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A RETROSPECTIVE CLINICOPATHOLOGICAL STUDY ON BENIGN PATHOLOGIES OF VOCAL CORDS

ENT

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ABSTRACT

Introduction: Benign tumours manifest early as they affect the phonatory function of the vocal cords. They lack the infiltrative and metastasizing ability of malignant lesions.1 Vocal cord polyp and vocal nodules are among the commonest benign lesions of the vocal cords. Rosen et al defined nine distinct vocal fold lesions based on several parameters.2 **Methodology:** A retrospective analysis of 112 cases of benign neoplasms of vocal cords reported to the ENT outpatient department of DM Wayanad Institute of medical sciences from January 2017 to March 2022 were done. **Results:** Vocal cord polyps were the most common lesion with predominance among males in the age group of 20-30 years. Vocal nodules are known to be bilateral, however few unilateral presentations were noted in our series. Juvenile papilloma showed a male preponderance. Rare tumours like amyloidosis, fibroma and angiomatous polyp was also encountered during our study period. **Conclusion:** Vocal cord polyp is the commonest benign tumour seen on the vocal cords in our series. This retrospective study also brought to light the possibility of a unilateral presentation of vocal nodule and male preponderance of juvenile papilloma.

KEYWORDS

INTRODUCTION

Benign tumours of the vocal cords are not uncommon and clinically manifest very early by interfering with the phonatory function of the vocal cords. The term "Benign tumour" is used here to include any abnormal mass of tissue on the vocal cords, providing that it lacks infiltrative qualities and the power to metastasize, which are characteristics of malignant lesions.1 This includes non-neoplastic lesions like vocal cord polyp, cyst, nodules and true neoplastic tumours like papilloma, fibroma etc. However, specific inflammatory swellings like tuberculoma and syphilitic lesions are not included in this study. Over the years a number of classification systems for benign laryngeal tumours have been proposed. New and Erich (1938) differentiated lesions based on their site of origin and extent of involvement.1 Holinger (1951) described benign tumours combining gross clinical appearance and histology.3 Rosen et al described nine distinct vocal fold lesions by compiling features like morophology, stroboscopy, response to therapy and intraoperative findings. Thus, the nine distinct benign vocal fold lesion are vocal fold nodules, vocal fold polyp, pseudocyst, vocal fold cyst (subepithelial or ligament), nonspecific vocal fold lesion, vocal fold fibrous mass (subepithelial or ligament), and reactive lesion.2 Earlier studies have shown that 97% of the benign tumours of the larynx occur in the true vocal cords (Holinger 1951) and we confine this study to the benign vocal cord tumours alone.3 The benign lesions of vocal cords produces symptoms which can vary from hoarseness to stridor, can affect social functioning and work performance, and which have a significant emotional impact. Speech therapy following microlaryngeal surgery forms an essential part of treatment, to avoid recurrence. VHI-10 scale as found to be a useful and convenient tool in measuring patient voice handicap and to see improvement after surgery4.

MATERIALS AND METHODS

This study consists of a statistical analysis of 112 cases of histologically proved benign tumors of the vocal cords that were managed in the ENT department of DM Wayanad Institute of Medical Sciences from January 2017 to March 2021. All patient were examined in detail including history and general physical examination. These patients had undergone microlaryngeal surgery and a histopathological diagnosis was made in all cases. Statistical analysis of these cases were made with regard to the type of tumour, age and sex incidences and their site of occurrence. The results are analyzed and discussed.

RESULTS

Incidence

Tumour	Number (%)
Total number of vocal cord tumors	174
Benign tumours	112 (64%)
Malignant tumours	62 (36%)

Table 1.1

Type of tumour	Number	Percentage
Vocal cord polyp	73	64
Vocal nodule	17	15
Papilloma	16	14.8
Angiomatous polyp	2	1.8
Amyloidosis	2	1.8
Fibroma	1	0.8
Epidermoid cyst	1	0.8

68% of the vocal cord tumours were benign. Vocal cord polyp constituted 64% of benign tumours, which was followed by vocal nodule 15% and papilloma 14%. Rare lesions like amyloidosis (2 cases), epidermoid cyst (1 case) a fibroma (1 case) were also reported.

Sex Distribution

Table 2

Type	Male	Female	Ratio
Vocal cord polyp	53	20	5:2
Vocal nodule	6	11	1:2
Papilloma	12	4	3:1
Angiomatous polyp	2	-	2:0
Amyloidosis	1	1	1:1
Fibroma	-	1	0:1
Epidermoid cyst	-	1	0:1

Benign tumours are common in males with male female ratio of 2:1. The sex ratio of vocal cord polyp shows a ratio of 5:2. Vocal nodule shows a female preponderance of 2:1. Papilloma shows a definite male preponderance with ratio 3:1. Among the 8 children with juvenile papilloma 7 were males. 2 cases of angiomatous polyp reported were males.

