

A CLINICAL STUDY ON MANAGEMENT OF BENIGN VOCAL CORD NODULES WITH SPECIAL REFERENCE TO NON- SURGICAL VERSUS SURGICAL INTERVENTION



ENT

KEYWORDS: BENIGN, VOCAL CORD, NODULES, POLYP,

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ABSTRACT

BACKGROUND: -Benign vocal cord tumours are non-cancerous growths of abnormal tissue on the vocal folds.

They include "singer's" nodules, isolated polyps, polypoid degeneration cysts, leukoplakia or keratosis, intubation granuloma. Nodules are not cancerous, they are usually not life threatening. These are vocal nodule vocal polyp vocal cyst. treatment can be conservative or surgical. One of the techniques includes micro laryngeal surgery which has opened wide horizons and has offered a wide variety of procedural options. Diagnostic, scientific and technological advances have been paralleled in recent years by increasing sophistication and precision in laryngeal surgery

METHODS: in Department of Otorhinolaryngology and Head & Neck Surgery, SMS Medical college and hospital jaipur. Total of 80 patients who presented to our out patient department with complaint of change of voice between the period of May 2012 to November 2013 were evaluated in this study. They were investigated and managed appropriately. Follow up at the interval of 2 weeks, 4 weeks and 6 months was done with subjective analysis of voice.

RESULTS: In this study total 80 patient were included. All pt were given conservative management and speech therapy. 46 out of 80 got improvement by this modality of treatment and remaining 34 patient undergoing for surgery .30 patient out of 34 got improvement but remaining 4 did not get benefit (Worse the voice) because in 2 patient either residual or fibrosis and in 2 patient may be due to failure to follow proper speech instruction

CONCLUSION: The study reveals that Vocal cord nodules are commonly occurs in middle age group 31-45yr have female preponderance which are commonly present bilaterally and commonly occurs in hindu population. Most common cause of vocal cord nodules are voice abuse/misuse. Smoking, GERD, post nasal drip and medication are other aggravating factors. Almost all patient of vocal cord nodules present with changes in voice and commonly found in teachers, students, housewife, vendors singers etc. Most of case of vocal cord nodules responded to conservative management and that did not respond to conservative treatment were treated by surgery (MLS).

INTRODUCTION

The field of laryngology began in the mid-nineteenth century after Garcia's¹ description of mirror laryngoscopy. The term phonosurgery was coined in the early 1960s by Hans von Leden and refers to surgical procedures designed primarily to restore normal voice quality. Although there have been many advances in both laryngology and phonosurgery, these fields are still evolving.

Benign vocal cord tumours are non-cancerous growths of abnormal tissue on the vocal folds. They include "singer's" nodules, isolated polyps, polypoid degeneration cysts, leukoplakia or keratosis, intubation granuloma. Nodules are not cancerous, they are usually not life threatening. However, nodules may affect voice quality and excessive growth may affect breathing pattern. Each of these nodules has a potentially different cause, but there are common factors that contribute to their development.

Generally, benign vocal nodules occur in response to injury, but are also well known to have multiple causes. The initial injury may be brought on by Chronic vocal use/misuse.

For example, excessive loudness and use in a teacher, or singing excessively with poor breath support in a singer, acute vocal misuse.

For example, screaming at the football game, or an uncontrolled coughing spell during an upper respiratory infection.

TYPES OF VOCAL CORD LESIONS-

Vocal Nodules appear as bilateral symmetric swellings, usually at the junction of the anterior and mid-third portions of the vocal folds. Since the anterior 2/3 (membranous) portion of the vocal folds participate in phonation, shearing and collision forces occur maximally at the midpoint.

Vocal polyps -usually unilateral and either sessile (broadbased) or pedunculated (small stalk). They are thought to occur from breakage in a capillary (small blood vessel) in Reinke's space, with leakage of blood, localized edema (swelling), and eventual organization into a

fibrotic polyp.

Vocal cysts- may have a history similar to those patients with vocal nodules. Cysts are of two types; mucus retention and epidermoid. Cysts are almost always unilateral (appearing on only one side), but a large cyst may cause a "reactive" swelling on the opposite (contralateral) vocal fold.

The lesion of the glottis thus affects the movements of the vocal folds resulting in change of voice and is commonly known as the hoarseness of voice. The visualization of the larynx used to be quite challenging and difficult for the otolaryngologist. But with the advent of various technological advancements, this part has become very interesting and easy. Also, the operative procedures that can be performed have developed a lot. One of the techniques includes micro laryngeal surgery which has opened wide horizons and has offered a wide variety of procedural options. The human voice is fascinating and complex. More thorough understanding of voice is valuable not only in caring for voice problems but also in providing good medical care by recognizing systemic diseases that are present with laryngeal manifestations. Diagnostic, scientific and technological advances have been paralleled in recent years by increasing sophistication and precision in laryngeal surgery.

