



SURGERY OR VOICE THERAPY FOR TREATMENT OF VOCAL FOLD LESION: A RANDOMIZED CONTROL TRIAL

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ABSTRACT

Objective: This study is aimed to compare the efficacy of vocal microsurgery and voice therapy in patients with small and medium size benign vocal cord lesion.

Methods: A total of 20 patients with benign vocal cord lesion underwent 2 months of voice therapy (VT group); another 20 patients with benign vocal fold lesion underwent vocal microsurgery (VM group). All subjects were assessed using laryngostroboscopy, voice handicap index, and multi dimensional voice program, and the efficacy of vocal training and vocal microsurgery were compared.

Results: The improvements of VHI, amplitude, mucosal wave, phase symmetry, non vibrating portion, glottis closure, jitter, shimmer, NHR ratio in surgery group were better than that in the voice therapy group. The cure rate of surgery was much better than voice therapy in small and medium size benign vocal cord lesion.

Conclusion: Although both surgery and voice therapy could effectively improve the voice quality of patients with benign vocal cords lesion, the cure rate was much better in surgery group proved its effectiveness for Vocal cord lesion.

KEYWORDS :

INTRODUCTION

Vocal fold nodules are frequent cause of hoarseness which correspond to bilaterally symmetrical epithelial thickening, located in the middle third of the vocal fold. They are the result of the traumatic and constant collision of the vocal folds caused by the over-contraction of the laryngeal intrinsic muscles. Vocal fatigue is common symptom resulting from glottis closure during phonation(1).

Whereas the preferred treatment for vocal fold nodules involves a conservative management approach, vocal fold polyps are treated with either surgical or non-surgical therapies(2). Traditionally, surgical therapy, such as resection under the guidance of a microscope with mucosa preservation, has been preferred with expected spontaneous healing(3). Voice therapy or vocal hygiene education plays an adjunctive role after surgery. Surgery as a treatment modality has the associated risks of general anaesthesia and vocal fold scarring following surgery. However, voice therapy and vocal hygiene, as acceptable alternative definite therapies to improve voice outcome(4). Vocal cord lesions of a small size, with hemorrhagic features, and occurring in females show a better response to voice therapy or vocal hygiene education(5)(6).

AIMS AND OBJECTIVES:

To Compare the treatment outcomes of surgery and voice therapy in patients with benign vocal cord lesion.

MATERIAL AND METHODS:

STUDY SITE

Our Study was conducted at a Tertiary care Institute. This is a 675 bedded, state of the art hospital catering to the needs of all sections of society.

STUDY POPULATION :

40 patients were recruited, out of which 20 patients were assigned surgery group while 20 patients were assigned speech therapy group by using random numbers generated by computers.

STUDY DESIGN

This was a prospective randomised comparative study which was undertaken in the Department of Oto-rhino-laryngology.

TIME FRAME TO ADDRESS THE STUDY

This study was conducted from August 2017 to April 2018. Last enrolment was done in February 2018 as there was follow up period of 8 week.

INCLUSION CRITERIA:

1. Patients with vocal cord nodule and vocal cord polyp
All lesions were of small or medium size. small is pinpoint base and medium means base greater than pinpoint size but less than one third the length of vocal fold.

EXCLUSION CRITERIA:

The exclusion criteria will be defined as follows:

1. Patients with viral papilloma of vocal cord
2. Patients with carcinoma in situ of vocal cord and leukoplakia
3. Patients with large size vocal cord lesion (more than one third of length of vocal cord)
4. Patients with age > 65 year and < 18 year
5. Patients with any comorbid condition
6. Patients with benign vocal cord lesion other than that of inclusion criteria.

To confirm the diagnosis, videolaryngostroboscopy examination, and acoustic voice analysis, were performed by trained laryngologists and speech language pathologist.

METHODOLOGY

Patients were recruited in the study after a written informed consent was taken. Proper history was taken, examination was done and Relevant Investigations were done. Subjective self-assessment of voice was obtained using the Indian version of the Voice Handicap Index (VHI) which assesses the subject's perception of disability, handicap, and distress related to voice disorders. Clinical Analysis by Videolaryngoscopy with Stroboscopy was done.

Acoustic Analysis By MDVP was done.

Outcome Analysis:

Patients, fulfilling inclusion and exclusion criteria, were divided into two groups on a 1:1 basis, depending on numbers generated by computer.

1. First group comprise of patients of benign vocal cord lesion who was subjected to phonosurgery (group 1).
2. Second group comprise of patients of benign vocal cord

lesion who was subjected to voice therapy(group 2).
 Informed consent for the procedure was taken.

Efficacy evaluation

The voice therapy group was re-evaluated after 8 sessions and the surgical group was re-evaluated 2 months after surgery. Both group were re-evaluated with Voice handicap index,,videolaryngostroboscopy examination and multidimensional voice program.

Statistical analysis

Statistical testing was conducted with the statistical package for the social science system version SPSS 17.0.Preoperative and postoperative values were compared using the paired t-test. P<0.05 was considered statistically significant.

RESULTS AND OBSERVATIONS

Duration of symptoms

Patients in group 1 had history of symptoms for duration 6.85 months (mean) , Patients in group 2 had history of symptoms for duration 5.95 months (mean) , The difference in duration of symptoms in these groups was statistically not significant.

