

Original Research

Assessment of incidence and management of vocal cord polyps

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ABSTRACT:

Background: Vocal fold polyps are benign, usually unilateral tumors. Sessile or peduncular in morphology, they can be categorized as gelatinous or translucent, fibrous or organized, and hemorrhagic or angiomatous in histology. The present study was conducted to evaluate vocal cord polyps in young adults. **Materials & Methods:** 74 patients with hoarseness of voice of both genders was enrolled. A detailed history was taken followed by thorough evaluation by ENT specialist using FOL. Parameters such as etiology and management was recorded. **Results:** Out of 74 patients, male were 44 and females were 30. The etiology of vocal cord polyps was vocal fold paresis in 18, phonotraumatic in 32, smoking in 8, and pharyngeal-laryngeal reflux in 16 patients. The difference was significant ($P < 0.05$). The management done was microlaryngoscopic surgery in 62 and LASER in 12 patients. The difference was significant ($P < 0.05$). **Conclusion:** Pharyngeal-laryngeal reflux, smoking, vocal fold paresis, and phonotraumatic injury were the causes of vocal cord polyps. Microlaryngoscopic surgery and LASER are used as forms of management.

Key words: benign, Sessile, Vocal fold polyps

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INTRODUCTION

Vocal fold polyps are benign, usually unilateral tumors. Sessile or peduncular in morphology, they can be categorized as gelatinous or translucent, fibrous or organized, and hemorrhagic or angiomatous in histology.¹ Vocal cord irritation is also a result of laryngopharyngeal reflux and acute infective laryngitis, as vocal cord polyps are produced. The majority of individuals with vocal cord polyps had a history of cigarette smoking. Additionally, exposure to fumes from industrial workers can injure the vocal cord and promote hyaline degeneration in polyps. The vocal cord polyp could have a gelatinous or hemorrhagic appearance.²

Hemorrhagic polyps ultimately result in fibrin exudation, thrombosis, capillary growth, breakdown of the vascular basement membrane, and minute bleeding.³ It is unknown what will happen when a gelatinous polyp forms. Usually occurring between the ages of 4 and 6 decades, they affect men more often than women. Consisting approximately 41% of benign laryngeal illness, vocal cord polyps are benign

constitutional abnormalities.⁴ Changes in voice quality result in a rougher, lower-pitched voice and a loss of latitude in speaking, making it difficult for the speaker to speak. However, due to a variety of etiological variables, there are both surgical and medicinal treatment options for vocal cord polyps.⁵ Appropriate and efficient medications are used to treat any inflammatory illness, including gastroesophageal reflux disease and laryngopharyngeal reflux disease (LPR). While voice therapy and preventive therapy may help with symptoms, it is rare that a polyp may be resolved.⁶ The present study was conducted to evaluate vocal cord polyps in young adults.

MATERIALS & METHODS

The present study comprised of 74 patients with hoarseness of voice of both genders. All gave their written consent for the participation of the study.

Data such as name, age, gender, etc. was recorded. A detailed history was taken followed by thorough evaluation by ENT specialist using FOL. Parameters such as etiology and management was recorded. The

results were compiled and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 74		
Gender	Male	Female
Number	44	30

Table I shows that out of 74 patients, male were 44 and females were 30.

Table II Assessment of etiology

Etiology	Number	P value
Vocal fold paresis	18	0.02
Phonotraumatic	32	
Smoking	8	
Pharyngeal-laryngeal reflux	16	

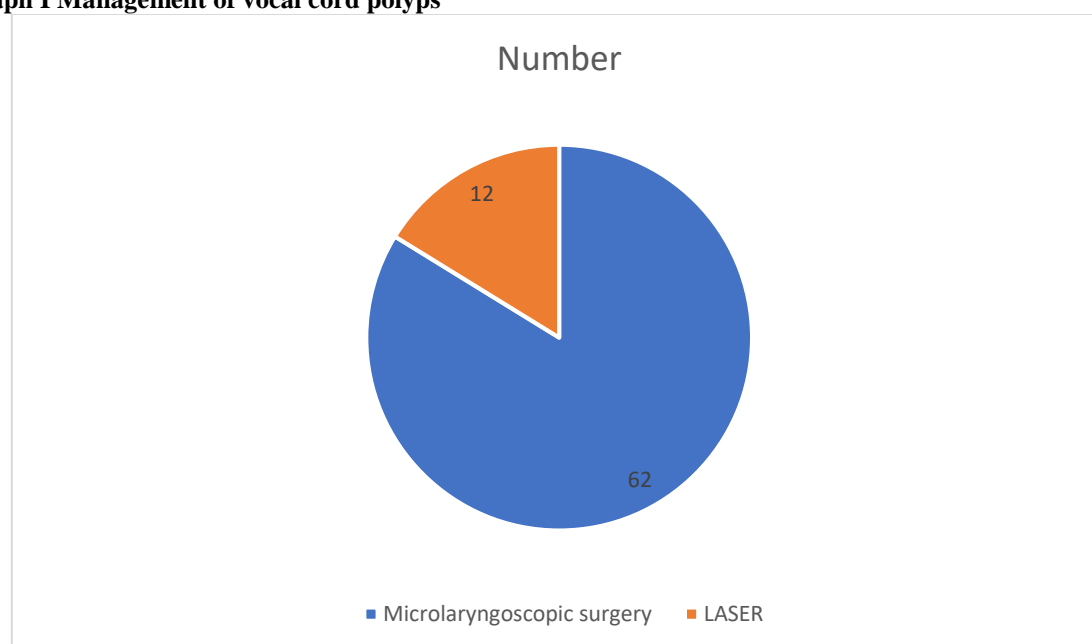
Table II shows that etiology of vocal cord polyps was vocal fold paresis in 18, phonotraumatic in 32, smoking in 8, and pharyngeal-laryngeal reflux in 16 patients. The difference was significant ($P < 0.05$).

