

VIDEOLARYNGOSCOPIC SURGERY IN BENIGN LARYNGEAL LESIONS-OUR EXPERIENCESatheesh S¹, Yamuna R², Nisha Premnath³¹Professor, Department of ENT, Government Medical College, Idukki, Kerala.²Assistant professor, Department of ENT, Government Medical College, Alleppey, Kerala.³Assistant Surgeon, Department of ENT, Taluk Hospital, Mallappally, Kerala

ABSTRACT: Benign laryngeal lesions are commonly encountered causes of dysphonia and are often surgically correctable. A prospective study on 62 cases selected for videolaryngoscopic surgery was undertaken in a single unit in the department of ENT, Medical College Hospital, Thiruvananthapuram. The male: female ratio was 1.8:1 and the most common affected age group was 35-45 yrs. The most common benign lesion was vocal polyp. Preoperative voice assessment and 70 degree endoscopy was done. Follow up visits were done at 1 week, 3 weeks and 6 weeks and voice assessment and laryngoscopic appearances were noted. 98% reported excellent improvement of voice. The varieties of benign lesions which cause hoarseness are sources of concern and worry as it can affect the self esteem of a person. Thus videolaryngoscopic surgery (VLS) coupled with voice therapy offers cost effective and safe management in benign laryngeal lesions.

KEYWORDS: Benign laryngeal lesions, Videolaryngoscopic Surgery (VLS).

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INTRODUCTION: The production of sound for communication of complex information is limited to highest order of species. Only in humans, larynx is made up for complex voice production. Benign laryngeal lesions are commonly encountered causes of dysphonia and are often surgically correctable. They include lesions like vocal polyps, vocal cysts, vocal nodules, Reinke's edema and granulations.⁽¹⁾ Benign vocal cord pathology has a prevalence of 11% in the present high stressed world.

Some lesions are known at diagnosis to be irreversible with medical treatment & voice therapy, needs surgery. Although specific techniques vary for each disorder, the basic requirements for successful laryngeal microsurgery for all benign laryngeal lesions are the same.⁽²⁾ They are: (A) a detailed knowledge of vocal fold micro architecture (B) proven technical skill of the surgeon (C) good quality videolaryngoscope and microlaryngeal instruments (D) qualified speech pathology unit.

A set of laryngoscopes, microlaryngeal forceps, scissors, dissectors and sickle knife are needed for the surgery apart from chest suspension, light source, cable, light carrier and monitor. The technique employed varies with the lesion. Lesions like nodules, polyps, granulomas may be excised preserving normal mucosa without injury to underlying vocal ligament. Vocal cord cyst in toto removal need microflap elevation, dissecting the cyst off the mucosa & underlying ligament.^(1,2) Reinke's edema surgery involves microflap elevation, aspiration of contents and redraping of mucosa over the vocal ligament.⁽¹⁾

A prospective study was undertaken in an attempt to prove how VLS coupled with voice therapy offers cost effective and safe management in benign laryngeal lesions.

MATERIALS AND METHODS: The patients who attended the outpatient department of a single unit with symptoms of change in voice, voice fatigue and with seemingly benign laryngeal lesion after indirect laryngoscopy, chosen for VLS were included in the study. Patients who didn't turn up for follow up were excluded from the study. There were 62 patients, during a period of 1 year starting from March 2013. Patients were in the age group of 12 to 66 yrs and included both sexes.

The patients were examined in detail and voice assessed subjectively and by Voice Handicap Index (VHI-10). 70 degree laryngoscopy was done. Videostroboscopic examination was not available in our department and hence was not done. Patients with vocal nodules were given voice therapy for 3 months. Those patients with vocal nodules who didn't improve with voice therapy were also taken for surgery. Prior to surgery routine investigations were done. Videolaryngoscopic surgery was done under general anaesthesia with endotracheal intubation. All the patients were given nebulisation with budesonide and saline immediately after extubation. They were given meticulous post operative care. Patients were advised absolute voice rest for 48 hours and relative voice rest (using voice sparingly) for next 10 days, resuming normal use of voice thereafter. Voice therapy was started after 10 days and continued for 1 month. 70 degree endoscopy was done during follow up visits at 1 week, 3 weeks and 6 weeks. The patients were assessed for improvement of voice, both subjective and by VHI-10.

