

Original article:

Study of Clinicoetiopathologic correlation of benign looking vocal cord lesions at tertiary care center

Dr Bharat Deshmukh

Dept. of ENT, Dr. Hedgewar Hospital, Aurangabad.

Corresponding author*



Abstract:

Introduction: Benign vocal fold mucosal disorders are common. More than 50% of patients who seek medical attention because of a voice change have a benign mucosal disorder. Micro-laryngoscopy was introduced by Oskar Kleinsasser (1961) of university of Cologne, West Germany. Micro-laryngoscopy serves both diagnostic as well as therapeutic purpose in case of benign vocal cord lesions and early diagnosis in malignant lesions.

Material and methods: The study was conducted at Dr. Hedgewar Rughalaya, a tertiary health care centre located in Aurangabad city of Maharashtra state. This study was single institutional prospective descriptive type of study carried out in outpatient department, scopy room and operation theatre. All patients of both genders of age between 18years to 80years presented in ENT OPD with complaints related to voice change and rigid Hopkins 70 degree endoscopy showing benign looking vocal cord lesions are eligible for this study. All patients who understood and agreed to the informed consent document were included in the study.

Results : In our study total 69 benign looking vocal cord lesions were operated with microlaryngoscopy and sample sent for histopathologic confirmation. Various benign lesions which comes as confirm diagnosis are Vocal cord nodule 29 cases (42 %), Vocal cord polyp 8 cases (11.6%), Vocal cord cyst 8 cases (11.6 %), Vocal cord granuloma 3cases (4.3%). Papiloma, chondroma , verrucous hyperplasia and dysplasia each comprise 2 cases. One case of fungal infection observed. One surprising finding which came to know in this study is though in rigid laryngoscopy the lesions were looking benign in final diagnosis by histopathology the lesions came out to be malignant like squamous cell carcinoma.

Conclusion: The gold standard for diagnosis of these lesions is careful history, examination by indirect laryngoscopy and videolaryngoscopy followed by microlaryngeal surgical resection and material subjected to histopathology.

Introduction:

Though vocal nodule, also called singer's nodule, screamer's nodule, is not only associated with singers, and screaming people, but also associated with other factors that can potentiate vibratory injury like smoking, acid reflux, uncontrolled allergies, and infections. However, singers, who tend to vary their pitch and tone while singing in order to demonstrate their capability and uniqueness, lecturers, who are accustomed to continuous speaking for hours, and housewives especially, who, in the event of irritation, keep screaming at their young

kids, especially during baby care, are the commonest affected people.¹ Hoarseness of voice is a common presentation. It could be the initial or the only symptom of an underlying malignancy, and thus requires a detailed examination. Ideally the term 'Hoarseness' refers to laryngeal dysfunction caused by abnormal vocal cord vibration.²

Benign vocal fold mucosal disorders are common. More than 50% of patients who seek medical attention because of a voice change have a benign mucosal disorder. Micro-laryngoscopy was introduced by Oskar Kleinsasser (1961) of university of Cologne, West Germany.³

Micro-laryngoscopy is the most modern technique of examination of the larynx both for diagnostic and therapeutic purposes. With the help of operating microscope with 400 mm lens and laryngeal suspension, the surgeon gets better magnified view of the larynx with two hands free to operate on larynx.

Microsurgical techniques applied in otology were rapidly adopted to diagnose and treat disease of the larynx with greater excellence and opened a new exciting era in laryngology.

Use of operating microscope, advances in anaesthesia, development of precise surgical instruments, application of carbon dioxide laser together with the initiative and ingenuity of laryngeal surgeons have all led to many new techniques in micro laryngeal surgery, laser treatment and more recently phonosurgery.³

Most recently Robot assisted microlaryngeal surgery has been introduced with great success.¹² Although CO₂ laser has great advantage in vascular laryngeal lesions and multiple papilloma larynx controversy exists regarding voice recovery after the use of laser versus microforceps techniques in the removal of benign vocal fold lesions.⁴

The use of Microdebrider for the resection of subglottic cyst also showed some benefits over CO₂ Laser.⁵

Instead of using conventional vertically opening microinstruments, microsurgical pressing excision technique (MPET) utilized two pairs of custom made horizontally left opening or right opening, curved microscissors or curved cupped microforceps to remove right or left vocal fold lesions accordingly using one instrument at a time, the lesion can be successfully removed with the microscissors and micro forceps in a press-evert cut manner.⁵

Vocal nodules, polyps or a cyst does not rule out malignancy, unless the lesion is resolved with treatment or it is pathologically benign.⁶

Material and methods:

The study was conducted at Dr. Hedgewar Rughalaya, a tertiary health care centre located in Aurangabad city of Maharashtra state. This study was single institutional prospective descriptive type of study carried out in outpatient department, scopy room and operation theatre. This study was conducted over period of two years with sample size estimation 69.

