

ORIGINAL RESEARCH

**STUDY ON VOCAL CORD PALSY AMONG PATIENTS
ATTENDING ENT DEPARTMENT OF A MEDICAL
COLLEGE HOSPITAL**

Mrinalini Raman¹, Rakesh Kumar², Pawan Kumar Lal³

¹Assistant Professor, Department of ENT, S K Medical College, Muzaffarpur, Bihar, India

²Senior Resident, Department of ENT, Bhagwan Mahavir Institute of Medical Sciences,
Pawapuri, Nalanda, Bihar, India

³Associate Professor & HOD, Department of ENT, S K Medical College, Muzaffarpur,
Bihar, India

ABSTRACT

Background:A multitude of muscles govern the vocal cords (VC), which are delicate structures in the larynx. The present study was done to learn more about the symptoms and indications of VC paralysis, as well as the muscles implicated and the systemic disorders that cause it.

Materials and Methods: It was a hospital based cross-sectional study undertaken at a Medical College in the department of ENT. Individuals between the ages of 15 and 75 were selected if they were willing to participate in the study. Individuals who were too old, reluctant, extremely sick, had pulmonary tuberculosis, or were HIV positive were all omitted. The symptoms were carefully tabulated, and a detailed history was taken. These individuals were subjected to a thorough ENT examination, which included both indirect and video laryngoscopy.

Results: A total of 43 individuals with VC paralysis were studied. The most typical age group is the fifth to sixth decade of life, and males are more likely to be involved. Most common side involved was Left (48.8%). The most common symptoms are hoarseness of voice and cough with expectoration. Idiopathic cases followed by pulmonary pathology were the common reasons.

Conclusion: Causes of vocal cord palsy vary with age, sex, presence of systemic diseases, side of lesion etc. Hence, a careful workup is needed in all cases with this condition.

Keywords: Palsy, Pathology, Vocal card.

Corresponding Author:Dr Rakesh Kumar, Senior Resident, Department of ENT, Bhagwan Mahavir Institute of Medical Sciences, Pawapuri, Nalanda, Bihar, India. Email: rakeshnawada@gmail.com

INTRODUCTION

In vocal cord palsy, nerve signals reaching larynx are disrupted, resulting to the inability to move vocal cord muscles.^[1] It is possible for the vocal folds to become immobile on only one side or both sides, partially or completely.^[2]

Because the reasons can be diverse, including being complex and elusive, the symptoms can likewise range from being moderate to being quite severe. The degree of the damage to the vagus nerve or any of its branches, including the recurrent laryngeal nerve and the superior laryngeal nerve, which may be unilateral or bilateral, will determine how these symptoms manifest. In addition to having a neurological basis, the reason of vocal cord palsy may also be related to the vocal cords being mechanically fixed in place.^[3] Inflammation; surgery; cancers; stroke; CNS tumours; and systemic diseases such as amyotrophic lateral sclerosis and GB syndrome may also be contributing factors. A weak cough, dysphagia, hoarseness, aspiration, airway obstruction, and a reduced QOL are all potential outcomes of vocal cord paralysis.^[4]

The indirect examination of the larynx using a laryngoscope is the primary diagnostic method.^[5] Imaging is used to analyse vocal cord palsy. The reporting radiologist has to be familiar with the structure of the vagus nerve and the recurrent laryngeal nerve in order to be able to diagnose the disease process.^[6] A number of different therapeutic approaches, including tracheostomy, the administration of botulinum toxin, arytenoidectomy, cordotomy, reinnervation, and gene therapy, are utilised.^[7]

Proper assessment of cause of vocal cord palsy is important in proper management of this condition. A knowledge of pattern of etiological factors helps clinician in this. Hence, the present study was conducted.

Aims and objectives

The present study was conducted to assess the causes of vocal cord palsy among patients attending ENT department of the institute.

MATERIALS & METHODS

Study design: The present study was cross sectional in nature conducted at the department of ENT of a medical college hospital.

