

Psychogenic Status as a Risk Factor in Minimal Pathological Conditions of the Vocal Cords - A Clinical Study in a Tertiary Teaching Hospital of Telangana

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Abstract

Background: Voice disorders are encountered in patients of all ages, gender, and social status. The risk factors are often multifactorial and cannot always be fully described in anatomical or functional terms. Furthermore, voice disorders are much more varied than mere hoarseness. Psychosocial factors can be risk factors and affect the voice in patients with some types of the minimal associated pathological lesions (MAPLs) of the vocal folds.

Aim of the Study: The aim of this study is to evaluate patients with MAPLs of the vocal folds to understand the role of psychogenic stress as a risk factor and pathogenesis of this clinical entity.

Materials and Methods: A total of 72 patients with MAPLs of the vocal folds were included and evaluated with voice and psychiatric protocols, and the results obtained were compared with a control group of 50 subjects who were also evaluated with the same voice and psychiatric protocols.

Conclusions: There was a statistical significance between the both groups in relation to some of the psychiatric scales. The results obtained showed clear evidence of psychogenic background acting as a risk factor in the pathogenesis of certain types of MAPLs of the vocal folds, vocal folds nodules, vocal folds polyps, and contact granuloma.

Key words: Dysphonia, Mood changes, Psychosocial, Speech therapy, Vocal cords, Vocal nodules, Voice

INTRODUCTION

Voice changes sometimes are produced by the emotional and psychological status of mind of the individuals.^[1] A person's voice is peculiar in quality to him alone and depends on its pitch, volume, resonance, and tone. It depends on the anatomical configurations of the pharynx, larynx, upper airways, and size of the thoracic cavity.^[2] Voice is said to be the exact reflection of one's mood and self-image. Whereas, the listeners recognize a person by the quality of his voice and use it to reflect that individual's

emotions from the way they sound. Dysphonia affects the way of communication as it affects the basic elements of language.^[2] An expression of emotions in voice is modified by well-balanced tone in the laryngeal musculature and not only helps in making the language understandable but also provides a "psychological impact" in it to the listener. As the voice disorders can result from emotional stresses, the voice disorders themselves could be produced by emotional stresses acting as risk factors. Patients who lose their voice feel their personality changes experiencing a "loss of self." This "loss of self" returns only after they regain their original voice.^[3,4] A group of minimal associated pathological lesions (MAPLs) of the vocal folds include benign lesions of vocal cords as a result of trauma. They may result as a consequence to prolonged non-organic voice disorders. They include vocal nodules, vocal polyps, contact ulcers, vocal cord granuloma, vocal cord cysts, and Reinke's edema.^[5] Among many factors causing these benign disorders, one is the psychological factor.^[6] They

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include personality traits and psychiatric illness which may be a cause or effect of voice disorder. In addition to various predisposing factors being considered in the etiology of voice disorders, the treating physician should also consider the psychosocial aspects of the etiology also.^[7] Failure to consider the psychosocial etiological agent in the diagnosis of voice disorders may result in misdiagnosis, delayed treatment, and reduced success rates in the final long-term cure rates of the disease. Little is known about the prevalence of major psychiatric illnesses in patients with MAPLs. The present study is an attempt to identify such psychosocial factors acting as risk factors in the pathogenesis of MAPLs of vocal cords.

Type of Study

This was a prospective cross-sectional and analytical study.

Institute of Study

The study was conducted at Kakatiya Medical College, Warangal, Telangana.

Period of Study

The study duration was from March 2015 to April 2017.

MATERIALS AND METHODS

A total of 122 subjects were included in the present study. They were divided into two groups. Group A consisted of patients with hoarseness of voice and voice disorders. Group B consisted of 50 normal subjects. The Institutional Ethics Committee approval was obtained to conduct this prospective study. An ethics committee approved consent form was used in all the patients and normal subjects.

Inclusion Criteria

1. Patients aged above 18 years and below 68 years were included.
2. Patients with dysphonia for more than 6 months were included.
3. Patients with minimal benign pathological lesions of the vocal cords were included.