Age Incidence

Table: 3

Type of tumour	0-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70
Vocal cord polyp	0	0	0	26	21	16	5	5
Vocal nodule	-	-	3	4	10	1	-	-1
Papilloma	5	3	1	4	1	-	1	-

Angiomatous polyp	-	-	-	1	-	1	-	-
Amyloidosis	-	-	-	-	-	1	1	-
Fibroma	-	-	-	-	4	-	-	-
Epidermoid cyst	-	-	-	-	-	-	1	-

Benign tumours showed maximum incidence in the 21-30 years age group. Vocal Polyp showed maximum incidence in 21-30 years age group with near equal incidence in 31-40 years age group. No cases were reported below the age group of 20. Vocal nodules show high incidence in the age group of 31-40 years. Papilloma comprises of adult and juvenile type. 8 out of 16 cases were seen in children (56%) with a maximum incidence in the age group of 1-5 years. Amyloidosis was noted after the age of 40 years.

Site Of Occurrence
Table: 4

Type of tumour	Right V.C		Left V.C		Anterior commissure	Bilateral V.C
	A/2	P/2	A/2	P/2		
Vocal cord polyp	32	1	28	2	4	6
Vocal nodule	5	-	2	-	-	10
Papilloma	2	1	2	-	2	9
Angiomatous polyp	1	-	1	-	-	-
Amyloidosis	-	-	-	1	1	-
Fibroma	-	-	-	1	-	-
Epidermoid cyst	-	-	-	1	-	-

A/2- Anterior half
P/2 – Posterior half
Among 112 cases, 37 cases were bilateral. Polyps commonly present in the anterior half of vocal cords. In 4 cases it presented at the anterior commissure. Among the 73 cases of vocal polyp 10 patients gave a previous history of surgical removal. Vocal nodules are usually bilateral (10 cases), but 7 cases showed a unilateral presentation.

Adult papillomas are mainly unilateral and may involve any part of the vocal cord, however one case of bilateral presentation was noted. Juvenile papilloma are always bilateral.

Angiomatous polyps seen were unilateral and one case of epidermoid cyst was seen in the posterior half of the left vocal cord.

DISCUSSION

The statistical analysis of 174 vocal cord tumours revealed that benign tumours are more common than malignant lesions on the true vocal cord in the ratio 2:1. This change in ratio can be explained by earlier observation of Holinger that 97% of benign tumours of the larynx are seen on the true vocal cords.3 Hegde et al.12 found vocal cord polyp in majority (40.47%), vocal nodules (28.57%); tuberculosis of larynx (14.30%), laryngocele (4.76%), laryngeal web (4.76%), epiglottic cysts (4.76%) and subglottic hemangioma (2.38%). Cecatto et al.13 also reported vocal polyp was the most prevalent lesion (29.62%) amongst the benign lesions. Chopra and Kapoor14 reported most common lesion to be vocal nodules (33.33%), followed by vocal cysts (17.3%), and polyps (16%) in their study group. Similar results were also observed by Wani et al.15 who found that vocal nodules were the commonest (37%), followed by vocal polyps (26%), Reinke's edema (4%), intracordal cyst (4%), contact ulcer (3%), saccular cyst (2%) and papillomatosis (1%). Singh et al.16 reported most common lesion to be vocal polyp (40.7%), followed by nodule (28.4%), papilloma (22.2%) and cyst (0.05%)

Among benign tumours, polyps were the commonest – 64%. Polyps can occur in various shapes, sizes and locations. They can be unilateral or bilateral, sessile or pedunculated and hemorrhagic or non-hemorrhagic. They may be a few millimeters in size or may be big enough to occlude the rima glottidis.3 Small polyps maybe difficult to differentiate from nodules since both involve a fibrovascular change however it is important to note that nodules commonly arise from the basement membrane and polyps and cysts from the underlying lamina propria.

Histological examination shows a myxoid material within the stroma underlying a thin squamous epithelium. Epithelium may be thin, atrophied or sometimes hyperkeratinised.5

10 patients in this series had recurrence following surgical removal. This may be due to their faulty speech habits or incomplete surgical removal. Maximum incidence was in 21-30 years age group closely followed by 31-40 years age group. Thereafter a steady decline was noted. Holinger et al reported a maximum incidence in 51-60 years age group. Males are more affected in the ratio of 3:1.2 Voice overuse, misuse and abuse, causes a hard glottal stop and hence vocal cord polyps are thought to form more frequently in men. Kambic et al.17 observed most common age group of 40–50 year, and female predominance (52%) as compared to males (48%). Martins et al.18 reported vocal polyp more common in the age group of 41–60 years (51.31%) and reported slight preponderance among females.

Cecatto et al.13 found mean age 46.9 years, with equal distribution among males and females Vocal Nodules constitute the second largest group of this series 15%. Unilateral in 42% cases whereas Ash and Schwartz et al (1944) found significant bilateral predominance.6 65% occur in females. Maximum incidence is in the age group of 31-40 years. These findings are similar to earlier studies. McGlashen reported that vocal nodules were bilateral, small swellings that develop on the free edge of the vocal cord at approximately the mid-membranous portion19 Papilloma which is a true neoplastic tumour constituted 14% of the benign tumours which is slightly higher than that reported by Hollinger.7 Of the 16 cases, 8 cases were juvenile type (50%) against 25% reported by Friedmann.8 Among these 8 children, only one was a female. This shows a strong male predominance in the juvenile type of papilloma which is not shown in earlier reports. Adult type of papilloma is unilateral and single.9

Two cases of localized amyloid tumours were reported in patients above 40 years. This is a relatively rare condition with a reported incidence of 1% where as in our series it was 1.8%.10 Two male patients who presented with haemoptysis were diagnosed to have angiomatous polyp which was histopathologically confirmed. We had one case of fibroma which is another rare presentation having the appearance and consistency of a papilloma and diagnosed by histopathological examination.