Table III Management of vocal cord polyps

Management	Number	P value
Microlaryngoscopic surgery	62	0.01
LASER	12	

Table III, graph I shows that management done was microlaryngoscopic surgery in 62 and LASER in 12 patients. The difference was significant ($P < 0.05$).

Graph I Management of vocal cord polyps



DISCUSSION

During phonation, the vocal folds experience a variety of mechanical stresses. When the left and right vocal fold surfaces collide during phonation, impact stress is caused by the vocal folds vibrating.⁷ Vocal misuse (vocal hyperfunction with high muscular tension), abuse (yelling), and overuse (extreme volume of voice use) are likely to cause excessive mechanical stress and trauma in the mid-membranous vocal fold, which will ultimately lead to wound formation.⁸ Remodeling of the vocal fold epithelium and the superficial layer

of the lamina propria occurs as a result of wound healing. This remodeling of the tissue is what causes polyps, cysts, and nodules on the vocal folds.^{9,10} The present study was conducted to evaluate vocal cord polyps in young adults.

We found that out of 74 patients, male were 44 and females were 30. Dursun et al¹¹ examined six vocal fold polyps' macroscopic characteristics and look into how they affect voice quality. 101 consecutive patients with vocal fold polyps underwent microlaryngeal surgery to remove the polyp.

Perceptual and acoustic voice evaluations, as well as videolaryngostroboscopy, were performed on each patient. The morphologic type, location, position, form, size, and presence or absence of a reactive lesion on the contralateral vocal fold were the six macroscopic characteristics of these vocal fold polyps. The statistically significant findings included the following: small polyps were mostly found on the middle one-third of the vocal fold, and most of them were broad-based; all of the polyps that were accompanied by reactive lesions on the contralateral vocal fold were located on the free edge; gelatinous polyps tended to be broad-based; and polyps located on the superior surface tended to be hemorrhagic. Furthermore, it was discovered that tiny polyps had little jitter. Lastly, patients with pedunculated and anterior polyps had considerably greater noise-to-harmonics ratios.

We found that etiology of vocal cord polyps was vocal fold paresis in 18, phonotraumatic in 32, smoking in 8, and pharyngeal-laryngeal reflux in 16 patients. In their study, Ramesh Kumar et al¹² included ninety-nine volunteers of both genders, ranging in age from 10 to 79. There were 48 female individuals and 51 male subjects in all. The age range of 50-79 years was reported to have the highest prevalence of hoarseness at 41%. Vocal polyps (19%), laryngeal cancer (17%), and vocal nodules (22%), were the most common causes of hoarseness. The number of patients with a vocal nodule differed significantly from the number of subjects with a vocal polyp across all genders. However, the age group of 50-69 years old, with a predominance of males, was more closely linked to laryngeal cancer ($p > 0.05$). The minor cause (1%), phonaesthesia, was identified.

We found that management done was microlaryngoscopic surgery in 62 and LASER in 12 patients. In comparison to control subjects, Andrade et al¹³ investigated the prevalence of a single aberrant vocal behavior (hard glottal attack) in patients with vocal fold lesions and muscular tension dysphonia. They found that compared to control subjects, the voice-disordered patient groups had much increased frequencies of strong glottal attack. Despite the lack of significant variations in hard glottal attack across the patient groups with muscle tension dysphonia, vocal fold cysts, nodules, and polyps, this study supports the notion held by many physicians that benign vocal fold lesions are caused by inappropriate vocal behavior. Toran et al¹⁴ compared and analysed the acoustic characteristics before and after MLPS. The purpose of the study was to acoustically determine the changes in voice quality of a group of patients before and after the surgery. The following patient group were studied prior to and in between 3 and 4 weeks of surgery. Altogether there were 23 patients with either unilateral or bilateral vocal polyps. The results showed that shimmer, HNR and F0 decreased significantly ($p < 0.05$) following MLPS,

but jitter though reduced, was not statistically significant ($p = 0.694$).