Type of lesion : Table 1

Type of lesion	Group 1		Group 2		p value
	Frequency	%	Frequency	%	
Gelatinous Polyp	5	25.0%	1	5.0%	0.249
Hemorrhagic Nodule	2	10.0%	1	5.0%	
Hemorrhagic Polyp	5	25.0%	4	20.0%	
Hyaline Nodule	2	10.0%	6	30.0%	
Hyaline Polyp	6	30.0%	8	40.0%	
Total	20	100%	20	100%	

LARYNGOSCOPIC FINDINGS OF VOCAL CORD LESION:

In group 1 , 15% patients had vocal cord nodule , 45% patients had pedunculated vocal cord polyp while 40% patients had sessile vocal cord polyp. In group 2 , 35% patients had vocal cord nodule , 15% patients had pedunculated vocal cord polyp while 50% patients had sessile vocal cord polyp.

Contra-lateral reactive lesion :

Presence of vocal polyp or nodule , sometimes produce reactive lesion on contra lateral vocal cord. In the present study , 85% patients in group 1 & group 2 had no contralateral reactive vocal cord lesion while 15% in both groups had contralateral reactive lesions. Statistically speaking , there was no significant difference in both groups , in terms of presence or absence of contra lateral vocal cord lesions

Voice Handicap Index :

Pre-treatment VHI in group 1(surgery) was 66.55 (mean) while post treatment it was 15.75 (mean). Pre-treatment VHI in group 2(voice therapy) was 62.05 (mean) while post voice therapy it was 25.25 (mean). The difference in voice handicap index in these both groups was statistically significant after treatment. group 1 was better than group 2.(p value = 0.001)

Amplitude stroboscopy

Values for pre-treatment Amplitude_stroboscopy was 70.00 in group 1(surgery) , while it was 68.00 in group 2(voice therapy). In post operative period , values for Amplitude_stroboscopy was 96.00 in group 1, while post voice therapy 86.50 in group 2.group 1 was better than group 2.

Mucosal wave :

Values for pre-treatment mucosal wave was 70.00 in both group 1(surgery)& group 2(Voice therapy).In post operative period , values for mucosal wave was 96.00 in group 1, while post voice therapy 86.50 in group 2.group 1 was better than group 2.

Non vibrating proportion :

Values for non vibratingproportion(mean) was 19.00 in both group 1 & group 2 . In post treatmentperiod , values for non vibratingproportion was 1.00 in group 1, while 10.75 in group 2.group 1 was better than group 2.

Phase symmetry

Values for phase symmetry (mean) was 68.00 in both group 1(surgery)& group 2(voice therapy) pre -treatment. In post operative period , values for phase symmetry mean was 96.00 in group 1, while post voice therapy 87.25 in group 2.group 1 was better than group 2.(p=0.001)

Glotticclosure :

Patterns for pathological glottic closure can be of various types like hourglass glottic gap, incomplete glotticclosure , posterior glottic gap.

DISCUSSION :

Literature suggesting treatment of vocal cold lesion mainly focused on surgery, and related reports proved its effectiveness for Vocal cord lesion. For patients who are reluctant to undergo surgery for several reasons like economical burden, risks associated with surgery (vocal fold scarring) and risk associated with general anesthesia, voice therapy might be a suitable replacement treatment. Current literature does not report any study comparing the two modalities in small and medium sized benign vocal cord lesion.

Our research suggests the improvements of VHI as subjective parameter, amplitude; mucosal wave; phase symmetry; non vibrating portion; glottic closure as stroboscopy parameter, jitter; shimmer; NHR ratio as MDVP parameter in surgery group were better than that in the voice therapy group. Our findings suggest that the post treatment voice quality of the two treatment groups showed amelioration to a significant extent, which suggests that both Voice therapy and surgery can be effective treatment modalities for vocal fold lesion. The subjective and objective dysphonia assessments of the patients were improved compared to those before treatment but the values did not return to normal levels in voice therapy group. The cure rate of surgery was much better than voice therapy in small and medium size benign lesion of vocal cord.

In the clinical settings the dissolution of the vocal cord lesion is sometimes considered as the standard of cure, thereby pronouncing microlaryngeal surgery to be a better option than the voice therapy group when considering a follow up of 6 to 8 week. Our research summarizes and compares the subjective and objective vocal changes of these two treatment methods, as well as the cure rate, so it can provide a reference for patients to choose the treatment method that suits their own needs.

CONCLUSION:

Although both surgery and voice therapy could effectively improve the vocal quality of patients with benign vocal cords lesion, the cure rate was much better in surgery group proved its effectiveness for Vocal cord lesion . The patient population declined surgery due to economic constraints, co-morbid conditions rendering them poor candidates for surgery and anaesthesia. Voice therapy is a suitable alternative treatment which can achieve desired results through the prolonged treatment duration can be sometimes prejudicial. When physicians and patients select the appropriate treatment method, they should fully understand the principles and characteristics of surgery and voice therapy. It may be desirable to select a treatment approach based on the patients' own demands, as this would help establish reasonable treatment expectations. The limit of our research is that the follow-up time can be longer. Further research

needs to be carried out targeting this point.

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