

Clinical Analysis and Voice Handicap Index -10 (VHI-10) of Patients with Vocal Cord Polyps and Nodules

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ABSTRACT

Introduction: Vocal polyps and nodules are benign lesions of vocal cords. These lesions have significant influence on quality of life of patients. Mainly these lesions present as hoarseness of voice with vocal demand and abuse as significant precipitating factor. Objective of the study was to analyze clinical and demographic profile and VHI-10 of patients with vocal cord polyps and nodules.

Material and Methods: A total of 50 patients with clinical diagnosis of vocal polyp or nodule were studied. All cases were analyzed clinically. History, laryngeal examination (Indirect laryngoscope and fibro-optic laryngoscopy) and patient self reporting questionnaire (VHI-10) was taken from every patient.

Results: Total 50 cases with Male: Female ratio of 1.5:1 were analyzed. Age of patients ranged from 14 to 65 years and majority of patients with vocal polyps and nodules presented in 4th decade. Voice demanding profession was presented in 46% of cases. Apart from voice demanding profession, other form of voice abuse, smoking and laryngopharyngeal reflux disease were other predisposing factors in 54%, 30% and 34% of patients respectively. Vocal polyps and nodules were roughly in equal ratio 26:24. Over all mean (\pm SD) of VHI-10 was 11.16 \pm 6.68. In male, it was 10.2 \pm 5.91 and in female, it was 12.60 \pm 7.63.

Conclusion: Vocal polyps and nodules are benign lesions of vocal cords with male predominance and voice demand/abuse acts as significant precipitating factor and have a significant impact on patients quality of life.

Keywords: Vocal cord polyp, vocal nodule, vocal handicap index-10.

INTRODUCTION

Vocal cord polyps and nodules are the most common benign lesions of true vocal cords. Vocal polyps are usually solitary and vocal nodules are usually bilateral. Both arise from the edge of the vocal folds.¹ Phono trauma is an important etiological factor in both. Phonotrauma include vocal overuse (voice demanding profession) or vocal abuse. Voice abuse is characterized by forced voice production due to strain in the head, neck and shoulder region producing a hoarse quality of voice.² Since both lesions usually cause hoarseness of voice and thus interfere in day to day activities. Vocal handicap index-10 is easily self administered and scored, quickly at the time of evaluation while preserving original VHI's utility and validity.³

Aim of the research was to analyze clinical and demographic profile and VHI-10 of patients with vocal cord polyps and nodules.

MATERIAL AND METHODS

This prospective study was carried in Department of ENT,

GMC Srinagar for one year from July 2014 to June 2015 on 50 patients with clinical diagnosis of vocal polyps and nodules. Consecutive sampling method was used in selecting the study group and all the patients were selected based on inclusion and exclusion criteria. Patients with age less than 10 years were excluded. Also patients with super-added secondary muscle tension dysphonia on vocal polyp and vocal nodule were excluded. Patients with malignancy on histopathological examination were also excluded. After taking clinical history, (sex, age, precipitating factors and occupational voice demand) laryngeal examination (indirect laryngoscopy or fibro-optic laryngoscopy or both) was done. The impact of benign lesions on patients quality of life was read using voice handicap index-10. Patients self-reporting tool i.e. voice handicap index-10 was taken from every patient (appendix-1). Before the start of the study ethical clearance was sought from ethical committee of GMC and written informed consent was taken from all the subjects and method of study was explained properly in local language.

STATISTICAL ANALYSIS

SPSS version 21 was used to generate tables and graphs. The data collected was analyzed by descriptive statistics.

RESULTS

A total of 50 cases with male: female ratio of 1.5:1 were included in the study. The maximum number of cases were seen in the 4th decade i.e. 31-40 years. The ratio of vocal polyps to vocal nodules was roughly equal in both sexes. (Table 1, fig 1). Voice demanding profession was found in 23 (46%) cases. Other form of voice demand (apart from voice demanding profession) was found in 27 cases (52%). Addiction (smoking) was found in 15 cases (30%). Symptoms of Laryngo-pharyngeal reflux (LPR) were found in 17 cases (34% cases), voice demanding profession and addiction (smoking) was found more in males in comparison to females (Table 2). Voice handicap index-10 was used to assess the impact of voice complaint on patients quality of life. The mean VHI-10 in total was 11.16 \pm 6.68. The VHI-10 was more in female patients as compared to males. Table 3

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DISCUSSION

In our study, male preponderance is seen with male:female ratio of 1.5:1 which is in-concurrence with the studies done by Reddy DS et al and Pawan Singhal et al which showed male:female ratio of 2.12:1 and 2.5:1 respectively.^{4,5} Maximum cases (50%) presented in the age group of 31 to 40 years. Again it is in-concurrence with the study of Reddy DS et al and Ruma Gupta et al which showed maximum cases 32% and 40% respectively in this age group.^{4,6} The reason for the above two findings i.e. male preponderance and 4th decade is that this group is the most active and productive portion of society involved in various social, economical and professional works.

