Original Article

A study on benign lesions of vocal cord

P K Purushothaman[1], C R K Balaji[2], M Punitha[3*]

[1]Professor, [2]Assistant Professor, [3]PG. Student, Department of ENT, SRM Medical College Hospital, Kattankulathur, Tamil Nadu, INDIA.
Email: entpurush@gmail.com, crk_balaji@yahoo.co.in, punithamurugan@gmail.com

Abstract

Aims and objective: A clinical study was undertaken to analyze the age, sex distribution and the common types of benign lesions of larynx and its management. **Study Design:** Retrospective study, **Study Period:** From July 2013 to December 2014 **Setting:** SRM Medical College Hospital, Kattankulathur. **Patients:** A total of 63 patients with benign laryngeal lesions were included based on symptomatology such as hoarseness of voice, foreign body sensation, throat pain and with positive clinical findings on indirect laryngoscopy, endoscopic examination and neck examination. The patients ranged from 8-70 years. All malignant cases were excluded. Diagnostic hematological and radiological investigations and therapeutic microlaryngoscopic procedures were employed. **Results:** A female preponderance was observed. Majority of the patients were in the 20-50 age groups. Vocal nodules were the commonest type of lesion. In our study, hoarseness of voice, cough, foreign body sensation and throat pain proved to be the commonest symptoms. **Conclusions:** Micro laryngeal surgery, speech therapy and voice rest offer a cost effective, useful and safe method for management of benign vocal lesions.

Keywords: benign vocal lesions, laryngoscopy, microlaryngeal surgery.

[*]**Address for Correspondence:**
Dr M Punitha, Department of ENT, SRM Medical College Hospital, Kattankulathur-603 203, Tamil Nadu, INDIA.
Email: punithamurugan@gmail.com

Received Date: 06/11/2015 Revised Date: 14/12/2015 Accepted Date: 12/01/2016

Access this article online

Quick Response Code:

Website: www.statperson.com

DOI: 14 January 2016

INTRODUCTION

Benign laryngeal lesions are significant because of the importance in communication and the voice's contribution to identity. Benign vocal cord lesions are not a rarity. It may be large enough to obstruct the airway and threaten the life of an individual or produce hoarseness of voice. The vocal folds extend from the middle of the angle of the thyroid cartilage to the vocal process of the arytenoid cartilages and underlying them is the upper border of the conus elasticus. Each fold is a layered structure consisting of a superficial layer of non keratinizing, stratified squamous epithelium, beneath which is the lamina propria. This has three distinct layers. The superficial layer (Reinke's space) contains a fibrous substance with similar characteristics to gelatin. The intermediate layer contains elastic fibres and the deep layer collagen fibres. The intermediate and deep layers make up the vocal ligament. The vocalis muscle, which forms the main body of the vocal fold, lies lateral and deep. The mucosa and vocal ligament extend over the vocal process in which the anterior two-thirds form the membranous part (phonatory) and the posterior one-third forms the cartilaginous part (aphonatory). Most benign lesions affect the membranous portion due to its vibratory action. The common benign vocal lesions seen are vocal nodules, vocal polyp, vocal cyst, Reinkes oedema, benign tumours like papilloma and inflammatory conditions secondary to tuberculosis. There is no definite common terminology for vocal fold lesions. Our definitions of polyp, Reinke's edema, vocal fold nodules, and cyst essentially were the same as those given by Dikkers *et al*.[1]

Polyp: a lesion of the vocal fold, often on the free edge and usually unilateral. The lesion can be either sessile or pedunculated. If pedunculated, it abundantly moves with the mucosal wave.[2] Reinke's edema: a unilateral or bilateral bleach sessile swelling of the vocal fold, apparently filled with fluid. The edema abundantly moves with the mucosal wave. Vocal fold nodules: bilateral, symmetric lesions at the junction of the anterior and middle third of the vocal folds, and variably interfering with the mucosal wave.

Cysts: a flat unilateral swelling with a smooth translucent surface, immobile during phonation, usually on the middle third of the vocal fold.

