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A Clinico- Etiological Evaluation of Vocal Cord Paralysis

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ABSTRACT

Introduction: This is a case study of 61 cases admitted in our hospital to study the various etiologies of vocal cord immobility (including both paralysis and paresis of vocal cord) and to study the incidence of vocal cord immobility.Vocal cord paralysis is a common symptom of the disease which can be originated from laryngeal nerve paralysis following laryngeal carcinoma, oesophageal carcinoma, bronchogenic cancers, thyroid neoplasms, surgical procedures in neck and thorax, post anaesthesia complication,or neurologic diseases.

Materials and methods: The present study includes all the cases having vocal cord paralysis presenting in out-patient department of Otorhinolaryngology, examination of larynx externally,by indirect laryngoscopy and direct laryngoscopy was done.All the routine and systemic examination were done.

Results: In our study, left vocal cord was the most commonly involved and was observed in 40(65.5%) patients, with neoplasm being the most common cause in 19(31.1%) patients. Right vocal cord involvement was found in 20(32.8%) patients, with neoplasm being the most common cause in 13 (21.3%) patients. The ratio of left side and right side involvement of vocal cord was 2:1 in our study. The longer course of the Left Recurrent Laryngeal Nerve might account for the difference.

Conclusion: In our study the etiology which was found to be more common was neoplasms then that of idiopathic causes. The reason behind this could be advanced investigation procedures which allows us to do a thorough work upon any case, but even after that we have found some of Idiopathic causes as well.

KEYWORDS: Vocal cord paresis, cricoid,abductor ,laryngeal carcinoma , Unilateral vocal cord palsy(ULVCP)

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INTRODUCTION

Vocal cord paralysis is a common symptom of the disease which can be originated from laryngeal nerve paralysis following laryngeal carcinoma, oesophageal carcinoma, bronchogenic cancers, thyroid neoplasms, surgical procedures in neck and thorax[1], post anaesthesia complication,[2] or neurologic diseases.

Laryngeal nerve paralysis of the abductors often leads to para-median positioning of vocal cords, symptoms include hoarseness, dysphonia, dyspnoea and aspiration. Failure in the movement of the vocal cords can also be due to mechanical fixation. Paralysis of the vocal cords is just a symptom of underlying disease in some cases. Left laryngeal nerve is more vulnerable than the right because it travels a longer route, in thoracic cavity it is placed in the proximity of the left lobe of lung; then, it continues its route toward mediastinal lymph nodes and eventually loops around the aortic arch.[3].Symptoms depend on whether the

vocal cord paralysis is unilateral or bilateral. The main presenting symptom in unilateral vocal cord paralysis is hoarseness of voice, the degree of which depends on the position of paralysed vocal cord.Other associated symptoms include weak voice, cough, aspiration and swallowing symptoms[4,5].In patients of bilateral vocal cord paralysis most common complaint is breathing difficulty followed by dysphonia and aspiration.Other associated symptoms may be stridor, breathlessness, dysphagia, sore throat, cough and haemoptysis depending on the etiology[6].

MATERIALS & METHODS

This is a prospective study which includes all 61 cases having vocal cord paralysis presenting in out-patient department of Otorhinolaryngology for a period of two years from September 2018 to September 2020.Inclusion criteria for this study were-Vocal cord immobility including both paralysis and fixation of one or both vocal cords,Vocal Cord paresis,Gender: both male and female and all age groups. Exclusion criteria for this study were-Patients who were not willing for examination or for follow up. The patient were selected on a simple random basis to avoid any kind of bias. Statistical analysis:To calculate the sample size based on the prevalence with an approximate 95% confidence level, we have used the formula:n= z2*P*(100-P)/d2 ,where , z= 1.96 at 99% confidence interval,P= 19.56%(Prevalence of 19.56% Idiopathic vocal cord paralysis) L=Absolute error = 5%, n= (1.96*1.96)*19.56*(100-19.56)/5*5, therefore,n= 61 cases.