Exclusion Criteria

1. Patients with age below 18 years and above 68 years were excluded.
2. Patients with dysphonia for <6 months were excluded.
3. Patients with malignant diseases of the vocal cord were excluded.
4. Patients with a history of surgeries on the vocal cords were excluded.

Demographic data of all subjects were collected. All the subjects were evaluated for their voice using the full voice evaluation protocol. Psychiatric evaluation of the subjects

was performed by the institute psychologist from the department of psychiatry. He used the following protocols to highlight the psychological aspects relevant to voice disorders:

- (1) The Social Readjustment Rating Questionnaire,^[8]
- (2) Symptoms checklist,^[9]
- (3) Manifest Anxiety Scale of Taylor,^[10]
- (4) hysteria (Hy) and hypochondriasis (Hs) scales of Minnesota Multiphasic Personality Inventory (MMPI),^[11]
- (5) The Zung Self-Rating Depression Scale.^[12] All the data collected were analyzed using standard statistical methods.

OBSERVATIONS AND RESULTS

A total of 72 patients of Group A consisted of patients with dysphonia due to MAPLs attending the outpatient (OPD) department of Ear, Nose, and Throat (ENT) in a tertiary teaching hospital. Among the 72 patients, 47 (65.27%) were males and 25 (35.72%) were females. Patients belonging to the age group of 38 to 48 were 50/72 (69.44%). The lowest incidence was 4 (05.55%) in patients of 58–68 years age group in the study. History of smoking was observed in 29/72 (40.27%) of the patients, abuse of voice in 31/72 (43.05%), and upper respiratory tract infections (URTIs) were in 18/72 (25.00%) of them. 50 patients of Group B consisted of subjects attending the ENT OPD with other than voice complaints and included in the study as a control group. Among the 50 patients, 25 (50%) were males and 25 (55%) were females. Patients belonging to the age group of 58–68 years were 5 (10%) in the study. The mean age in males of Group A was 34.28 ± 4.35 , and in group B, it was 33.15 ± 3.90 . History of smoking was observed in 16/50 (32%) of the patients, abuse of voice in 14/50 (28%), and URTIs were in 10/50 (20%) of them [Table 1]. There was no statistical significant difference in the two groups of the study as the *p* value was >0.05 (*P* statistically significant at <0.05).

The MAPLs of the vocal folds observed in the study were tabulated in Table 2; 27 patients had vocal nodules, 13 had Reinke's edema, 10 had contact ulcer, 09 had vocal cord cysts, 08 had vocal cord polyps, and 05 had vocal cord granuloma [Table 2]. Whereas, the control group (Group B) was selected randomly from OPD patients suffering any voice disorders.

Both the groups were evaluated using the social readjustment rating questionnaire to assess the stressful life events and observed that in Group A 11/72 (15.27%) patients had such life events when compared to 3/50 (6%) in Group B. The incidence of life events values in the groups was not statistically significant as the *P* value was 0.231 (*P* statistically significant at <0.05), [Table 3].

Comparison between the control group and the group of vocal cord nodules revealed highly significant difference ($P < 0.05$) in interpersonal sensitivity, depression, and anxiety of symptom check-list (SCL). The group of vocal cord polyps revealed significantly higher somatization and anxiety of SCL than the normal group ($P > 0.05$), [Table 4].

Comparison between the control group and the group of vocal folds nodules revealed highly significant difference ($P < 0.001$), in the incidence of anxiety, while evaluating with Taylor anxiety scale [Table 5].