AIMS AND OBJECTIVES

1. To study the management of benign vocal cord nodules with special reference to non- surgical versus surgical interventions
2. To study the age, sex distribution and etiology of the vocal cord nodule
3. To study the prevalence of vocal cord nodules according to occupation.

MATERIALS AND METHODS

A Descriptive study was performed in Department of Otorhinolaryngology and Head & Neck Surgery, SMS Medical college and hospital jaipur. Total no. of 80 patients who presented to our out patient

department with complaint of change of voice between the period of May 2012 to November 2013 were evaluated in this study. They were investigated and managed appropriately.

Follow up at the interval of 2weeks, 4weeks and 6months was done with subjective analysis of voice.

Inclusion Criteria

1.All benign vocal cord nodules

Exclusion Criteria

- 1.Other benign lesions of vocal cord
- 2.Malignant lesion of vocal cord.
- 3.Others chronic systemic disease(TB,HTN,DIABETES Etc.)

Treatment

Non-Surgical- Non-surgical measures included one or more of the following:

- 1. Medical/pharmacological treatment of infections, allergy, and laryngopharyngeal acid reflux(Antibiotics, Antacids, Steroids etc)
- 2. Vocal hygiene advice (including alterations in working environment)
- 3. Reduction of 'voice abuse'
- 4. Voice re-training
- 5. Voice rest
- 6. Diet and life style modification.
- 7. Observation alone

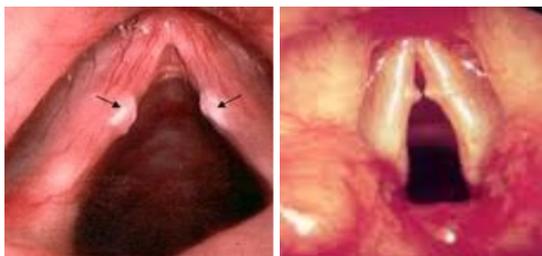
Speech therapy:- The speech therapy is instituted to those who are motivated to achieve the best possible voice and thus reduce the chance of recurrence. The therapy is started after the laryngeal epithelial defects are healed. It is particularly important if the patient develops a voice pitch that is too deep or too high or if he phonates with the false cords.

Surgical-Direct microlaryngealsurgical(MLS) techniques.

The microlaryngeal surgery may be performed on the larynx using Zeiss operating microscope with a 400mm objective. General anesthesia with 6mm endotracheal tube is usually used. There are a series of fine instruments developed in the endolaryngeal microsurgery. A self retaining laryngoscope of wide caliber is fixed to the table. It is useful to perform accurate operation in the larynx, to study the changes in the laryngeal mucosa and for the early diagnosis of the vocal cord malignancies while preserving the laryngeal functions.

Post Operative Advice - Voice rehabilitation

Follow up - The cases were followed at the end of second ,four weeks and six month.



Vocal cord nodules bilateral

OBSERVATION AND RESULTS- AGE DISTRIBUTION

Lesion	Age Group(In year)				
	Upto-15yr	16-30yr	31-45yr	46-60yr	61-70yr
Vocal cord nodules	9	22	35	13	1
Percentage	11.25%	27.5%	43.75%	16.25%	1.25%

Vocal cord nodules most commonly occurs in middle age group (31-45yr) 43.75%(35 patient out of 80) followed by 27.5%(16-30yr),16.25%(46-60yr),11.25%(up to 15yr).

SEX DISTRIBUTION

LESION	MALE	FEMALE
VOCAL CORD NODULES	36	44
PERCENTAGE	45%	55%

Vocal cord nodules most commonly occurs in females.In this study 44 patient were female out of 80 patients.

RELIGION.-

RELIGION	NO OF PATIENTS	PERCENTAGE
HINDU	71	88.75%
MUSLIM	9	11.25%

Vocal cord nodules and others glottis lesion are most commonly seen in hindu religion. In this study 71 patient were hindu population and 9 were muslim.

OCCUPATION

OCCUPATION	VOCAL CORD NODULES	PERCENTAGE
TEACHERS	16	20%
HOUSE WIFE	26	32.5%
STUDENTS	21	26.25%
VANDORS	8	10%
HAWKER	4	5%
SHOPEKEEPER	4	5%
SINGER	1	1.25%

Most common cause of vocal cord nodule is voice abuse or misuse. In our study vocal cord nodules commonly occurs in house wife followed by students, teachers, vendor, hawker, shopekeeper and singer.

