ORIGINAL RESEARCH

CLINICAL PROFILE AND MANAGEMENT OF HOARSENESS IN SOUTHWEST, NIGERIA

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Abstract

Introduction: Hoarseness can be described as roughness, breaks or unnatural changes in voice. It is not a diagnosis on its own but a common symptom or sign in otorhinolaryngological practice. Hoarseness can be the first and sometimes the only signal of a serious local or systemic disease. This study aimed at the clinical presentation, diagnoses, treatment modalities and quality of life of patients with hoarseness in our locality.

Methodology: This is a cross-sectional study of adult patients with hoarseness. Written informed consent was obtained. The study proforma was administered to each consenting participant. Clinical assessment of all patients, video laryngoscopy and administration of Reflux Symptom Index, Reflux Finding Score, and Voice Handicap Index were done and recorded in a proforma. The data collected was analyzed with Statistical Product and Service Solutions. The results were presented as quantitative and qualitative variables, which were depicted using tables and graphs. For all statistical studies, p-value ≤ 0.05 will be considered as being statistically significant.

Result: Age of hoarseness patients ranges from 19-80 years. Only 11 (28.9%) patients presented to the clinic within 6 months of onset of complaints. Chronic non-specific laryngitis was the most common cause of hoarseness. There was no statistical significance in the relationship between hoarseness characteristics and clinical diagnosis. The voice handicap index-10 showed that the quality of life of 29 (76.3%) had been affected by hoarseness and there was a positive correlation between reflux symptom index and reflux finding score.

Conclusion: Clinical profile of hoarseness varies from one locality to another and from an individual to another. Therefore, every patient should be evaluated carefully and thoroughly before making a clinical diagnosis which will result in an early, prompt and individualized management plan.

Keywords: Hoarseness; Clinical diagnosis; Video laryngoscopy; Voice abuse; Laryngopharyngeal reflux disease.

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INTRODUCTION

Hoarseness can be defined as a voice disorder that is characterized by changes in the vocal quality, pitch, loudness, or vocal effort. It is associated with abnormalities of vibratory margins of the vocal folds that affects communication or results in a negative impact on voice-related quality of life through a self-perceived decrease in the physical, emotional, social, and/or economic status of an individual.[1,2] Worldwide, hoarseness affects about one-third (29.9 percent) of people at some point in life with a point prevalence of 6.6 percent among adults of 65 year old and below. It cuts across all professions with high prevalence rates seen among teachers, and other professional voice users.[1,3] In a study carried out in South West Nigeria, hoarseness overall prevalence was said to be high, with associated cases of late presentation.[4]

Hoarseness can be the first and sometimes the only signal of a serious local or systemic disease and without listening to a spoken voice, one might not recognise the presence of hoarseness.[2] Therefore, clinicians should assess the patient with hoarseness by getting appropriate history, complete systemic examination looking out for features that can modify evaluation and treatment.[1] A good and elaborate history will be a good pointer to the specific cause of hoarseness. This is complemented with complete head and neck examination, and relevant systemic examination as suggested from the history.[5] It is important to note that hoarseness persisting for a duration beyond 2 weeks is an absolute indication for further laryngoscopy; a very important part of examination of the larynx and hypopharyngeal region, since they are not visible on direct vision.[2]

Subjective tools available for assessment of the effects of voice disorders especially when there is associated reflux disease includes Reflux Symptom Index (RSI), Reflux Finding Score (RFS), and Voice Handicap Index (VHI-10).[6,7] They demonstrate very good observer reproducibility property and useful in the assessment of the treatment efficacy in patients with laryngopharyngeal reflux disease (LPRD) because they present with impaired quality of life that can further deteriorate the quality of individual's voice.[8,9] Various management modalities that are available for managing hoarseness include conservative, medical, surgical, and behavioral treatment modalities. However, among the general population, only about 6% of adult patients with hoarseness sought for definitive treatment. In the same vein, about 14% of teachers with hoarseness consult a physician or speech and language pathologist for evaluation and treatment.[1]

In an attempt to develop local management guidelines for evaluation and treatment of hoarseness, this study aimed at looking at the clinical presentation, diagnosis and treatment modalities of hoarseness in our locality. It is also looking at the significance of reflux disease to patients presenting with hoarseness and the effect of voice use to the quality of life of these patients

MATERIALS AND METHODS

This was a hospital based cross-sectional study of all consenting adult males and females who presented to Otorhinolaryngology Clinic with hoarseness as their primary complaint in a period of one year (January 2023 to December 2023). Written informed consent was obtained and study proforma was administered to each consenting participant. Ethical approval was sought and obtained from the Ethics & Research Committee (ERC/2022/11/03) before the research was carried out.