The detailed history of patients was taken,emphasis given on hoarseness, cough, hemoptysis, dysphagia, difficulty in breathing, fatigue of voice, relevant past history such as history of tuberculosis, previous surgery, malignancy and other systemic disease. Personal habits like smoking, alcohol and vocal habits.Then Complete physical examination was done which included systemic examination and local examination i.e, examination of larynx externally-mobility, crepitus, expansion of laryngeal frame work,examination of larynx internally by indirect laryngoscopy- vocal cord movements, position of vocal cords (median, abducted, paramedian, intermediate) ,side of paralysis (unilateral/bilateral), complete or incomplete and direct laryngoscopy is done in cases where indirect laryngoscopic examination was not possible or where detailed examination of larynx was needed.All required investigations were also done.

RESULTS

In the study, total numbers of patients were 61, with male to female ratio of 2.2:1 comprising of 42(68.9%) males and 19 (31.1%) females. The male preponderance in our country is probably due to higher prevalence of smoking among men and it could be explained by the fact that in our country the attendance of the males in our out patient department of hospitals for the treatment of voice complaints is much more compared to females.25(41%) patients belonged to lower socio economic status and least number of patients 2(3.3%) belonged to upper class.The universal presenting complaint that is hoarseness of voice was presented in all 61 (100%) patients.The second common presentation in our study was dysphagia in 16(26.2%) patients. Least common presentation in our study was neck swelling in 5(8.2%) patients.In this study, Neoplasms were the most common cause of vocal cord paralysis observed in 32(52.4%) patients. In Neoplastic cases vocal cord paralysis may happen due to direct involvement of Recurrent Laryngeal Nerve by the malignant disease itself or by the involvement of the Vagus Nerve or its branch by secondries in the lymph nodes of mediastinum, head and neck.In our study male patients with left sided vocal cord paralysis were 27(44.2%) patients and Female patients with left sided vocal cord paralysis were 13(21.3%). Most common cause of left sided vocal cord paralysis in male patients were neoplasm found in 16(26.2%) male patients and most common cause of left sided vocal cord paralysis in female patients was Idiopathic found in 4(6.5%) patients. Most common cause of right sided vocal cord paralysis in male and female patients was neoplasm found in 10(16.3%) male patients and 3(4.9%) female patients respectively

Table no. I: Etiology, gender and side wise distribution of vocal cord paralysis

DIAGNOSIS		SIDE OF VOCAL CORD PARALYSIS			NUMBER OF PATIENTS	PERCENTAGE
	GENDER	B/L	LEFT	RIGHT		
NEOPLASMS	MALE	0	16	10	26	32(52.4%)
	FEMALE	0	3	3	6	
IDIOPATHIC	MALE	1	7	2	10	15(24.6%)
	FEMALE	0	4	1	5	
SURGERY	MALE	0	2	0	2	4(6.6%)
	FEMALE	0	1	1	2	
ACCIDENTAL TRAUMA TO NECK	MALE	0	0	0	0	2(3.3%)
	FEMALE	0	1	1	2	
INFECTIOUS	MALE	0	1	0	1	3(4.9%)
	FEMALE	0	2	0	2	
OTHER	MALE	0	1	2	3	5(8.2%)
	FEMALE	0	2	0	2	
TOTAL	TOTAL MALE	1	27	14	42	61(100%)
	TOTAL FEMALE	0	13	6	19	

Table no. II: Incidence of neoplastic causes of vocal cord paralysis

S NO.	ETIOLOGY	NUMBER OF PATIENTS	PERCENTAGE
1	CARCINOMA LARYNX	12	37.5
2	CARCINOMA LUNG	8	25
3	CARCINOMA OESOPHAGUS	6	18.8
4	CARCINOMA THYROID	3	9.4
5	ORO-PHARYNGEAL CARCINOMA	2	6.2
6	MEDIASTINAL MASS	1	3.1
7	TOTAL	32	100

