INTRODUCTION

Change in voice is the most common symptom of laryngeal pathology.\(^1\) Ever since Manual Garcia in 1854 first observed his own vocal cord movements using laryngeal mirror and sun light a number of techniques have evolved and understanding of laryngeal pathologies been made more comprehensive and interesting.\(^2,3\) Over this period of time we have introduced various methods of laryngeal examination from indirect laryngoscopy to stroboscopy.\(^4\) Indirect laryngoscopy, it is an office procedure done using indirect laryngoscopy mirror for examining larynx and vocal cords with advantage of being ease of access and minimum requirement of any specific instrument but with disadvantage of illumination, narrow field of vision and no possibility of documentation. While Endoscopic rigid laryngoscopy also an office procedure done using angled laryngoscope (70\(^0\) or 90\(^0\)) gives good illumination and wide field of vision with recording and demonstration facilities but it requires special setup. Another disadvantage of this technique along with indirect laryngoscopy is that we require patient co-operation. As well as the larynx is evaluated in elevated position and not in its physiological position. This can be done with flexible laryngoscopy which can also be done as an office procedure in which we can assess the larynx during phonation in its physiological position. Disadvantage with flexible being lower quality image compared to rigid endoscopes. In all this technique we get real time assessment of the larynx,
while in stroboscopy which is also an office procedure we can assess movement and vibration of vocal folds in detail and we can also document. Principle of stroboscopy, it involves use of high speed flashes of light at a frequency slightly lower or higher than the frequency of vocal fold vibrations of patient.\textsuperscript{2,3,6} The image thus obtained appears to be a slow motion view of vocal fold vibration.\textsuperscript{4,5}

**METHODS**

The present study is of 50 patients coming to the Department of E.N.T and Head and Neck Surgery in GMERS Medical College, Gotri, Vadodara. The study was conducted between January 2018 and January 2019. Those patients who fulfilled the inclusion criteria were enrolled in the study. Detailed history and clinical examination was done including stroboscopy. Patients were analyzed on the basis of stroboscopic findings and their age of presentation. All patients with age above 10 years with hoarseness of voice for more than 1 month are included in the study. While previously operated, diagnosed with neurological disorder or cardiovascular disorder, pregnant or lactating mothers were excluded from the study group. All patients were analyzed based on age, sex and pathology responsible for change of voice.

**RESULTS**

In our study of patient suffering from laryngeal disorders we found 29 males (58%) and 21 females (42%). Most of the patients were adults distributing them further decade wise it was found that maximum patients were in the 3rd decade (Table 1).

| Age (in years) | 11 to 20 | 21 to 30 | 31 to 40 | 41 to 50 | 51 to 60 | >60 | Total |
|---------------|----------|----------|----------|----------|----------|-----|-------|
| Male          | 1        | 2        | 8        | 8        | 8        | 3   | 29    |
| Female        | 1        | 7        | 9        | 3        | 1        | -   | 21    |
| Total         | 1        | 9        | 17       | 11       | 9        | 3   | 50    |

**Table 1: Age and sex wise distribution.**

We also found out that from 50 patients 13 had vocal cord nodules while 8 had vocal cord hypertrophy and 7 had irregularity of vocal cord (Table 2). This shows that 86% of the patients had benign lesions of vocal cords and 14% had malignancy of vocal cords. Vocal cord nodules were seen in 9 females and 4 male patients (30% of all benign lesions). Hypertrophied vocal cords were found in 4 males and 4 females (9% of benign lesions). Carcinoma was found in 7 males that too in 5th and 6th decade of life. Vocal cord palsy was seen in 5 patients (11%) and similar vocal cord polyp was also found in 5 patients (11%). Other benign conditions had 3% occurrence like bowing of vocal cords, vocal cord polyp, vocal cord cyst and leukoplakia.

**DISCUSSION**

From this study we can say that stroboscopy is a good evolving tool for various voice abnormalities. In this study 50 patients were included of either gender with different vocal cord pathologies. Our study showed 42% females which was similar to the study carried out by Baitha et al.\textsuperscript{7} Age wise distribution shows 32% were in the 3rd decade and only 4% were in geriatric age group. This may be because of occupation.\textsuperscript{7} Analysis of diagnosis showed majority 26% were having vocal cord nodule which is in accordance with the study done by Shin, Chang and Yang showed 20% having vocal cord nodule.\textsuperscript{10} Our study showed 58% of patients having vocal cord nodule in 4th and 5th decade. It is observed that vocal cord nodules were common in patients having voice abuse. In professions like teachers, professors and vendors there is lot of voice abuse leading to hoarseness of voice and bilateral vocal cord nodules especially in the 3rd decade. This is when they are professionally more
active. They were also found to be more common in females in the 2nd and 3rd decade.

Malignancy of vocal cords was found in males especially in the later age group especially in the 5th and 6th decade.

CONCLUSION

The present study was carried out in our hospital in which 50 patients of either gender and with different vocal cord pathologies were included. Highest incidence was found of bilateral vocal cord nodules (26%). Mostly all patients were in the 3rd decade. Malignancy of vocal cords was found in males (14%) mostly in 5th and 6th decade. All of them were diagnosed on basis of stroboscopy findings.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Nimkar N, Soni H. Role of stroboscopy in diagnosis of laryngeal disorder. Int J Otorhinolaryngol Head Neck Surg 2019:5:560-2.