All patients of both genders of age between 18years to 80years presented in ENT OPD with complaints related to voice change and rigid Hopkins 70 degree endoscopy showing benign looking vocal cord lesions are eligible for this study. All patients who understood and agreed to the informed consent document were included in the study.

Inclusion criteria:

1. The patients with the history of complaints related to change in voice.
2. Benign looking vocal fold lesion on rigid Hopkins 70 degree endoscopy.
3. Patient having symptoms for more than 2 weeks and not responding to medical therapy or speech therapy.
4. Patients with age more than 18 years.

Exclusion criteria:

The patients with

1. Acute infections.
2. Clearly looking malignancies on rigid Hopkins 70 degree scopy.
3. Vocal cord palsy.
4. Other neurological diseases.
5. Puberty related voice change.

Results:

Table 1) **HISTOPATHOLOGIC DIAGNOSIS:**

Histopathologic Diagnosis	Percent
Ductal Cyst	7.2
Epidermoid Cyst	4.3
Fibroepithelial Polyp	8.7
Fungal Infection	1.4
Hemorrhagic Polyp	2.9
Squamous Cell Carcinoma	14.3
Inflammatory Lymphocytic Lesion	1.4
Leukoplakia	1.4
Mild Dysplasia	1.4
Moderate Dysplasia	1.4
Squamous Papilloma with Verrucous	1.4
Squamous Papilloma	2.9
Vocal Cord Chondroma	2.9
Vocal Cord Granuloma	4.3
Vocal Cord Nodule	42.0
Verrucous Hyperplasia	1.4
Total	100.0

Most common diagnosis on histopathology in present study is vocal cord nodule 29 cases (42%) and rare diagnosis include leukoplakia, fungal infection , inflammatory lymphocytic lesion each comprising 1 case(1.4%). In present study diagnosis of 10 cases (14.3%) came out to be squamous cell carcinoma. Benign looking lesions can be malignant on histopathologic examination.

Chi-Square Tests

	Value	df	P Value
Pearson Chi-Square	102.151 ^a	78	.035

P value of table is less than 5% that is <0.05 hence significant. There is a relation between age distribution and histopathologic diagnosis.

CHI-SQUARE TEST

	Value	df	P Value
Pearson Chi-Square	15.359 ^a	13	.285

P value of table is >0.05 hence not significant . there is no correlation between sex distribution and histopathologic confirmation.

CHI-SQUARE TEST

	Value	df	P Value
Pearson Chi-Square	15.608 ^a	13	.271

P value of table is >0.05 hence not significant. There is no correlation between residence and histopathological diagnosis.

CHI-SQUARE TEST

	Value	df	P Value
Pearson Chi-Square	102.816 ^a	91	.187

P value of the table is >0.05 hence not significant. There is no correlation between habits and histopathologic diagnosis.

CHI-SQUARE TEST

	Value	df	P Value
Pearson Chi-Square	46.184 ^a	39	.200

P value of the table is >0.05 hence not significant. There is no correlation between site of lesion and histopathologic diagnosis.

Discussion:

Microscopy serves both diagnostic as well as therapeutic purpose in case of benign vocal cord lesions and early diagnosis in malignant lesions.

In our study total 69 benign looking vocal cord lesions were operated with microscopy and sample sent for histopathologic confirmation. Various benign lesions which comes as confirm diagnosis are Vocal cord nodule 29 cases (42 %), Vocal cord polyp 8 cases (11.6%), Vocal cord cyst 8 cases (11.6 %), Vocal cord granuloma 3 cases (4.3%). Papilloma, chondroma, verrucous hyperplasia and dysplasia each comprise 2 cases. One case of fungal infection observed. One surprising finding which came to know in this study is though in rigid laryngoscopy the lesions were looking benign in final diagnosis by histopathology the lesions came out to be malignant like squamous cell carcinoma. And this number of malignant lesions is quite large 10 cases (14.3%).

In a study by Brodnitz⁷ reported 45% of nodules, polyps or polypoidal thickenings. Kleinsasser⁸ also reported similar findings. Mahesh Chandra et al.⁹ reported an incidence of 28.57% and 24%, on vocal nodules and vocal polyps respectively, in their study. Kotby et al.¹⁰ reported similar results. In studies by Kambic et al. and Chopra et al., the incidence varied from 68.3 to 16%.