Epidermoid cyst may originate from a sequestration of embryonic cells in the saccule or ventricle or it may originate from the seromucinous glands. It is deep to the epithelium. On indirect laryngoscopy it appears only as a bulge on the surface of the vocal cords but on incising the epithelium the cyst shells out easily. Cyst wall show a squamous epithelial lining.11 The case reported here presented in the posterior half of the left vocal cord of a 60 year old lady. Site of the lesion may explain the late onset of symptoms.

CONCLUSIONS

A retrospective statistical analysis of a series of 112 cases of benign tumours of vocal cords showed 64% of the vocal cord tumours to be benign. Sex predilection showed a male preponderance, seen in the age group 21-30 years. Vocal cord polyp was the commonest benign tumour seen in our series. A good number of vocal nodules had a unilateral presentation among the vocal abusers. Juvenile laryngeal papilloma showed a significant male preponderance.

REFERENCES

1. New GB, Erich JB. Benign tumors of the larynx: A study of seven hundred and twenty-two cases. Archives of Otolaryngology. 1938 Dec 1;28(6):841-910.
2. Holinger PH, Johnston KC. XLIV benign tumors of the larynx. Annals of Otology, Rhinology & Laryngology. 1951 Jun;60(2):496-509.
3. Shaw H, 1879: Tumours of the larynx in Scott Brown's Diseases of the Ear, Nose and Throat, 4th Edn.
4. Malik P, Yadav SPS, Sen R, Gupta P, Singh J, Singla A, Vashisht S. The Clinicopathological Study of Benign Lesions of Vocal Cords. Indian J Otolaryngol Head Neck Surg. 2019 Oct;71(Suppl 1):212-220. doi: 10.1007/s12070-017-1240-0. Epub 2017 Nov 30. PMID: 31741962; PMCID: PMC6848543.Ash colonel J.E and Schwartz Leo 1944: Vocal cord node. Trans. Ann. Acad. Of Otol and ophth. PP. 323-332.
5. Holinger PH, Johnston KC, Anison GC. LI Papilloma of the Larynx: A Review of 109 Cases with a Preliminary Report of Aureomycin Therapy. Annals of Otology, Rhinology & Laryngology. 1950 Jun;59(2):547-64..
6. Pearlman SJ, Friedmann EA, Appel M. Neurofibroma of the larynx. Archives of otolaryngology. 1950 Jul 1;52(1):8-14.
7. Irwin BC, Hendrickse WA, Pincott JR, Bailey CM, Evans JN. Juvenile laryngeal papillomatosis. J Laryngol Otol. 1986 Apr;100(4):435-45
8. Mitrani M, Biller HF. Laryngeal amyloidosis. The Laryngoscope. 1985 Nov;95(11): 1346
9. Bouchayer M, Cornut G, Loire R, Roch JB, Witzig E, Bastian RW. Epidermoid cysts, sulci, and mucosal bridges of the true vocal cord: a report of 157 cases. The Laryngoscope. 1985 Sep;95(9):1087-94.
10. Hegde MC, Kamath PM, Bhojwani K, Peter R, Babu PR (2005) Benign lesions of the larynx—a clinical study. Indian J Otolaryngol Head Neck Surg 57:35–38
11. Cecatto SB, Costa KS, Garcia RID, Haddad L, Angelico Junior FV, Rapoport P (2002) Vocal cord polyps: clinical and surgical aspects. Rev Bras Otorrinolaringol. 68:543–548
12. Chopra H, Kapoor M (1977) Study of benign lesions undergoing miccrolaryngeal surgery. Indian J Otolaryngol Head Neck Surg 49:276–279
13. Wani AA, Rehman A, Hamid S, Akhter M, Baseena S (2012) Benign mucosal cord lesion as a cause of hoarseness of voice—a clinical study. Otolaryngology 2:3–

14. Singh M, Bandyopadhyay S, Gupta SC, Rai A (2002) A study of manifestations of extrapulmonary tuberculosis in the ENT region. Indian J Otolaryngol Head Neck Surg 54:242–245
15. Kambic V, Radsel Z, Zargi M, Acko M (1981) Vocal cord polyps: incidence, histology and pathogenesis. J Laryngol Otol 95:609–618
16. Martin RH, Defaveri J, Domingues MA, Silva RD (2011) Vocal polyps: clinical, morphological and immunohistochemical aspects. J Voice 25:98–106
17. McGlashen J (2008) Disorders of the voice. In: Hibbert J (ed) Scott-Brown otolaryngology, head and neck surgery, 7th edn. Edward Arnold, London, pp 2192–2210