

## Conservative Management of Vocal Nodules: Our Experience

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### Abstract

**Background:** Hoarseness of voice is one of the common symptoms amongst patients visiting ENT out patient department. Vocal nodule is a benign laryngeal lesion mainly caused by vocal abuse which accounts for 12 % of all the patients presenting with hoarseness of voice. If the vocal nodules are diagnosed early, conservative management in the form of voice rest, vocal hygiene and medical treatment can lead to complete regression of nodules and can give complete relief from the symptoms. Conservative management still has a role in the patients where the diagnosis is done late, and the fibrosis has set in to form hard nodules. In these patients conservative management helps to give some symptomatic relief, gain confidence of the patient and avoids recurrence after micro laryngeal surgery. 18 such patients presenting to ENT OPD diagnosed with vocal nodules were included in this study to find benefit of conservative treatment which showed satisfactory results.

**Results:** The patients with vocal nodules underwent Video-stroboscopic examinations, 10 out of 18 patients showed complete regression of vocal nodule at the end of 3 months. The GRBAS score showed improvement in 13 out of 18 patients. Mean fundamental frequency, shimmer, jitter and Noise to harmonic ratio was seen to significantly improve in 12 patients of 18.

**Conclusion:** Improvement in all the 3 parameters i.e. perceptual, instrumental and acoustic assessment at the end of 1 month usually reflects complete regression of vocal nodules at the end of 3 months with conservative line of management. Surgical intervention is usually required if the diagnosis is made after 6 months of onset of the symptoms.

**Keywords:** Vocal Nodule; Vocal hygiene; Hoarseness; Stroboscopy; GRBAS Score

### Introduction

Hoarseness of voice is one of the common symptoms amongst patients visiting ENT out patient department. Vocal nodule is a benign laryngeal lesion mainly caused by vocal abuse which accounts for 12% of all the patients presenting with hoarseness of voice [1,2]. If the vocal nodules are diagnosed early, conservative management in the form of voice rest, vocal hygiene and medical treatment can lead to complete regression of nodules and complete relief from the symptoms. Conservative management still has a role in the patients where the diagnosis is done late, and the fibrosis has set in to form hard nodules. In these patients conservative management helps to give some symptomatic relief, gain confidence of the patient and avoids recurrence after micro laryngeal surgery [3-6]. 18 such patients presenting to ENT OPD diagnosed with vocal nodules were included in this study to find benefit of conservative treatment which showed satisfactory results.

### Methods

- To evaluate patients with vocal nodules by perceptual, acoustic and instrumental assessment
- To identify role of conservative management in patients with vocal nodules
- To identify the optimum time for conservative management before surgical
- Intervention in some of these patient

### Design-prospective observational study

**Setting of the study:** Study was conducted at tertiary care hospital from January 2021 to January 2022. All the patients complaining of hoarseness of voice for more than 15 days were subjected to detail

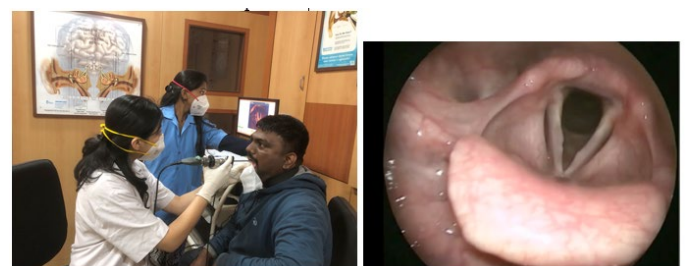
history, thorough ENT checkup followed by video stroboscopic examination (Figure 1).

### Inclusion criteria

- Age 9 years to 65 years.
- Patients diagnosed with vocal nodules who were willing for scopy and evaluation at day 0, 1 month and 3 months.

### Exclusion criteria

- Patients with vocal nodules along with other laryngeal lesions. b)



**Figure 1:** a) Videostroboscopic examination, b) Videolaryngoscopy showing bilateral vocal cord nodule.

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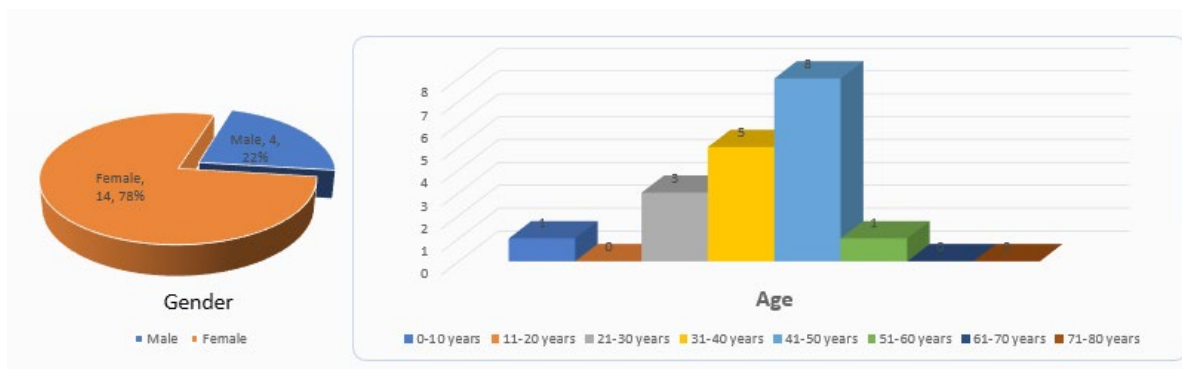


Figure 2: Distribution of Gender and Age.