Selection criteria: Individuals aged 15 to 75 years, who were likely to cooperate for thorough clinical examination and investigations were considered in this study. Patients who were willing for admission and with a positive attitude, complete awareness, and cooperation to undergo the required medical and endoscopic evaluation were included in the present study. Individuals with extremes of age, unwilling, non-cooperative, critically ill, and terminally sick were not considered. Open cases of pulmonary tuberculosis and tubercular laryngitis, HIV positive individuals, those with VC fixation, and also individuals with functional or hysterical aphonia were excluded.

Sample size: All the individuals who satisfied the inclusion criteria during the study period were included in the study. A total of 43 individuals were selected.

Study procedure: 43 patients with vocal cord paresis and palsy were identified. Detailed history was taken, General physical examination and Systemic examination were done for patients who came with voice and throat related complaints. Complete ENT examination was

done for these patients which included an Indirect and Video Direct Laryngoscopy and Esophagoduodenoscopy. Following this, patients were sent for blood tests which included routine haematological tests (complete blood picture), renal and liver function tests, serum electrolytes, serology, lipid profile, thyroid function tests and urine tests. For selected patients ANCA and CRP tests were also done. As per requirement, imaging tests like X-Rays, Ultrasound scans (neck) and CT scans (neck, chest) were also done.

Statistical analysis: Data was summarized as frequency and percentage or Mean \pm SD as needed. Appropriate statistical tests were done. p-value $<$ 0.05 was considered to be statistically significant.

Ethical approval: The study protocol was approved by the institutional ethical committee.

RESULTS

Table 1: showing laterality of vocal cord palsy

Side	Number	%
Left	21	48.8
Right	15	34.9
Bilaterlal	7	16.3
Total	43	100

A total of 43 patients of vocal cord palsy were included in the present study.

[Table1] shows that vocal cord palsy was seen in left side in 48.8%, right side in 34.9% and bilateral in 16.3%.

Table 2: showing genderwise distribution

Side	Male	Female
Left	12 (54.5 %)	9 (42.9 %)
Right	8 (36.4 %)	8 (38.1 %)
Bilaterlal	2 (9.1 %)	4 (19 %)

