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Role of voice therapy in vocal cord nodules - Our experience

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Abstract

Introduction: Vocal nodules are known to be one of the most common benign lesions, commonly situated at the junction of anterior one third and posterior two third of vocal folds. In this age of communication, the care of human voice and the vocal organ assumed greater and greater importance. The maintenance of good vocal health and treatment of the diseased larynx are essential for all members of society, especially individuals who are professional voice users. Voice therapy is considered to be the gold standard of treatment of vocal fold nodule.

Objectives

1) To determine the efficacy of voice therapy in the treatment of vocal fold nodules

2) To analyze the improvement in quality of voice in terms of VHI-10 (voice handicap index-10).

3) To identify any possible reason for failure

Materials and methods: A prospective study, conducted over a period of 6 months. 20 adult patients diagnosed with vocal fold nodules in department of ENT, sola civil- Ahmadabad where included in study were subjected to 6 weeks of voice therapy. Pre and post therapy subjective (Voice Handicap Index-10) and objective (Rigid fiber optic laryngoscopy) evaluation was done. Patients with no improvement after 6 weeks of voice therapy underwent micro laryngeal surgery. All patients were followed up at 6 weeks, 3 months and 6 months.

Results: In majority of patients, objective and subjective voice outcome parameters were significantly improved after voice therapy. Although a few cases showed no significant improvement after therapy, they recovered completely after microlaryngoscopic surgery. It was found that patients who required surgery even after voice therapy had hard nodules. There is significant improvement seen in VHI-10 in patients of vocal fold nodule.

Conclusion: The Vocal fold nodule have a high impact on quality of voice/life which can be measured by using VHI-10. Voice therapy is very effective in regaining the quality of voice.

Keywords: Vocal fold nodule, Voice therapy, VHI-10 (voice handicap index-10).

Introduction

In this age of communication, the care of human voice and the vocal organ assumed greater and greater importance. The maintenance of good vocal health and treatment of the diseased larynx are essential for all members of society, especially individuals who are professional voice users like singers, actors, salesman, etc. Vocal cord nodules are small benign swellings along the margin of the true vocal cord. It is also known as "singers or screamers nodules". The nodules are typically found at junction of anterior one third and posterior two thirds of vocal cord which represents the point of maximum vibration of vocal cord, since only membranous anterior two third, participates in vibration whereas the cartilaginous posterior one third acts to steady the vocal cord. Patient who has vocal nodule presents with chronic hoarseness, often repeated episodes of more sever voice loss. The voice handicapindex-10 is easily self-administered and scored, quickly at the time of evaluation while preserving the original VHI's utility and validity.

Aims and objectives

AIM: To analyze the improvement in quality of voice in terms of VHI-10 (voice handicap index-10) post voice therapy for vocal cord nodule.

Objective: To determine efficacy of voice therapy for vocal fold nodule.

Material and methods

This is a prospective review of 20 patients who underwent voice therapy for vocal cord nodule in department of ENT, sola civil- Ahmadabad where included in study. All patients were subjected to VHI-10(Voice handicap index) Pretherapy and posttherapy VHI-10(Voice handicap index) score were compared.

patients' authorization was obtained for procedure and use of their data and pictures. A detailed clinical history which special focus on vocal complaints was taken in terms of onset, duration, progress, vocal abuse and vocal fatigue. All patients have undergone voice recording for comparison of quality of voice pre-therapy and post therapy.

Voice handicap index (VHI-10)

VHI-10 is an Objective method for evaluation of voice and Used to assess the impact of voice complaint in terms of physical complaint and restrictions in participation in daily activities and response to treatment. The VHI-10 consists of 10 entries, and patients have to score each problem with the appropriate option representing the frequency of occurrence for each problem: 0 for "no";1 for "rarely"; 2 for "sometimes"; 3 for "regular"; and 4 for "always. "The VHI-10 score is the sum of the score of 10 entries, which range from 0 to 40 points. The higher the VHI-10 score is, the more serious is the subjective assessment of patients on quality of voice. All the patients were assessed with a self-reporting questionnaire, VHI-10 filled in by the patients at diagnosis, 6 weeks and 6 months.[1]

Objective evaluation was based on 6 mm Hopkins rode examination with 70° endoscope, performed in all 20 patients. In which nature of the lesion, glottic closure pattern and look of the lesion whether hard or soft was noted.

Inclusion-criteria: All Patients with a voice complaint presenting to ENT OPD who on laryngoscopy showed vocal cord nodule.

Exclusion-criteria

1. Patients with other benign lesions of larynx
2. Patients with benign neoplasm of larynx
3. Carcinoma of larynx
4. Acute infection of larynx
5. Patients not willing for participation

Voice therapy

All patients were subjected to voice therapy by speech language pathologist (SLP) for 6 weeks**.**

Voice therapy aims to improve glottal closure without causing supraglottics hyperfunction while developing abdominal support for breathing and improving intrinsic muscle strength and agility.