RESULTS: The patients constituted 40 males and 22 females. The male: female ratio being 1.8:1. The age

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distribution was as follows: 12–25 yrs (3), 26–35 yrs (10), 36–45 yrs (26), 46–55yrs (11), and 56–66yrs (12).

Age group	No.	%
12 – 25 yrs	3	4.84
26 – 35 yrs	10	16.12
36 – 45 yrs	26	41.94
46 – 55 yrs	11	17.74
56 – 66 yrs	12	19.36

Table 1: Distribution of patients according to age

The symptoms included hoarseness, voice fatigue, foreign body sensation throat and hemoptysis. The average duration of symptoms was 6 months to 3 years. The mean duration of symptoms was 1 year. With regard to occupation, majority among women were housewives. There were also students, teachers and fish sellers with a history of voice abuse. Most of the males had history of smoking.

Symptoms	No.	%
Hoarseness	62	100
Voice fatigue	34	54.84
Foreign body sensation throat	5	8.06
Hemoptysis	1	1.61

Table 2: Distribution of symptoms

Vocal cord polyp was the commonest among the lesions selected for surgery, constituting 69.35%. There were 11 vocal cord cysts, 2 each of vocal nodule, papilloma and Reinke’s edema.

Diagnosis	No.	%
Vocal Polyp	43	69.35
Vocal cord cyst	11	17.74
Vocal nodule	2	3.23
Papilloma	2	3.23
Arytenoid granuloma	1	1.61
Arytenoid cyst	1	1.61
Reinke’s edema	2	3.23

Table 3: Distribution of the various benign lesions

The right vocal cord alone was affected in 23 patients and left vocal cord alone in 32 patients. There was bilateral affection in Reinke’s edema & vocal nodule. Had 2 cases of bilateral vocal cord polyp, rather rare entity. Of the 2 papilloma cases, one was bilateral. One of the patients with papilloma had a previous surgery, this being the first recurrence.

The average operating time was 20-30 minutes. Operation time was 90 minutes in one case due to brisk bleeding which was controlled subsequently. The patients were admitted for 48 hrs with advice of absolute voice rest. They were asked for follow up at 1 week, 3 weeks and 6 weeks with continuing voice therapy and antireflux medications. 70 degree laryngoscopy was done during follow up.

At 1 week follow up, the operated site showed congestion in 60 cases. The vocal cords were near normal

in 39 cases at 3 weeks. 60 cases attained a normal appearance at 6 weeks. No recurrence was noted at 6 weeks. Probably the follow up period was limited to detect any recurrence.

Follow up	Congestion of vocal cord/arytenoid	Near normal vocal cord/arytenoid	Normal vocal cord/arytenoid
1 week	60	2	0
3 weeks	18	39	5
6 weeks	1	1	60

Table 4: Endoscopic findings

The voice was assessed post operatively at 1 week, 3 weeks and 6 weeks. 74% had normal voice by 3 weeks and 97 % by 6 weeks. One patient achieved near normal voice by 6 weeks. Delayed voice improvement was noted in Reinke’s edema and papilloma cases. One patient had breathy voice after surgery and that was his second vocal cord surgery for papilloma larynx.

Follow up	Hoarseness	Near normal voice	Normal voice
1 week	27	35	0
3 weeks	6	20	46
6 weeks	1	1	60

Table 5: Voice after surgery

Foreign body sensation throat and voice fatigue subsided in patients who had it. Haemoptysis subsided in patient with papilloma larynx following surgery.

Histopathological diagnosis was correlating with clinical diagnosis in all cases.

One patient developed left hypoglossal nerve paresis, detected on first post operative day. It completely recovered by 3 weeks.

DISCUSSION: Laryngeal lesions can create a lot of stress to patient and family. Voice contributes to one’s identity. Benign vocal fold mucosal disorders are relatively common. More than 50% of patients seeking medical attention with voice change of more than one month duration have a benign mucosal disorder.⁽²⁾ Benign neoplasm of larynx is defined as “an abnormal mass of tissue in the larynx, the growth of which exceeds and is uncoordinated with that of normal tissue and persists in the same excessive manner even after cessation of the stimuli which evoked the change”.