Chronic laryngitis: a variable clinical condition. Symptoms of diffuse inflammation may be present in a variable degree. The mucosa of the vocal folds is more or

How to site this article: P K Purushothaman, C R K Balaji, M Punitha. A study on benign lesions of vocal cord. *International Journal of Recent Trends in Science and Technology.* January 2016; 17(3): 294-296. http://www.statperson.com (accessed 16 January 2016).

less irregular thickened, and frequently, a frosted glass appearance is observed. The vibration pattern is disturbed.

MATERIALS AND METHODS

This is a retrospective study consisting of 63 patients from July 2013 to December 2014 in a tertiary care hospital. All patients who had history of change in voice and positive clinical findings on indirect laryngoscopy, endoscopic examination and neck examination were included in the study. Patients with malignant growth and neurological conditions were excluded from this study. Investigations included were routine blood investigations, urine microscopy, radiological investigations like chest radiograph, plain X-ray neck-lateral view and CT scan of neck if needed were done. Videolaryngoscopy was done for all patients and findings recorded. Depending on the clinical diagnosis, patients were treated. Treatment included only speech therapy for patients with vocal nodule, Reinkes oedema and chronic inflammatory conditions. Whereas microlaryngeal surgery followed by speech therapy for patients with vocal polyp, vocal cyst and benign tumours. Visual analogue scale (VAS) for hoarseness of voice was taken in every patient with 1 being same voice prior to treatment, 10 for their original voice pre and post treatment. Patients were followed up for 3 months and reassessed with VAS, indirect laryngoscopy and endoscopic examination.

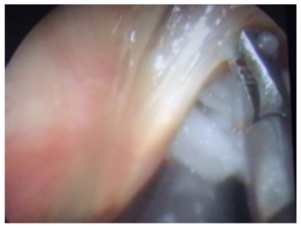

Figure 1: Microlaryngeal surgery showing removal of left vocal cord cyst

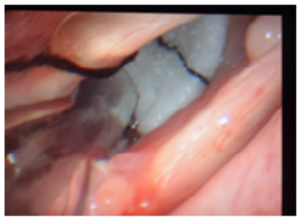

Figure 2: Showing right vocal cord cyst

RESULT

The youngest patient in our study was 8 year old; the oldest being 70 years. The maximum number of cases seen were in the age group between 20 and 50 years (45 cases). In our study, females 54% were seen to predominate over males 46% i.e. 34 females to 29 males. All patients presented with hoarseness of voice (63). History of vocal abuse or misuse was present in 52 patients. History of smoking (24) and alcohol (19) was present. 39 patients had history of gastro oesophageal reflux disease. The highest incidence of benign vocal lesions was seen in housewives (28), followed by shopkeepers (19) and students (13), businessman (2) and singer (1). Patients with vocal nodule and Reinkes oedema were treated conservatively with speech therapy. One case of tuberculosis of larynx secondary to pulmonary tuberculosis was treated with anti-tuberculous drugs followed by speech therapy. Surgery with microlaryngeal excision (38%) was performed in patients with vocal polyp, vocal cyst and laryngeal papilloma followed by speech therapy. All samples were sent for histopathology and were all benign with inflammatory changes and 2 cases were reported as papillomatous lesions. All patients were followed up serially for 3 months and observations were recorded. On visual analogue scale (VAS) taken in every patient, with 1 being same voice prior to treatment 10 for their original voice post treatment, 34 patients had a VAS of 10, 21 patients had a VAS of 9, 7 patients had a VAS of 8 and 1 patient had VAS of 2.The patient with VAS 2 was a case with recurrent vocal polyp and was re-operated.

PROGNOSIS

All patients recovered well following treatment except for 1 case of vocal polyp who developed recurrence and was re-operated.