Nunes et al¹⁵ compared the pathology diagnosis of one of the 132 surgical specimens from 119 individuals who had vocal nodules and polyps with the ENT diagnosis.

They looked at the paraffin blocks that matched the surgical patients' lesions. They created 396 new slides of histology cross-sections, which were categorized into three categories: PAS, Gomori trichrome, and hematoxylin and eosin. The histological characteristics of epithelium, lamina propria, basement membrane, and vascular alterations were examined.

Of the 132 lesions examined, 123 (93.18%) had clinical and pathological diagnoses that agreed (42.42% nodules and 50.76% polyps). They discovered the following histological parameters: epithelial alterations, including polyps and nodular hyperplasia (82.14%), Lamina propria: nodule fibrosis (57.14%), polyp edema (71.43%). 50% thicker nodules and 100% thin or unchanged polyps in the basement membrane. The polyps were mostly affected by vascular alterations.

CONCLUSION

Authors found that pharyngeal-laryngeal reflux, smoking, vocal fold paresis, and phonotraumatic injury were the causes of vocal cord polyps. Microlaryngoscopic surgery and LASER are used as forms of management.

REFERENCES

1. Joo YH, Lee SS, Han KD, et al. Association between chronic laryngitis and particulate matter based on the Korea National Health and Nutrition Examination Survey 2008–2012. *PLoS One* 2015; 10:0133180.
2. Filho JM, Carvalho B, Mizoguchi FM, et al. Characteristics of polypoid lesions in patients undergoing microsurgery of the larynx. *Int Arch Otorhinolaryngol* 2013;17(03):279–284.
3. Martins RH, Defaveri J, Domingues MA, de Albuquerque e Silva R. Vocal polyps: clinical, morphological, and immunohistochemical aspects. *J Voice* 2011;25(01):98–106.
4. Cielo CA, Finger LS, Rosa JC, Brancalioni AR. Organic and functional lesions: nodules, polyps and Reinke's edema. *Rev CEFAC* 2011;13:735–748.
5. Cohen SM, Garrett CG. Utility of voice therapy in the management of vocal fold polyps and cysts. *Otolaryngol Head Neck Surg* 2007; 136(05):742–746.
6. Jeong WJ, Lee SJ, Lee WY, Chang H, Ahn SH. Conservative management for vocal fold polyps. *JAMA Otolaryngol Head Neck Surg* 2014;140(05):448–452.
7. Johns MM. Update on the etiology, diagnosis, and treatment of vocal fold nodules, polyps, and cysts. *Curr Opin Otolaryngol Head Neck Surg* 2003;11(06):456–461.
8. Bohlender J. Diagnostic and therapeutic pitfalls in benign vocal fold diseases. *GMS Curr Top Otorhinolaryngol Head Neck Surg* 2013;12.

9. Ahmad SM, Soliman AM. Airway obstruction: a rare complication of benign vocal fold polyps. *Ann OtolRhinolLaryngol* 2008;117 (02):106–109.
10. Won SJ, Kim RB, Kim JP, Park JJ, Kwon MS, Woo SH. The prevalence and factors associate with vocal nodules in general population: Cross-sectional epidemiological study. *Medicine*. 2016 Sep;95(39).
11. Dursun G, Karatayli-Ozgursoy S, Ozgursoy OB, Tezcaner ZC, Coruh I, Kilic MA. Influence of the macroscopic features of vocal fold polyps on the quality of voice: a retrospective review of 101 cases. *Ear Nose Throat J* 2010;89(03):E12–E17.
12. Rameshkumar E, Rosmi TK. Prevalence of age, gender and pathological conditions of vocal cords leading to hoarseness of voice in a tertiary care hospital. *Int J Adv Med* 2016;3:345-8.
13. Andrade DF, Heuer R, Hockstein NE, et al.: The frequency of hard glottal attacks in patients with muscle tension dysphonia, unilateral benign masses, and bilateral benign masses. *J Voice* 1999, 14:240–246.
14. Toran KC, Vaidhya BK. Objective voice analysis for vocal polyps following microlaryngealphonosurgery. *Kathmandu Univ Med J (KUMJ)* 2010;8(30):185–189.
15. Nunes RB, Behlau M, Nunes MB, Paulino JG. Clinical diagnosis and histological analysis of vocal nodules and polyps. *Brazilian journal of otorhinolaryngology*. 2013;79:434-40.