Table 1: The demographic data (n- A-72; B-50)

Observation	Group A 72 (%)	Group B 50 (%)
Male	47 (65.27)	25 (50)
Female	25 (35.72)	25 (50)
18–28 years	11 (15.27)	07 (14.00)
28–38 years	23 (31.94)	15 (30.00)
38–48 years	27 (37.50)	17 (34.00)
48–58 years	07 (09.72)	06 (12.00)
58–68 years	04 (05.55)	05 (10.00)
Smoking	29 (40.27)	16 (32.00)
Abuse of voice	31 (43.05)	14 (28.00)
URTI	18 (25.00)	10 (20.00)

URTI: Upper respiratory tract infection, P value was < 0.05 for the above values

Table 2: The MAPLs in Group A (n-72)

MAPLs	Group A 72 (%)
Vocal nodules	27 (37.05)
Rienke's edema	13 (18.05)
Contact ulcer	10 (13.88)
Vocal cord cysts	09 (12.50)
Vocal cord polyps	08 (11.11)
Vocal cord granuloma	05 (06.94)

MAPLs: Minimal associated pathological lesions

Table 3: The results of social readjustment rating scale, comparison between the two groups (n- A-72; B-50)

Stressful life events	Group A (%)	Group B (%)	P value
Present	11 (15.27)	3 (6.00)	0.231
Absent	61 (84.72)	47 (94.0)	-

Table 4: The results of SCL; comparing 2 groups (n- A-72; B-50)

Observation	Group A (%)	Group B (%)	P value
Somatization	19 (26.38)	05 (06.94)	> 0.05
Depression	22 (30.55)	03 (06.00)	0.041
OCD	05 (06.94)	07 (14.00)	> 0.05
Interpersonal sensitivity	17 (23.61)	02 (04.00)	> 0.05
Hostility	04 (05.55)	03 (06.00)	> 0.05
Anxiety	28 (38.88)	02 (04.00)	0.021
Phobic anxiety	03 (04.16)	01 (02.00)	> 0.05

OCD: Obsessive-compulsive disorder, SCL: Symptom checklist

Comparison between each group of MAPLs and the normal group with MMPI Scales for the assessment of hysteria and hypochondriasis revealed significant statistical values with p value at 0.017 [Table 6].

Comparison between each group of MAPLs and the normal group with Zung scale for depression showed greater values in the nodules group than the control group with $P = 0.031$ [Table 7].

Patients with contact granuloma showed significantly higher values concerning the somatization, depression, and anxiety of SCL, anxiety by Taylor anxiety scale, hypochondriasis by MMPI scale, and depression by the Zung scale; the values were below 0.05 (P statistically significant at < 0.05). Whereas, the patients with vocal cord cysts and Reinke's edema showed not much significant values from the normal group in all psychiatric scales as the p value was > 0.05 .

DISCUSSION

A group of MAPLs develop on the vocal cords in patients caused by repeated vocal trauma. The vocal cords are made vulnerable due to long-standing irritation which leads to the development of organic changes in non-organic (functional) voice disorders.^[13] These psychosocial factors are now increasingly being accepted as important etiological factors of many other diseases also; however, there is lack of instruments to identify and prove these findings.^[14]

Table 5: The results of manifest anxiety scale of Taylor comparing between the two groups (n- A-72; B-50)

Observation	Group A (%)	Group B (%)	P value
No anxiety	47 (65.27)	47 (94.00)	0.001
Total anxiety	25 (34.72)	03 (06.00)	

Table 6: Results of MMPI scales for the assessment of hysteria and hypochondriasis comparison between the two groups (n- A-72; B-50)

Observation	Group A (%)	Group B (%)	P value
Hysteria	10 (13.88)	02 (04.00)	0.062
Hypochondriasis	17 (23.61)	18 (0)	0.017

MMPI: Minnesota Multiphasic Personality Inventory

Table 7: Results of Zung self-rating depression scale among the two groups (n- A-72; B-0)

Depression	Group A (%)	Group B (%)	P value
No depression	55 (76.38)	46 (92)	0.031
Total depression	17 (23.61)	04 (10.00)	