SITE OF VOCAL CORD NODULES

SITE	NUMBER	PERCENTAGE
B/L	56	70%
RIGHT	7	8.75%
LEFT	17	21.25%

Vocal cord nodules usually occurs bilaterally and in some cases occurs unilaterally. In our study mostly it occurs bilaterally than left side and right side.

SYMPTOMS

SYMPTOMS	NUMBERS OF Pt.	PERCENTAGE
Hoarseness of voice	80	100%
Sore throat	19	23.75%
Difficulties in breathing	8	10%

In this study hoarseness of voice was present in all patients and sore throat was present in 19 out of 80 patient. and difficulties in breathing was present in 8 out of 80patient.

ETIOLOGY

ETIOLOGY	NUMBER OF Pt	PERCENTAGE
Vocal abuse/misuse	80	100%
Smoking	27	33.75%
GERD	22	27.5%
Excessive throat cleaning	22	27.5%
Post nasal drip	11	13.75%
Medication	10	12.5%

Most common cause of vocal cord nodule is voice abuse or misuse. Other aggravating factors are smoking, GERD, Excessive throat cleaning habit/Post nasal drip and Medication.

MANAGEMENT

TYPE OF MANAGEMENT CONSERVATIVE AND SPEECH THERAPY		
	NO OF PATIENT	PERCENTAGE
IMPROVED	46	57.5%
NOT IMPROVED	34	42.5%
TOTAL	80	100%

TYPE OF MANAGEMENT SURGERY AND SPEECH THERAPY		
	NO OF PATIENT	PERCENTAGE
IMPROVED	30	88.23%
NOT IMPROVED	4	11.77%
TOTAL	34	100%

In this study total 80 patient were included. All pt were given conservative management and speech therapy. 46 out of 80 got improvement by this modality of treatment and remaining 34 patient undergoing for surgery. 30 patient out of 34 got improvement but remaining 4 did not get benefit (Worse the voice) because in 2 patient either residual or fibrosis and in 2 patient may be due to failure to follow proper speech instruction.

FOLLOWUP

TYPE OF MANAGEMENT	DURATION OF FOLLOW UP					
	2 WEEKS		4 WEEKS		6 MONTH	
	IMPROVED	NOT IMPROVED	CURE	NOT CURE	CURE	NOT CURE
CONSERVATIVE AND SPEECH THERAPY	46	34	46	34	-	-
POST SURGERY AND SPEECH THERAPY	34	-	30	4	32	2

In our observation 46 patient got improvement by conservative and speech therapy and these patient were follow up till 4 weeks during this period all 46 patient showed improvement and cure after that patient did not follow up. And remaining 34 patient undergoing surgery. 30 patient out of 34 cure at 4 weeks follow up after surgery and all patient take speech therapy. Remaining 4 patient did not get benefit due to these patients may be failure to follow proper speech instruction. After 4 weeks these 4 patient give speech therapy and at 6 month follow up 2 patient become cure and others 2 patients are not cure due to fibrosis or residual tissue.

DISCUSSION

In my short series of 80 cases studied Descriptive in sms Hospital, jaipur, which have been managed in light of modern knowledge of the subject.

Vocal cords nodules are commonly encountered by an otorhinolaryngologist in his daily practice. These entities are important as they are directly related to the voice and airway.

These lesions can be easily misdiagnosed and therefore need expertise and experience for managing such patients.

Both males and females of the middle age group are commonly affected. Hoarseness of voice is the most common presenting complaint.

Vocal abuse and smoking are common predisposing factor.

These lesions of the vocal cords can be managed conservatively or surgically.

In the present study vocal cord nodules were most commonly seen in middle age group 31-45yr ,(35 out of 80 patient) This is comparable to Kleinsasser at al(1991)⁴ 31-45yr(57) and Nagata at al(1983)⁵ 30-45yr(52).

Results of the present study showed female a predominance in vocal nodules (55%) which is comparable with that of J.M. Lancer et al (1988) (F=65%) and Kleinsasser (1991)⁴ (F=88%).

There were a 9 muslim patients constituting a ratio of Hindus: Muslims to be 7.89:1. To best of our knowledge, the higher incidence of Hindus can be attributed to their large population, higher literacy rate which results in earlier diagnosis and increased professionals. S. Shukla et al¹⁶ at Banaras Hindu University in Varanasi in 2009 found that the incidence of both benign and malignant glottic lesions are increased in the Hindu population. Also, the percentage of low to middle class families was found to be 91% while only 9% were high class families. Strong M.S. (1982) supported the same and found 85% of low to middle class families. The possible reason for such high incidence in low or middle class families could be overcrowding, exposure to environmental hazards, vocal abuse and low immunity.