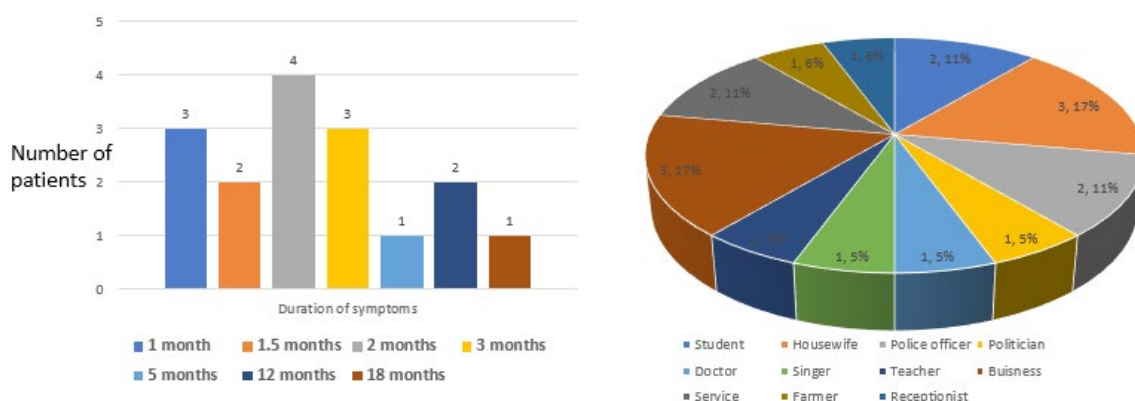


Figure 3: Duration of symptoms and Occupation of the patient correlation.

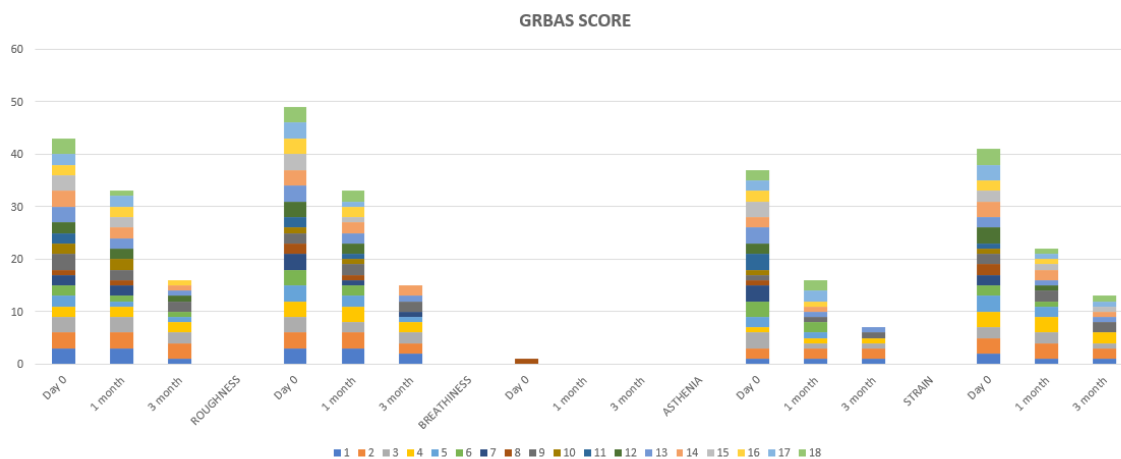


Figure 4: GRBAS Score at the end of 1 and 3 months.

Patients with professions not permitting voice rest. c) Patients were not cooperative for repeated evaluation. A total of 18 patients diagnosed with vocal cord nodules were included in the study after a written and informed consent. Perceptual voice assessment using GRBAS scale and acoustic assessment was done using PRAAT software. Conservative management was given with voice rest, medication, vocal hygiene and speech therapy. Medication in the form of proton pump inhibitors as anti reflux treatment. Antihistaminic medication for patients with allergic complaints and Short course of systemic steroids was given.