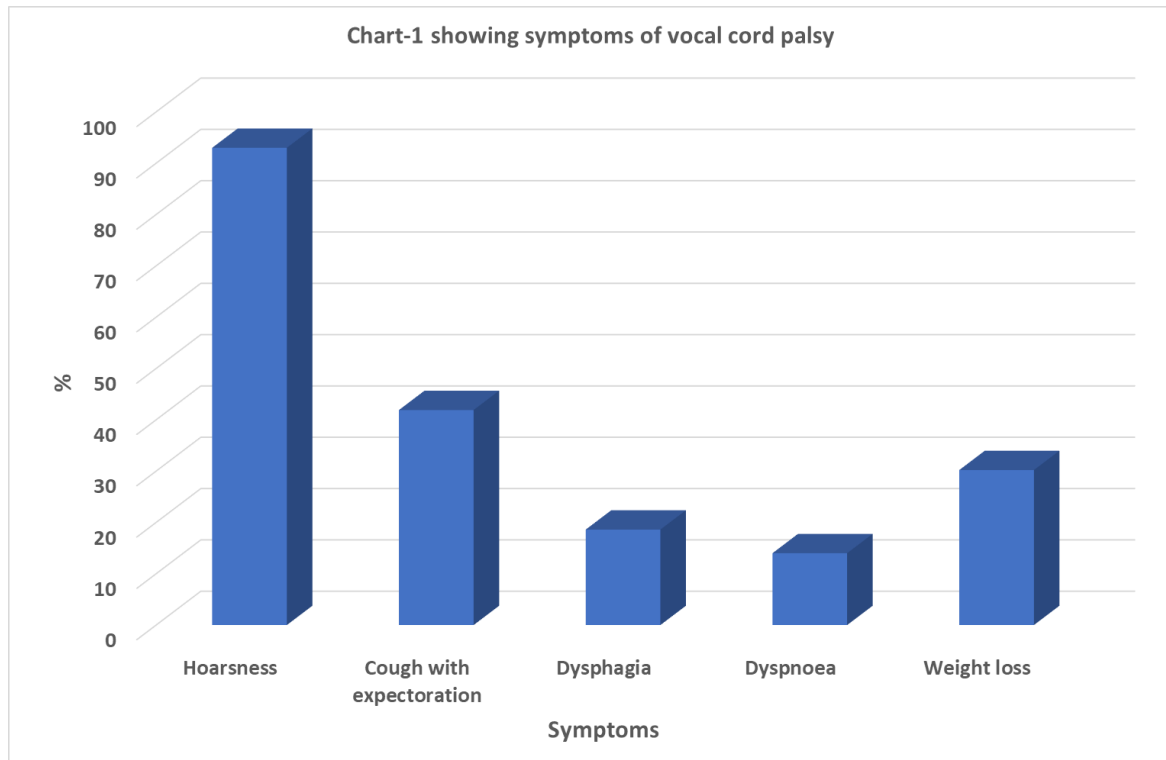
p<0.05

[Table2] shows that there was slight male preponderance. Bilateral palsy was more common in females. Left sided palsy was more common in males. The difference was statistically significant.

Table 3: showing age wise distribution

Age group	Number	%
<30	5	11.6%
31-40	8	18.6%
41-50	8	18.6%
51-60	12	27.9%
>60	10	23.3%
Total	43	100%

[Table3] shows that the most common age involved was 51-60 years (27.9%) followed by > 60 years (23.3%).



Hoarsness of voice was the most common symptom seen in 93% of the cases. Cough with expectoration (41.9%), weight loss (30.2%) and dysphagia were other common symptoms.

Table 4: showing causes of vocal cord palsy

Etiology	Number	%
Idiopathic	18	41.9%
Neoplastic	13	30.2%
Accidental	8	18.6%
Mechanical	2	4.7%
Neurological	1	2.3%
Congenital	1	2.3%
Total	43	100%

[Table4] shows that about two-fifth (41.9%) of the cases were idiopathic. Neoplasm was responsible in 30.2%, lung cancer being the most common one followed by esophageal, thyroid and metastatic cancers. Pulmonary tuberculosis leading to mechanical stretch was seen in 2 cases. Thyroid surgery was responsible in 5 cases while accident was the cause in other 3 cases with accidental trauma. CVA was responsible in 1 patient.

DISCUSSION

A total of 43 cases of vocal cord palsy were studied. Left sided vocal cord palsy was seen in 48.8%, it involved right side in 34.9% and bilateral in 16.3%. Male:female ratio was 1.05:1. Bilateral palsy was more common in females while left sided palsy was more common in males. The most common age involved was 51-60 years (27.9%) followed by > 60 years (23.3%).

Hoarseness of voice was the most common symptom seen (93%). Cough with expectoration (41.9%), weight loss (30.2%) and dysphagia were other common symptoms. 41.9% of the cases were idiopathic. Neoplasm was responsible in 30.2% due to lung cancer followed by esophageal, thyroid and metastatic cancers. Pulmonary tuberculosis leading to mechanical stretch was seen in 2 cases. Thyroid surgery was responsible in 5 cases while accident was the cause in other 3 cases with accidental trauma. CVA was responsible in 1 patient.

Vocal cord paralysis (VCP) is a complex condition that affects people of all ages and is identified by a variety of healthcare professionals. It is a frequent disorder caused by the blockage of nerve signals between the brain and the larynx. It varies from mild hoarseness to life-threatening, catastrophic consequences. Determining the paralysis's cause is crucial for arriving at a precise diagnosis. For proper outcome, a precise diagnosis has proven beneficial. Vocal cord palsy is a rather frequent disorder caused by a disease of the vagus nerve or its recurrent laryngeal nerve branch. 90 per cent of VCP is caused by peripheral injuries to the vagus. Intubation, surgical traumas, malignancy, are among the common reasons. Treatments include tracheostomy, botulinum toxin administration, adenoidectomy, cordotomy, reinnervation, and gene therapy.^[8]