Table no. III: Incidence of non-neoplastic causes of vocal cord paralysis

S NO.	ETIOLOGY		NUMBER OF PATIENTS	PERCENTAGE
1	**IDIOPATHIC**		15	51.7
2	**SURGERY**	THYROIDECTOMY	2	13.8
		POSTINTUBATION	2	
3	**INFECTIOUS**	TUBERCULOSIS	2	10.4
		POST VIRAL NEURONITIS	1	
4	**OTHER**	CVA	2	17.3

		ORTNER'S SYNDROME	3	
5	**ACCIDENTAL TRAUMA TO THE NECK**		2	6.8
6	TOTAL		29	100

Table no. IV: Position of cords in vocal cord paralysis

S NO.	ETIOLOGY	PARAMEDIAN	MEDIAN	CADAVERIC	TOTAL
1	NEOPLASMS	31	1	0	32
2	IDIOPATHIC	15	0	0	15
3	SURGERY	3	0	1	4
4	ACCIDENTAL TRAUMA TO THE NECK	2	0	0	2
5	INFECTIOUS	3	0	0	3
6	OTHER (CVA, ORTNER'S SYNDROME)	5	0	0	5
7	TOTAL	59(96.7%)	1(1.6%)	1(1.6%)	61(100%)

DISCUSSION

This was a prospective study conducted over a period of 2 years in which 61 patients with vocal cord paralysis were evaluated.In our study, in patients with unilateral vocal cord paralysis (UVCP), 40(65.6%) patients had Left cord paralysis and 20(32.8%) patients had Right sided vocal cord paralysis. In our study, Neoplasm were the most common cause of vocal cord paralysis, observed in (52.4%) patients followed by Idiopathic causes in (24.5%) patients and surgical causes in (6.6%) patients. Infectious causes and traumatic causes were found in (5%) and (3.3%) patients respectively. Other causes (CVA, Ortner's syndrome) were found in (8%) patients..In our study, Laryngeal malignancy was found as etiological factor in (19.7%) patients and was the most common malignancy responsible for vocal cord paralysis. Second common malignancy responsible for vocal cord paralysis was Lung malignancy found in (13.11%) patients followed by Esophageal malignancies found in (9.8%) patients. Other less common tumors were carcinoma Thyroid and Oropharyngeal carcinoma found in (4.9%) patients and (3.3%) patients respectively.

CONCLUSION

At the end of our study it was found that more patients belonged to socioeconomic class as compared to other socio economic status, it may be related to the fact of their poor knowledge of health related communication and attitude.The etiology which was found to be more common was neoplasms then that of idiopathic causes. The reason behind this could be advanced investigation procedures which allowed us to do a thorough work upon any case, but even after that we have found some of Idiopathic causes as well.In our case study more than half of the cases were of left side VCP. The reason behind this could be the higher prevalence of neoplasms of lung, oesophagus, and thyroid but the carcinoma larynx was related to both sides of VCP. However in some of idiopathic cases we found left side VCP. Which in turn made a ratio of 2:1 (left VCP: right VCP), i.e. left VCP was more predominant than right one.The predominant risk factor of VCP in our study was smoking. Other factors like alcohol intake and tobacco chewing were also playing very important role, smoking was the commonest predisposing factor seen in as much as 72.1% of cases presenting with vocal cord paralysis. It was followed by Tobacco chewing and alcohol intake in 42.6% and 29.5% cases respectively.

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IEC-RDGMC

Consent for participation: Taken

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Author's contribution: PP Conceptualized, designed, has role in data collection, analysis, interpretation, surgical and medical practices, literature search and writing.
SM Conceptualized, designed, has role in data collection, analysis, interpretation, surgical and medical practices, literature search and writing.
PP Conceptualized, designed, has role in data collection, analysis, interpretation, surgical and medical practices, literature search and writing.
SV Conceptualized, designed, has role in data collection, analysis, interpretation, surgical and medical practices, literature search and writing.

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