Site of lesion-

In the present study, it has been observed that vocal nodules occurs bilaterally is most common(56 out of 80 patient). Vocal nodule were seen at the junction of anterior one- third and posterior two- third as at this point, there was maximum amplitude of vibration and thus site of strongest mechanical irritation. This finding was in concordance with Kosokovic (1973).

Symptomatology-

In this study, all patients presented with the complaints of hoarseness of voice 100% (80 cases), while throat discomfort in 23.75% (19 cases), difficulties in breathing 10%(8 cases). The benign laryngeal lesions presents with a variety of the symptoms ranging from voice changes (mild hoarseness to complete aphonia) to severe respiratory distress (Epstein et al, 1971; Strong et al, 1971). Respiratory distress or dyspnea is commonly associated with laryngeal papillomatosis and large mass from vocal cord occluding the laryngeal inlet.

Most of the lesions were diagnosed within the duration of six months of the occurrence of the symptoms. The reason for such delays could be because of lack of any life threatening symptoms, illiteracy and lack of awareness about the disease.

Occupation-

In this study vocal cord nodules were mostly occurs in house wife 26(n=80), students 21(n=80), Teachers 16 (n=80), Vendor 8 (n=80) Shopkeeper and Hawkers 4 each. This result were comparable to Holinger et al in 1951 noticed vocal nodules to be commoner in teachers, singers and mothers with small children. Contact ulcers were commonly seen in lawyers, politicians and production coordinators while polyps were commonly found in foot ball coaches, switch board operators and auctioneers.

In 1971, Strong et al found that mothers with young children are commonly having nodules. This may be associated with the excessive shouting of the mothers.

ETIOLOGY OF VOCAL CORD NODULES:

Sr. No.	Study	Idiopathic	Smoking	Alcohol	GERD	Voice Abuse	URI	Others
1	Garcia Alvarez CD (1999)	-	-	-	-	+	-	-
2.	J.M. Lancer et al (1988) ⁸	-	-	-	-	+	-	-

3.	Kleinsasser (1991) ⁴	-	-	-	-	+	-	-
4.	Present Study	-	+	-	+	+	+	+

All studies including the present study showed voice abuse as the main causal factor for vocal nodules.

In significant amount of cases where the cause cannot be identified the etiology was labeled as idiopathic.

**MANAGEMENT
VOCAL NODULES**

Sr. No.	Study	No. of pts.	Voice therapy	Surgical	Surgery + Voice therapy
1.	Deal RE et al (1976) ³	34*	31(100%)	-	-
2.	Bruce Benjamin, Glen Croxson (1987) ⁷	27	-	27 (100%)	-
3.	J. M. Lancer et al (1988) ⁸	20	6 (30%)	8 (40%)	6 (30%)
4.	Kleinsasser (1991) ⁴	104	-	-	104 (100%)
5.	Verdolini et al (1995) ¹¹	31	31 (100%)	-	-
6.	Milutinovic (1998) ¹²	293	-	293 (100%)	-
7.	Present study	80	46(57.5%)	-	34(42.5%)

Deal RE et al (1975) and Verdolini et al (1995) managed all patients conservatively while J. M. Lancer et al (1988) managed 6 patients (30%) with conservative therapy and suggested that voice therapy reduced recurrences after treatment in vocal nodule patients, as compared to the patients treated alone with surgery.

Present study is also consistent with above studies and hence this treatment can be justified in patients of vocal nodules.

Maximum number of cases found were due to Vocal Nodules (48%,n=50) followed by Vocal cord Cysts (18%,n=50) and Vocal cord Polyp (12%,n=50). Smoking was seen as a consistent aetiological factor with Reinke's edema and also in vocal cord polyps. Diagnostic efficiency of Teles copy (by Hopkins's 70° and 90° scopes) was found to be better (90%, n=50) than that of Indirect laryngoscopy (58%, n=50). Voice disorders are prevalent in all age groups; usually occur in boys and woman as such persons are almost always vocal over dørs. Overall success rate of surgery is more than conservative treatment (.Nikhil Gupta I, et al. jamnagar gujrat.)

CONCLUSION

The study reveals that

- .Vocal cord nodules are commonly occurs in middle age group 31-45yr.
- .Vocal cord nodules have female preponderance.
- .Vocal cord nodules are commonly persent bilaterally.
- .Vocal cord nodules and other benign lesion are commonly occurs in hindu population.
- .Most common cause of vocal cord nodules are voice abuse/ misuse. Smoking, GERD, post nasal drip and medication are other aggerivating factors.
- .Almost all patient of vocal cord nodules present with changes in voice.
- .Vocal cord nodules are commonly found in teachers, students, housewife, vandors singers etc.
- .Most of case of vocal cord nodules responded to conservative management and that did not respond to conservative treatment were treated by surgery (MLS).

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