**Observation**

A total of 18 patients were taken in the study. In our study 14

were females and 4 were male. Maximum patients were between age group 41 to 50 years of age, youngest was 9 years, oldest was 56 years (Figure 2). Majority of the patients who presented with nodules had symptoms for 2 to 3 months. Vocal abuse is closely associated with certain professions. Surprisingly our study hawkers and housewives outnumbered singers and teachers (Figure 3). 10 out of 18 patients showed significant improvement at the end of 1 month and complete regression of the vocal nodules at the end of 3 months. In 3 patients the vocal nodules has reduced in size at the end of 3 months, however they had not completely regressed. In 5 patients there was no significant change in the size of the vocal nodules at the end of 3 months of conservative management (Figure 4).

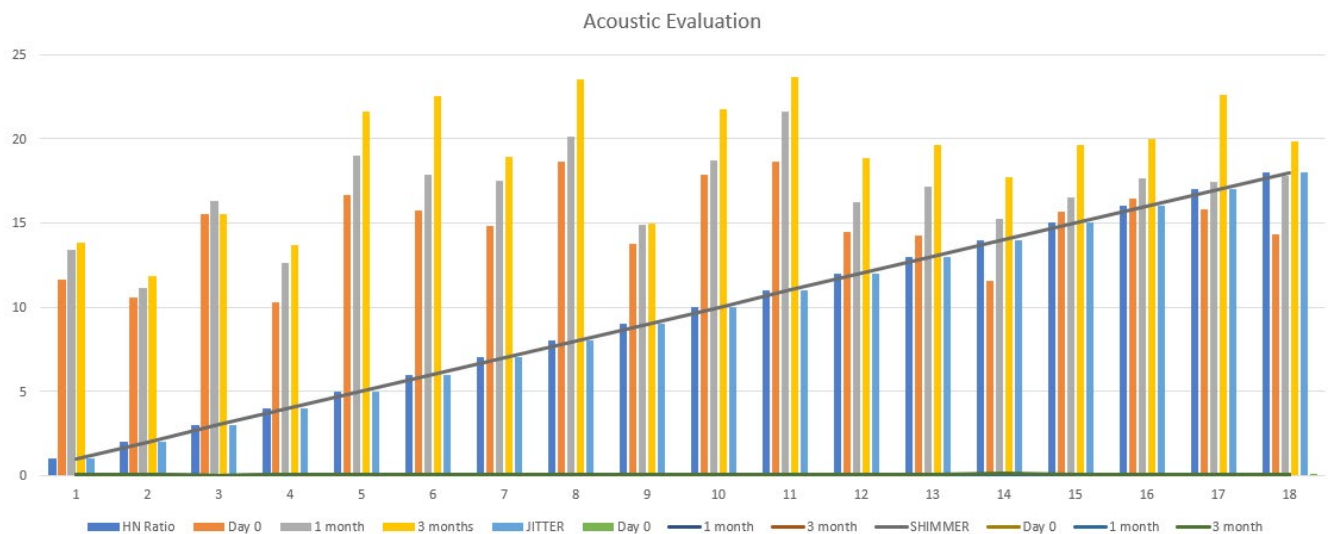


Figure 5: Acoustic evaluation at the end of 1 and 3 months.

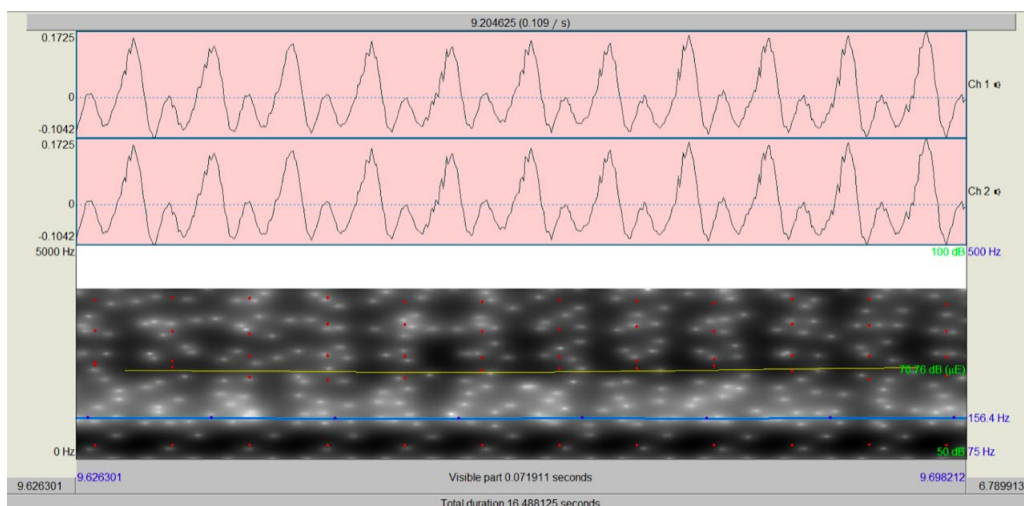


Figure 6: Perceptual voice assessment using GRBAS scale and acoustic assessment was done using PRAAT software.