Benign lesions of the larynx constitute an interesting array of lesions. These lesions are defined as an abnormal mass of tissue in the larynx, the growth of which exceeds and is uncoordinated with that of the normal tissue and persist in the same excessive manner after cessation of stimuli which evoke the change.⁹

Mucosal hemorrhage, Intracordal cysts, Glottic sulci, and mucosal bridges seem to be caused primarily by vibratory injury from an excessive amount or aggressive manner of voice use. Review of thousands of patients reveals that an expressive, talkative personality correlates best with most of these disorders. Occupational and lifestyle vocal demands appear to be additional but lesser risks, unless these demands are extreme. In our study right vocal cord is most commonly involved 33 cases (47.8%) followed by left vocal cord 26 cases (37.7%). Bilateral cord involved in 9 cases (13%). Anterior commissure involved in 1 case (1.4%). Anterior 1/3rd of vocal cord is most common site in our study 49 cases (71%) followed by middle and posterior 1/3rd.

The study conducted at GMC Aurangabad the commonest site of origin of lesions was from true vocal cords. Nearly 100% of lesions were from true vocal cords, the lesions being located in either right vocal cord or the left vocal cord in 70% of cases and on both vocal cords in 30% of cases. There was slight a preponderance of the

lesions on the right cord 19 cases (47.5%).

In our study 45 cases are correctly diagnosed. Rigid endoscopic diagnosis and histopathologic diagnosis not same in 14 out of 69 cases (20.3%). In study conducted at GMC Aurangabad clinical diagnosis was 100% correct and In a study by Nupur Nerurkar and Sunil Garg (2011)¹⁰ on correlation between rigid laryngoscopy and histopathology of laryngeal lesions at their voice clinic in Mumbai, their clinical diagnosis was 10.0% accurate in vocal fold subepithelial cyst, vocal fold nodule, laryngeal papilloma and ulcer.

P value of table is less than 5% that is <0.05 hence significant. There is a correlation between age distribution and histopathologic diagnosis. Hence most common age group affected is 30 to 40 years. Most common age group affected in vocal nodule is also 30 to 40 years. Most common age group for vocal polyp is also 30 to 40 years. Most common age group in intracordal cyst is 40 to 50 and 60 to 70 years.

P value of the table is >0.05 (0.285) hence not significant. There is no correlation between sex distribution and histopathologic diagnosis.

P value of the table is >0.05 (0.27) hence not significant. There is no correlation between residence and histopathological diagnosis.

Conclusion:

The gold standard for diagnosis of these lesions is careful history, examination by indirect laryngoscopy and videolaryngoscopy followed by microlaryngeal surgical resection and material subjected to histopathology.

References:

1. Singhal P., Bhandari A., Chouhan M., Sharma M.P., & Sharma S. Benign tumors of the larynx: a clinical study of 50 cases. *Indian Journal of Otolaryngology and Head & Neck Surgery*. 2009;61(1), 26-30.
2. Thomas C, Mona A. The Hoarseness patient. *ENT Secrets*. 2005;3:179
3. Pawan S, Amit B, Mahandra C et al. Benign tumours of the larynx: a clinical study of 50 cases. *Ind Otolaryngol Head Neck Surg*. 1998; 61: 26-30.
4. Hockstein NG, Nolan JP, O, malley BW Jr, Woo YJ. Robotic microlaryngeal surgery: a technical feasibility study using the daVinci surgical robot and an airway mannequin. *Chin Med Assoc* 2010;73:268-70.
5. Rogerson AR, Clark KF, Bandi SR, Bane B. Voice and healing after vocal fold epithelium removal by CO2 laser vs. microlaryngeal stripping. *Otolaryngol Head Neck Surg* 1996;115:352-9.
6. Lim J, Hellier W, Harcourt J, Leighton A D. Microdebrider resection of bilateral sub glottic cysts in a pre term infant: a novel approach. *Int J Pediatr Otolaryngol* 2003;67:4651-2.
7. Brodnitz FS. Goals, results and limitations of vocal rehabilitation. *Arch Otolaryngol*. 1963;77:148-56.
8. Kleinsasser O. Pathogenesis of vocal cord polyps. *An Otol Rhinol Laryngol*. 1982;91:378-81.
9. Mahesh C, Panduranga KM, Kiran B, Ranjith P, Ravi BP. Benign lesions of larynx-a clinical study. *Indian J Otolaryngol Head Neck Surg*. 2012;57:35- 8.

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10. Kotby MN, Nassar AM, Seif EI, Helal EH, Saleh MM. Ultrastructural features of vocal fold nodules and polyps. Acta Otolaryngol. 1988; 105: 477-82.

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