Results

Of the 20 patients studied, 14 (70%) were females and 6 (30%) were males. The mean age was 33.6 years.

Mean VHI score of 20 patients at diagnosis was 15.1.

17 out of 20 (85%) patients showed significant subjective improveMent after 6 weeks of voice therapy with a mean VHI reduced from 15.1 to 4.4. However, 3 patients (15%) did not show any significant improvement of their symptoms with pretherapy and posttherapy mean VHI being 18.66 and 17.33 respectively. VHI of 17 patients with soft nodules reduced significantly from 15 to 1.46

On laryngo scopic evaluation, after 6 weeks of voice therapy, 17 out of 20 patients (85%) showed resolution of nodule and rest 3 (15%) patients had persistent nodule. On further analysis, it was noted that these 3 patients (15%) who were refractory to voice therapy were diagnosed to have hard nodules at initial visit, whereas 15 patients (85%) who responded to voice therapy had soft nodules.Three patients with hard nodules were subjected to microlaryngo scopic excision of vocal nodule. They were also continued with postoperative voice therapy for 6 weeks. All patients were advised to practice vocal hygiene up to the end point of the study, i.e. 6 months.

At 6 months follow-up, 1 patient (5%) out of 20 patients was found to have recurrence of nodule.

Discussion

Age distribution: In our study the majority of the patients were in the age group of 31-40and 41-50. In a study by Reddy et al[2] on 50 patients with vocal cord nodule and another study by Mehta et al[3]on 50 patients. It was shown that the maximum number of patients were in the age group of 31-40 which is followed by 41-50 age group. Mean age of the patient was 33.6 year. (Table 1)

Table1: Age distribution

Comparison of age of patients with the studies of Reddy et al and Mehta et al			
Age group	Our study N=20	Reddy et al N=50	Mehta et al N=50
31-40	50.0%	50.0%	32.0%
41-50	15.0%	12.0%	26.0%

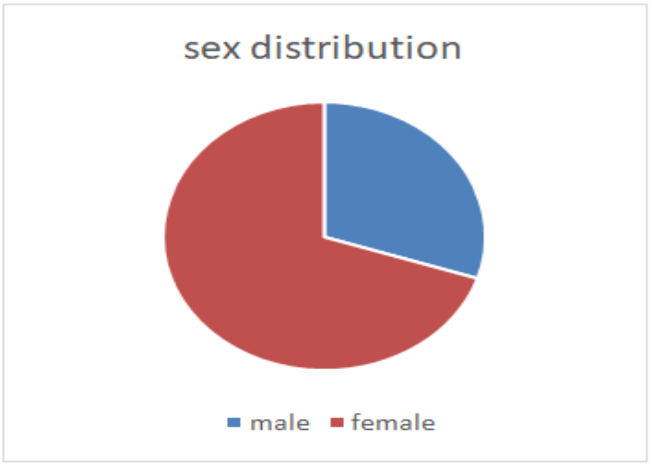

Chart 1: Sex-wise distribution of the study participants of the 20 patients studied, 14 (70%) were females and 6 (30%) were males. (Chart 1)

Comparison of pre-therapy and post-therapy VHI-10 score

Mean VHI score of 20 patients at diagnosis was 15.1.

17 out of 20 (85%) patients showed significant subjective improvement after 6 weeks of voice therapy with a mean VHI reduced from 15.6 to 4.4. However, 3 patients (15%) did not show any significant improvement of their symptoms with pretherapy and post-therapy mean VHI being 18.66 and 17.33 respectively. VHI of 17 patients with soft nodules reduced significantly from 15 to 1.46

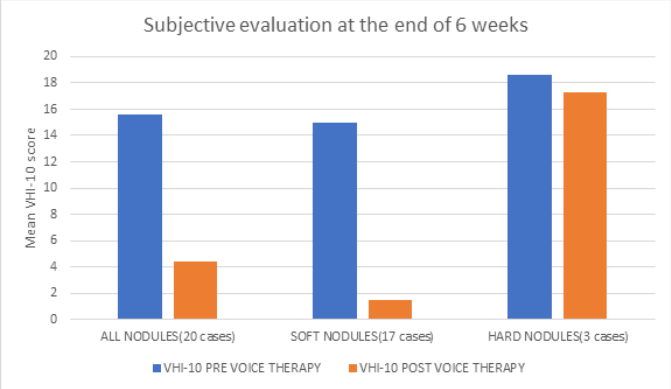

Chart 2:

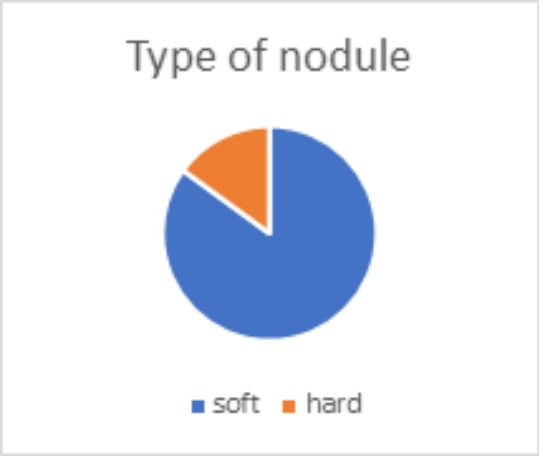

Chart 3: Number of hard and soft nodules

None of the studies reported worsening of voice in patient undergoing voice therapy, and there are no known side effects reported from it.

Out of 18 patients studied, 15 (83.33%) were cured after 6 weeks of voice therapy well corroborating with the study by Mc Crory[4] in which 76% patient were cured only by voice therapy.

Vocal fold nodules are commonly believed to occur as the result of phono trauma which includes vocal abuse and vocal misuse. Vocal abuse refers to vocal behaviors that lead to trauma of the vocal fold microstructure. Excessive and prolonged talking with excessive loudness, use of inappropriate pitch, excessive cough, and throat clearing are some of these vocally abusive behaviors. All patients in our series had definite history of vocal abuse. Vocal misuse is an inefficient method of voice production due to inappropriate laryngeal tension and or poor respiratory drive. This often leads to vocal fatigue and odynophonia. Long-term misuse along with abuse leads to changes in microarchitecture of vocal folds.[5]

Even anatomical considerations like anterior web and short membranous vocal folds are said to predispose to develop vocal fold nodule. Voice therapy is the primary recommended treatment for vocal fold nodules.[6]

Attention to correct the underlying causative factors, largely through voice therapy and education, plays an integral role in treatment. Education regarding proper vocal hygiene and hydration and avoidance of vocal abuse, misuse, and overuse is the necessary baseline.30 inhaled irritants such as tobacco and toxic chemicals should also be avoided.

Gastroesophageal reflux should be controlled. Patients should be guided regarding proper fluid intake, and medications that have drying potential should be

minimized to optimize laryngeal hydration.[31] apart from vocal hygiene, voice therapy consist of some voice rehabilitation exercises targeting specific faulty vocal behaviors that contribute to dysphonia which is individualized according to patients need. When performed by a speech language pathologist (SLP) in a compliant patient, voice therapy is highly effective in helping most patients with vocal fold nodule.[7]

Conclusions

Vocal fold nodules have a high impact on quality of voice/life which can be measured by using VHI-10. Therapy can be effective in improving voice quality and tissue health but does not necessarily result in complete resolution of pathology.

The present study shows majority of soft vocal fold nodules are amenable to voice therapy, whereas hard variety are resistant to therapy. however, it required multidisciplinary approach. It will also be useful to develop some validated diagnostic criteria of soft and hard vocal fold nodule, to optimize the treatment for vocal fold nodule right from the day of first diagnosis.

References

1. Arffa RE, Krishna P, Gartner-Schmidt J, Rosen CA. Normative values for voice handicap index-10. J Voice 2012;26(4):462-465

2. Reddy DS, RathodJB, Dham R,BabuAS,Nagraj K, Srinivas K,KumudaC,ReddyBS.Benign Lesion Of larynx:a clinical study of 50 cases.JEvid Based Med Healthc 2016;3(2):72-77.

3. Mehta KS,KhanMA,MattoRR,KhanMA,Ahmed R Clinical analysis and voice handicap index-10(VHI-10) of patients with vocal cord polyp and nodules.Int J Contemp Med Res2016:3(4):1229-1231.

4. Mc Crory. Voice therapy outcomes in vocal fold nodules: a retrospective audit. Int J Language Communication Disorder 2001;36 Suppl:19-24.

5. Courey MS, Postma GN, Osoff RH. The professional voice. In: Richardson MA, Flint PW. Cummings otolaryngology head and neck surgery. Philadelphia: Mosby; 2010; 1:5: p. 871.

6. Blood GW, Blood IM, Bennett S, Simpson KC, Susman EJ. Subjective anxiety measurements and cortisol responses in adults who stutter. J Speech and Hearing Res 1994;37(1):69-82.

7. Garcia RT, Garcia RA, Diaz RT, Canizo FRA. The outcome of hydration in functional dysphonia. An OtorrinolaringolIbero Am 2002;29(4):377-391