### In GRBAS Score

Roughness dropped from 3 to 0 in 7 patients within 3 months of conservative treatment. Breathiness was seen in only 1 patient reduced to 0. Asthenia dropped from 3 to 0 in 3 patients and 2 to 0 in 7 patients. Strain dropped from 3 to 0 in 5 patients. At the end 3 months of conservative management harmonic to noise ratio increased to 20dB and above, which is within the normal range in 10 patients. Jitter which is a parameter of frequency variation from cycle to cycle was seen to reduce to the normal level in 12 of 18 patients. Shimmer which is a parameter of amplitude variation of sound wave from cycle to cycle increased to the normal range in 12 of 18 patients. Jitter, shimmer and mean fundamental frequency improved to normal range in 10 out of 18, partial improvement in 3 patients and no change in 5 patients was seen at the end of 3 months of therapy (Figure 5).

### Results

The results were analyzed using RM ANOVA test which has revealed that the improvement in the GRBAS score was statistically significant

in 13 patients out of 18 (p value < 0.05). In the remaining 5 patients the the change in GRBAS score was not statistically significant (p value >0.05). The statistical evaluation of the values of Mean fundamental frequency, shimmer, jitter and Noise to harmonic ratio was seen to significantly improve in 12 patients of 18 evaluated by Friedman test (p value <0.05). However there was no significant improvement in the above values in 6 cases of 18 patients with p value >0.05 (Figure 6).

### Discussion

Vocal nodule is a benign laryngeal lesion caused by degeneration of the lamina propria with fibrosis and oedema. There is also myxoid, fibrinoid, angiomatous and hyaline degeneration. A study by Arnold et al has distinguished between acute and chronic nodules. The former have normal squamous epithelium over an oedematous stroma with thin-walled blood vessels, loose fibrous tissue, and lymphocytes. The latter have a thickened epithelium, and show acanthosis, keratosis and para-keratosis, with compact fibrosis and minimal oedema. Vocal cord nodules can be treated by either by conservative techniques or by surgery as per McFarlane and Murry et al exacerbating factors,

such as infection, allergy and reflux should be treated with medical interventions. Vocal hygiene measures (Verdolini), 'abuse' reduction and vocal retraining (Fex) and life style modification have a significant role in conservative management. According to a study by Murry et al conservative management is effective in 60 to 71% of cases with vocal nodules. Conservative management in the form of vocal hygiene, medical treatment and speech therapy is effective in early nodules.

A lot of studies are published describing either the aetiology, methods for diagnosis or treatment of vocal cord nodules. A major problem highlighted by these descriptive studies is the lack of consensus on the definition of vocal cord nodules and relationship with possible aetiological factors. Reviewed the literature on the surgical management of vocal nodules and found no evidence for surgery being a firstline treatment. Our study has shown complete resolution of the vocal nodules on videostroboscopy in 55% patients, and partial resolution in 16% cases, this is comparable with a similar study by Benninger et al which has shown resolution of vocal nodules in 69-84% cases. In our study statistically significant improvement was seen on GRBAS scale in 72% of the cases at the end of 3 months which is comparable with a study by Johnson et al. The acoustic assessment has shown improvement in 66.6% of the cases which is comparable with a study by on Bouchayer et al. Improvement in all the 3 parameters i.e.

perceptual, instrumental and acoustic assessment at the end of 1 month usually reflects in complete regression of vocal nodules at the end of 3 months. Surgical intervention is usually required if the diagnosis is made after 6 months of onset of the symptoms.

#### References

1. Ali S, Elliott L, Biss RK, Abumeeiz M, Brantuo M et al. (2022) The BNT-15 provides an accurate measure of English proficiency in cognitively intact bilinguals - a study in cross-cultural assessment. *Appl Neuropsychol Adult* 29: 351-363.
2. Cohen M, Town P, Buff A (1988) Neurodevelopmental differences in confrontational naming in children. *Developmental Neuropsychology* 4: 75-81.
3. Guilford AM, Nawojczyk D C (1988) Standardization of the Boston Naming Test at the kindergarten and elementary school levels. *Arch Clin Neuropsychol* 19: 395-400.
4. Hamberger MJ, Seidel WT, MacAllister WS, Smith ML (2018) Auditory and visual naming tests for children. *Child Neuropsychology*, 24: 903-922.
5. Kindlon D, Garrison W (1984) The Boston Naming Test: Norm data and cue utilization in a sample of normal 6-and 7-year-old children. *Brain and Language* 21: 255-259.
6. Lansing A E, Ivnik R J, Cullum C M, Randolph C (1999) An empirically derived short form of the Boston naming test. *Arch Clin Neuropsychol* 14: 481-487.