of LPR. They have also shown that, on exposure to acid, the interarytenoid area undergoes some histologic transformation in the form of hyperplasia of prickle and basal cell layers associated with some degree of keratinisation. This histopathologic transformation could represent an irreversible process, which would explain the apparent persistence of pachydermia despite appropriate medical therapy.

In our study, among 71 patients only two patients (8.6%) showed complete resolution of posterior commissure hypertrophy after 8 weeks of Rabeprazole therapy. A total of 67 patients (43.47%) did not show any change in grading of posterior commissure hypertrophy. And 4 patients (47.82%) showed down grading of posterior commissure hypertrophy. Hence statistically there was no significant difference in posterior commissure hypertrophy score after treating with Rabeprazole for 8 weeks.

In accordance to our study, a study conducted by R. Keith Hill and his colleagues⁷ demonstrated no significant improvement in posterior commissure hypertrophy following acid suppressive therapy with PPI's for long-term in patients with LPR and concluded that pachydermia, as an isolated finding, is unreliable in determining the presence of active LPR.

Some randomised, placebo-controlled trials were done to determine the efficacy of proton pump inhibitors in treating LPR and was found to show no significant improvement in posterior commissure hypertrophy and other laryngeal signs following 6 to 8 weeks of treatment.^{8,9,10}

Noordzij et al in their study to determine the efficacy of 40 mg omeprazole twice daily for two months in the treatment of LPR showed no improvement in posterior commissure hypertrophy and other laryngeal signs. They also explained the possible reasons for this lower-than-expected efficacy of gastric acid suppression in the treatment of reflux laryngitis is that other gastric irritants, such as pepsin and bile, may be playing a significant causative role and the need for prolonged PPI therapy.⁸

In a placebo-controlled trial conducted by Reichel O et al,⁹ there was no improvement in posterior commissure hypertrophy in first follow up after 6 weeks, whereas the final examination after 3 months revealed a statistically significant reduction of posterior commissure hypertrophy in the esomeprazole group ($P < 0.01$) signifying the need for PPI therapy for at least 3 months duration.

Conclusion

Eight weeks of oral therapy with Rabeprazole 20mg OD did not show statistically significant improvement in posterior commissure hypertrophy indicating either the need for prolonged therapy or emphasizing its nature of irreversible mucosal injury secondary to histologic transformation.

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