Even though many studies theorize that the symptoms of psychological distress accompany dysphonia, their validity is questionable in the absence of definite proof and instruments to identify the risk factors, whether such vocal cord lesions are non-organic or organic with some pathology (MAPLs) or purely organic is still unclear.^[15] Nerrie`re *et al.*^[16] in showed comorbidity between voice disorders and commune mental health troubles, such as major depressive episode and general anxiety disorder. Such association of voice disorders with mental health troubles confirms that a situation may exist which is more complex than simple mechanical failure. Kotby *et al.*,^[17] in their extensive study on estimating the etiological factors, functional dysphonia concluded that there was always evident psychogenic background for some types, namely, incomplete mutation, phonasthenia, and non-organic aponia, while other functional dysphonia types did not show or little evidence of psychogenic etiology. In a study by Butcher,^[18] majority of patients with psychogenic voice disorders were women with high degrees of stress and above average musculoskeletal tension, rather than a conversion symptom. Mirza *et al.*^[19] described evidence of certain abnormal personality traits including interpersonal sensitivity and distrust of others in their patients' functional aponia. White *et al.*^[20] could not find any significant personality trait differences between three groups of subjects: A control group (with normal voices), patients with psychogenic voice disorders, and patients with structural laryngeal changes. In the present study, comparison between each group of MAPLs and the normal group with MMPI Scales for the assessment of hysteria and hypochondriasis revealed significant statistical values with p value at 0.017 [Table 6]. Millar *et al.*^[21] in their study showed no differences in personality traits of patients with organic and the functional groups of dysphonia. However, they found that dysphonic patients showed marked distress compared with norms, but there were no differences in the amount of psychological distress between the organic and the functional groups. Comparison between the control group and the group of vocal cord nodules revealed highly significant difference ($P < 0.05$) in interpersonal sensitivity, depression, and anxiety of SCL. The group of vocal cord polyps revealed significantly higher somatization and anxiety of SCL than the normal group ($P > 0.05$), [Table 4]. Physicians treating MAPLs should have better knowledge about the risk factors such as anxiety, depression, hysteria, and hypochondriasis as the etiology of certain types of voice disorders which may help in understanding the exact voice problems, proper management, and designing proper therapeutic programs for voice. Hence, for all these reasons, it becomes necessary to select the category of MAPLs as a common type of voice disorder. In this study, an attempt was made to assess the presence of

the psychogenic factors as possible risk factors in the pathogenesis of MAPLs of the vocal cords of patients. Full voice evaluation protocol including psychological tools was used to assess the psychological profile of the patients. Although all the subjects including control group experienced stress, anxiety, and depression, the reason why certain people only developed MAPLs with dysphonia could not be explained. It may be assumed that few patients have responded with dysphonia when their psychological status was disturbed with anxiety, depression, or hysteria; in the form of hyper-reactive physiology? Seifert and Kollbrunner^[7] concluded that dysphonia is due to events that trigger them such as acute vocal abuse, acute laryngitis, episode of gastroesophageal reflux, or even simply acute conflict situation (e.g., stress in partnership, family, or workplace). In the present study, stressful life events were noted in Group A 11/72 (15.27%) when compared to 3/50 (6%) in Group B subjects. The incidence of life evens values in the groups was not statistically significant as the P value was 0.231 (P statistically significant at <0.05), [Table 3]. House and Andrews^[22] were of the opinion that stress factors can be risk factors for MAPLs only if their duration, frequency, and strength exceed the level of capability of the individual to overcome. In the present study, there was a highly significant difference between the control group and the group of MAPLs concerning depression (23.61% of patients and 10% in control group) and anxiety (34.72% in patients and 6% in control group), while other psychiatric symptoms showed non-significant difference between both groups.

CONCLUSIONS

There is a definite evidence of psychogenic background acting as risk factors for some types of MAPLs of the vocal cords. The MAPLs which were likely to be produced by these risk factors are vocal nodules, vocal polyps, and contact granuloma. A combined assessment of dysphonia in patients and assessment of their psychological profile with MAPLs, followed by suitable therapeutic psychological counseling programs such as behavioral readjustment voice therapy as well as, psychiatric treatment should be thought of while treating such patients.

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