Archita et al (2020) have observed that vocal cord palsy was unilateral among 84%. It was revealed that surgical causes were the most prevalent aetiology of unilateral vocal cord palsy (34%), followed by idiopathic causes (18%), and then neoplastic causes (16%). Surgical and neurological reasons were the primary contributing factor for bilateral vocal cord palsy. They concluded that a broad variety of reasons can contribute to the onset of vocal cord paralysis; nonetheless, surgery is the most prevalent cause of this condition. It is necessary to conduct a thorough examination of the patient in order to identify the cause and devise an appropriate treatment strategy.^[9]

In the study conducted by Anil et al (2019), complaints of voice alteration were made by the vast majority of patients (92%). Stridor and swallowing difficulties were also frequently reported along with trouble in speaking, vocal exhaustion, and a cough among others. An 82% prevalence rate for unilateral paralysis was reported, with the left (52%) and right (48%) paralysed vocal cords being most frequently afflicted. 51–60 year-olds were the most afflicted (24%), followed by 61–70 year-olds (19%). Males (60%) were 1.5 times more likely to be afflicted than females (40%) and 73% of the affected males were known smokers. The most prevalent cause of vocal cord paralysis and palsy was determined to be idiopathic (38%), followed by primary laryngeal mass (27%). Cancers of the lungs, thyroid, and oesophagus, as well as traumatic and inflammatory systemic disorders are among the other possible causes of this condition.^[10]

Sebastian et al (2012) found that the most common cause of vocal cord palsy was endotracheal intubation (36.5%). Surgical trauma (iatrogenic) was the second most common cause of vocal cord palsy, accounting for 26.8%, with thyroidectomy accounting for 81.81% and

heart surgery accounting for 18.18%. A remarkable 14.63% of all cases were the result of neurological disorders. Patients with heart disease were observed to have left recurrent laryngeal nerve paralysis in 7.3% of cases. Lung diseases such as tuberculosis and lung cancer are quite infrequent. The most prevalent symptom was hoarseness of voice, with dysphagia occurring in some cases. These patients had low voice-related QOL and had issues with social and emotional functioning, as well as physical health.^[11]

Gupta et al (2013) in their study reported that patients in their fifth (26.67%) and sixth (21.67%) decades made up the majority of those treated. A 2.3:1 ratio of males to females was observed. Voice changes were the most prevalent sign of vocal cord paralysis (98.21 percent). 6.67% of patients had bilateral vocal cord palsy, while 93.33% had unilateral vocal cord palsy. The left vocal cord was affected in 69.64% of individuals with unilateral vocal cord paralysis, whereas the right cord was paralysed in 30.36%. The aetiology of VCP differs according to which side of the vocal cords is affected. Malignant causes made up 34.16%, followed by central and idiopathic reasons.^[12]

Yadlapalli et al (2020) observed that the most typical age group is from the fourth to the sixth decade of life, and women are more likely to be involved. The most common cause of VC paralysis was on the left side of the body. The most common symptoms are hoarseness and dyspnea, and the exact cause of paralysis was unknown in roughly 23.68 percent of cases (idiopathic).^[13]

Rathore et al (2016) found that no pathology was detected in 8.89% of the patients, 18.06% had neoplastic causes, 16.67% had mechanical trauma or radiation, and the rest had other causes such as infection or congenital problems. They mentioned that the diagnosis of idiopathic vocal cord palsy requires the use of Magnetic Resonance Imaging (MRI). The cause of vocal cord paralysis differs depending on which part of the vocal cord is affected.^[14]

It is evident that the pattern of vocal cord palsy varies in different studies. Findings of the present study are similar to the observations of Anil et al,^[10] and Yadlapalli et al,^[13] while different findings were seen by Sebastian et al.^[11] Clinicians must be careful in proper evaluation and management of vocal cord palsy according to the patterns seen in their area.

CONCLUSION

There are a variety of causes for vocal cord palsy based on a person's age, sex, gender, presence of systemic illness, and laterality. As a result, individuals who present with vocal cord palsy require a comprehensive approach to diagnosis and therapy.

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