The relevant anatomy in benign vocal fold disorders is the microarchitecture of vocal folds. The membranous vocal fold is made up of squamous epithelium, superficial lamina propria (Reinke’s space), intermediate and deep lamina propria (vocal ligament) and the thyroarytenoid muscle, described by Hirano.⁽³⁾

The most common voice disorders are muscle tension dysphonia, laryngitis, vocal fold nodules, vocal polyps, vocal cysts, vocal fold palsy, arytenoid granulomas and less

frequently papillomatosis, sulcus vocalis & microvascular lesions.⁽¹⁾ Males were more commonly affected compared to females in accordance with other studies.^(4,5)

Vocal polyps are the most common structural abnormality which causes hoarseness. The present study and similar study by Batra K et al proved the same.⁽⁶⁾ A true vocal polyp is usually solitary and is a benign swelling of >3 mm that arises from the free edge of vocal fold. Phonotrauma is an important etiological factor. Vocal polyps are effectively managed by excision of the polyp by microlaryngeal surgery by superior cordotomy and medial microflap. Voice therapy was given pre operatively and continued post operatively for 1 month.

Intracordal cysts are either mucus retention cysts or epidermoid cysts. Vocal overuse is an etiology. During surgery, hydrodissection was done, medially based microflap elevated and cyst dissected out of the surrounding vocal fold tissue. The improvement in voice seemed to take slightly longer duration when compared to that of polyps/nodules.⁽⁷⁾

Vocal nodules are bilateral small swellings <3mm that develop on the free edge of the vocal fold. It arises usually in response to phonotrauma particularly, voice abuse. Most of the cases of vocal nodules improve with voice therapy.⁽⁸⁾ The cases which remained unresponsive with voice therapy were taken for surgery. Vocal nodules were excised after hydrodissection, superior cordotomy and medial microflap.

Chronic smoking and voice abuse result in edema, vascular congestion and venous stasis leading to formation of bilateral diffuse polyposis or Reinke's edema. Polyp reduction with mucosal sparing was done by aspirating the contents after raising the flap. This helps in earlier and optimal return of voice.

Majority of the papillomatosis are the result of Human Papilloma Virus sub types 6 and 11. Papillomas were noted to bleed excessively during excision probably due to its multiple fibrovascular cores. Among the 2 cases of papillomas, one was a first recurrence in an adult and it did not recur during the period of follow up.

Arytenoid cysts and granulomas are relatively rare. Cyst was marsupialised and left open to heal. Granuloma was excised. Arytenoid granulomas are usually the result of chronic laryngitis associated with reflux disease. The patient didn't improve with reflux medications, hence opted surgery.

Two patients who had bilateral vocal polyp, excision was done in single sitting.

We had a case with left hypoglossal nerve palsy detected on first post operative day. The nerve palsy seemed to be due to neuropraxia as a result of pressure of rigid laryngoscope on base of tongue. Empirical course of steroid and Vit B12 was given and recovered by 3 weeks.⁽⁹⁾ Damage to the hypoglossal nerve, though a rare complication, has been reported to be associated with procedures utilizing rigid laryngoscopes and endotracheal airways.^(7,10)

Voice therapy plays a crucial role in the management of the vocal fold lesions. It helps in optimizing laryngeal

involvement in phonation.⁽¹¹⁾ Voice therapy constitutes guidelines for proper voice use, adequate hydration, antireflux medications and life style modifications. Life style changes include measures such as avoiding smoking and alcoholism. Voice therapy was instituted pre and post operatively. The contribution of a good speech pathologist is essential for a favorable outcome. Post operatively the patients were advised to avoid hot/cold foods, exposure to air pollution, avoid coughing and frequent clearing of throat.

CONCLUSION: Varieties of benign lesions which cause hoarseness are source of concern and worry as it can affect self esteem of a person. It can also be a cause of job threat to professionals like singers, teachers and preachers. Proper evaluation and meticulous surgery is rewarding in most of the benign lesions of larynx. The patient should be counseled regarding the need for voice therapy pre operatively and post operatively. The return to a normal/near normal voice significantly boosts the confidence of an individual and makes his social and family life more pleasant. The short hospital stay and minimal medications make it a cost effective surgery. Thus VLS along with voice therapy is safe and highly rewarding in benign laryngeal lesions.

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Fig. 1: Vocal nodule



Fig. 2: Angiomatous polyp



Fig. 3: Vocal cyst



Fig. 4: Bilateral vocal polyp



Fig. 5: Papilloma