Table 1: Percentage distribution of benign vocal cord lesions

Sr. No	Type of benign vocal lesion	Percentage
1	Vocal nodule	58.7%
2	Vocal polyp	33.3%
3	TB laryngitis	1.5%
4	Papilloma	3.1%

DISCUSSION

Among 63 patients, 29 (46%) were male and 34 (54%) were female. Female predominance was observed in cases of vocal nodules and polyps. This is in accordance with a study conducted in Chicago in 1197 patients by Paul H. Holinger and K.C.Johnston[3], in which 70% of cases were males and 30% were females. In cases of vocal nodules females far exceeded the males. In another study conducted in AIIMS, New Delhi in 1965, on 15 patients by A.Sinha, S.K. Kacker and K.N. Pramani[4], 73% cases were males and 27% were females. In a study by Kleinsasser, in 900 patients with vocal cord polyps, 76% were males and 24% were females. In our study most of the patients were between 20-50years (68.3%) of age group. Younger age group patients are more active, ambitious and use their vocal skills maximally. Hence incidence of vocal lesion was high in this age group.[5] Kambic *et al*[6] evaluated the morphology of the pathologic substrate, the pathogenesis and analysed the most frequent factors responsible for the formation of vocal polyp such as vocal abuse and unfavourable microclimate during work. They concluded that gender doesn't play a role and the histologic structure is not related to time factor. Glottic lesions like vocal nodule and polyp are common in young women. Most of the patients in this study belonged to occupations well known for excessive

vocal use such as hawkers, shopkeepers, salesmen, teachers, singers, businessmen, students etc. Chopra *et al*[7] studied 67 patients with various benign laryngeal lesions. The lesions were categorized and a correlation of clinical, microlaryngoscopic and histologic features was done, as well as evaluation of the age, incidence, occupational factors. They also described the effectiveness of micro laryngeal surgery and speech therapy in the management of these lesions. Analysis shows that the most commonly seen benign vocal lesion is vocal nodule (58.7%) followed by vocal polyp (33.3%). There are studies in past dated to 1971 by M.S. Strong[8] who stated that nodules are commonly seen in young women and children and infrequently in adult males and adolescents. Most common benign vocal lesions are vocal nodules, vocal cysts and vocal polyps on clinical examination. These lesions mostly involved the medial margin of the vocal cords thus causing hoarseness due to changes in its vibratory pattern. Dikkers *et al*[2] studied 74 patients (92 vocal folds). They found that benign lesions of vocal folds have various appearances and histopathological examination would provide the diagnosis. Single histological features did not differentiate between clinical entities, instead a combination was more likely to be seen. However an abnormal increase in layers of the basement membrane is seen in vocal polyps, nodules and in Reinke's oedema. One case of tuberculous laryngitis was seen. This patient who was a case of pulmonary tuberculosis, presented with hoarseness of voice and was started on anti-tuberculous treatment followed by speech therapy and recovered well following treatment.[9] Essadi *et al*[10] studied 15 cases of laryngeal tuberculosis. He concluded that the main symptom was dysphonia and that diagnosis depends on direct laryngoscopy and biopsy, with histologic confirmation. Medical treatment gives a good outcome. Two cases of laryngeal papilloma were seen of which one was adult and the other was juvenile laryngeal papillomatosis. Both patients underwent microlaryngeal excision of papilloma followed by treatment with Thuja occidentalis[11,12,13,14]. Brown *et al*[15] studied several cases of papilloma of the larynx have come under his observation, which were treated by removal of parts with forceps and the subsequent application of Thuja. Speech therapy is an essential part of treatment for benign vocal lesions as recurrence can be prevented by avoidance of forced or stressful phonation. It is imperative to state that preoperative speech therapy would prove highly beneficial in improving patients compliance, when post-operative speech therapy should also be given.

CONCLUSION

In our study 68.3% patients presented between age group of 20-50 years. There was female predominance observed in cases of vocal nodules and polyps (52.3%). The most common types of benign vocal lesion were vocal nodule - 58.7% and vocal polyp - 33.3%. Recurrence was seen in 1 case, which was a case of vocal polyp and was re-oeprated. Tuberculous laryngitis was seen in 1 patient (1.5%) with pulmonary tuberculosis. Papilloma was seen in 2 patients (3.1%) with 1 adult and 1 juvenile papillomatosis. The use of stroboscopy in assessing patients voice pre and post treatment would be a valuable addition for assessment of voice pathologies.

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Source of Support: None Declared
Conflict of Interest: None Declared