In our study, vocal polyp outnumbered vocal nodules. Various studies on benign vocal cord lesions had showed same results.^{4,6} But few studies like study done by Hiren D Sone et al and Sambu Baitha et al showed vocal nodules outnumbering vocal polyp.^{7,8} Reason may be different populations studied from different states and difference in their life-styles. In the present study, vocal demand (professional and non-professional) and smoking were predisposing factor in about 65% of cases. Study done by Hiren D Soni et al. also showed vocal abuse (40%) and smoking (23.33%) as most common predisposing factors.⁷ Non-professional voice demand include the voice-demand of patients in their families and other day today non-professional activities. Laryngopharyngeal reflux was precipitating factor in about 1/3rd of cases. Studies have shown that triad of voice abuse, smoking and LPR in causation of vocal fold lesions (nodules and polyps).^{1,9}

In our study, Vocal Handicap Index-10 was used to assess the impact of voice complaint on patients quality of life. It is easily self administered and scored quickly at the time of evaluation while preserving original VHI's utility and validity.³ Scoring of VHI-10 is from 0 upto 40. In total (both males and females), the mean score was 11.16 with standard deviation of 6.68 and females have more VHI-10 score as compared to males. Arffa RE et al studies normative values of VHI-10 and conclude VHI-10 score greater than 11 as abnormal.¹¹ Xuakeun Huang et al. also performed VHI- analysis of vocal polyps and vocal nodules and total vocal handicap index-30 was 36.83±21.32 in vocal polyps and 38.00±20.78 in vocal nodules.¹⁰ All the patients were managed either conservatively (medical and voice therapy) or surgically (micro-laryngeal surgery MLS) or both according to pathology diagnosis.

CONCLUSION

Vocal cord polyps and nodules are benign lesions of vocal cords and found most commonly in fourth decade of life with male predominance. Vocal polyps outnumbering vocal nodules with voice-demand (professional/ non-professional), LPR and smoking as important triggering (precipitating) factors. Both benign lesions have impact on quality of life which can be measured using voice-handicap index-10. Prevention by voice hygiene and treatment by medical and surgical procedures (MLS) can have excellent impact on prognosis.

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Age Group (Years)	Total No. of Cases	Males	Females
11 – 20	4 (8%)	2 (4%)	2 (4%)
21 – 30	11 (22%)	4 (8%)	7 (14%)
31 – 40	25 (50%)	14 (28%)	11 (22%)
41 – 50	6 (12%)	6 (12%)	0 (0%)
51 – 60	3 (6%)	3 (6%)	0 (0%)
61 – 70	1 (2%)	1 (2%)	0 (0%)

Table-1: Demographic Profile Of Study Group Patients

Precipitating Factors (Etiological Factors)	Total No. Of Cases	Males	Females
Professional voice users/ Voice demanding profession	23 (46%)	22 (44%)	1 (2%)
Non-professional voice users (Other form of voice demand)	27 (54%)	10 (20%)	17 (34%)
Addiction (smoking)	15 (30%)	12 (24%)	3 (6%)
Symptoms suggestive of LPR	17 (34%)	12 (24%)	5 (10%)

Table-2: Distribution on Basis of Etiological Factor.

Mean VHI-10 scoring ± Standard Deviation Total	Mean VHI-10 scoring ± Standard Deviation Males	Mean VHI-10 scoring ± Standard Deviation Females
11.16 (± 6.68)	10.20 (± 5.91)	10.60 (± 7.63)

Table-3: Patient self-reporting questionnaire (Voice handicap index-10)

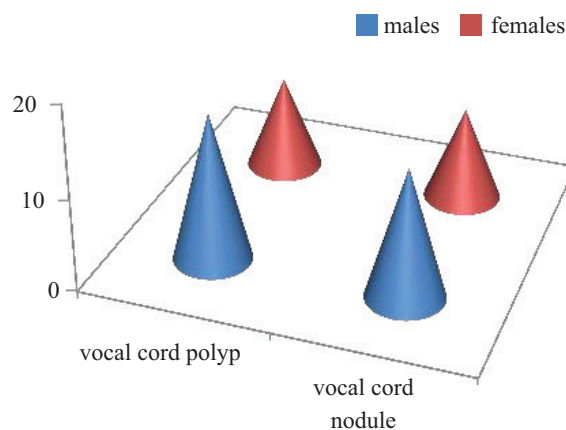


Table-2: Distribution on Basis of Etiological Factor.

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Appendix I

Voice Handicap Index (VHI-10)

Name: _____

Date: _____

Instructions: These are statements that many people have used to describe their voices and effects of their voices on their lives. Circle the response that indicates how frequently you have the same experience.

	0 = never	1 = almost never	2 = sometimes	3 = almost always	4 = always
1. My voice makes it difficult for people to hear me.	0	1	2	3	4
2. I run out of air when I talk.	0	1	2	3	4
3. People have difficulty understanding me in a noisy room.	0	1	2	3	4
4. The sound of my voice varies throughout the day.	0	1	2	3	4
5. My family has difficulty hearing me when I call them	0	1	2	3	4
6. I use the phone less often than I would like to.	0	1	2	3	4
7. I'm tense when talking to others because of my voice.	0	1	2	3	4
8. I tend to avoid groups of people because of my voice.	0	1	2	3	4
9. People seem irritated with my voice.	0	1	2	3	4
10. People ask, "What's wrong with your voice?"	0	1	2	3	4

TOTAL SCORE