Clinical assessment of all participants, which includes history taking, Ear, Nose and Throat (ENT) examination, and video laryngoscopy was performed using a 70-degree 4mm telescope. The health-related symptoms score questionnaires (reflux symptoms index, and voice handicap index-10) were administered to the participants while findings on indirect laryngoscopy was documented on the reflux finding score sheet. The RSI is a self-administered validated questionnaire of 9 items with a total score of 45 points and any RSI value greater than 13 is considered as suggestive of LPRD.[10] The RFS is made up of 8-item which includes specific pathologies that should be looked out for in the laryngeal region during laryngoscopic examination.[9] It has a total score of 26 points and any score of 8 and above has 95% probability of being LPRD.[11] VHI-10 is a 10-item self-administered questionnaire used for evaluating vocal disorder and with a total score of 40, any score above is considered to be abnormal.[8] The data collected on the proforma was sorted and checked for errors before entry. Statistical analysis was carried out using Statistical Product and Service Solutions (SPSS) version 22.0. The results obtained was summarized and presented as quantitative and qualitative variables, which was depicted using tables and graphs. Quantitative variables was expressed as mean and standard deviation (SD). Qualitative variables was expressed as frequencies and percentages; and Chi squared test was used to establish association between the qualitative variables. For all statistical studies, p-value ≤ 0.05 will be considered as being statistically significant.

RESULTS

We had 524 new ENT clinic cases within the study period; out of which were 38 adult patients (7.3%) who presented with hoarseness, consisting of 23 (60.5%) males and 15 (39.5%) females with an overall mean age of 54.42 years and age range 19-80 years. Only 11 (28.9%) patients presented within 6 months of onset of hoarseness complaints, with a mean duration of 21.71months before presentation at the clinic (table I). Characteristics of hoarseness seen in this study at presentation were persistent hoarseness in 7 (18.4%), intermittent 5 (13.2%), progressively worsening 9 (23.7%), present only in the morning 6 (15.8%), appears and get worsens as the day goes by 4 (10.5%), and worsens while speaking/shouting 7 (18.4%) of cases (Table I).

Table I: Clinical presentation of hoarseness patients

Variable	Frequency (n = 38)	Percent (%)
Gender		
Male	23	60.5
Female	15	39.5
Age range (in years)	19-80	
Overall mean age ± SD (in years)	54.42 ± 15.55	
Duration of hoarseness at presentation		
< 6 months	11	28.9
≥ 6 months	27	71.1
Mean duration ± SD (in months)	21.71± 30.98	
Hoarseness characteristics		
Persistent	7	18.4
Intermittent	5	13.2
Progressively worsening	9	23.7
Present only in the morning	6	15.8
Appears and get worsens as the day goes by	4	10.5
Worsens while speaking/ shouting	7	18.4

Ten (26.3%) of patients with hoarseness has either smoked cigarette and drank alcohol excessively and/or consumed tobacco in any form. Professional voice users were 34.2% of the patients with hoarseness in this study. Chronic non-specific laryngitis was the most common cause of hoarseness and diagnosis made in 14 patients (36.8%), closely followed by those with laryngeal mitotic lesions and vocal cord nodules with voice abuse in 12 (31.6%) and 9 (23.7%) respectively. Other patients with hoarseness were diagnosed of laryngeal tuberculosis (2.6%) and vocal cord polyps (5.3%). As outlined on table II, there was no statistical significance in the relationship between the characteristics of hoarseness and the clinical diagnosis (p value =0.189). Similarly, the association between hoarseness characteristics and whether a patient was involved with activities that can adversely affect one's voice was not significant statistically (p value = 0.495).

As outlined on table II, there was no statistical significance in the relationship between the characteristics of hoarseness and the clinical diagnosis (p value =0.189). Similarly, the association between hoarseness characteristics and whether a patient was involved with activities that can adversely affect one's voice was not significant statistically (p value = 0.495).

The findings on vocal cords during video laryngoscopy were inflamed vocal folds 16 (42.1%); fleshy growth 11 (28.9%); vocal nodules 10 (26.3%); whitish plagues 1 (2.6%). The relationship between findings on vocal cords and the clinical diagnosis was statistically significant. The reflux symptom index and reflux finding score revealed that 24 (63.2%) and 26 (68.4%) of hoarseness patients probably have laryngopharyngeal reflux disease respectively (table III). The voice handicap index-10 showed that the quality of life of 29 (76.3%) had been affected by hoarseness.

As shown on table III and figure 1, there was a positive correlation between mean reflux symptom index and mean reflux finding score (p value = 0.001) as well as between mean reflux finding score and voice handicap index-10 with strong statistical significance (p value = 0.01)

Table II: Association of hoarseness characteristics with clinical diagnosis and voice abuse

	Characteristics of hoarseness								
	Persistent **n (%)**	Intermittent **n (%)**	Progressively worsening **n (%)**	Present only in the morning **n (%)**	Worsens as the day goes by **n (%)**	Worsens while speaking/ shouting **n (%)**	**Total N (1%)**	χ^2	***p* value**
Variables									
Clinical diagnosis									
Chronic laryngitis	3(21.4)	2(14.3)	2(14.3)	4(28.6)	1(7.1)	2(14.3)	14(36.8)	25.330^{Y}	0.189
Voice Abuse	2(22.2)	1(11.1)	0(0.0)	0(0.0)	2(22.2)	4(44.5)	9(23.7)		
Laryngeal mitotic lesion	2(16.7)	2(16.7)	6(50.0)	0(0.0)	1(8.3)	1(8.3)	12(31.6)		
TB Laryngitis	0(0.0)	0(0.0)	0(0.0)	1(100.0)	0(0.0)	0(0.0)	1(2.6)		
Vocal cord polyps	0(0.0)	0(0.0)	1(50.0)	1(50.0)	0(0.0)	0(0.0)	2(5.3)		
Activities associated with voice abuse									
Yes	2(15.4)	2(15.4)	1(7.6)	2(15.4)	2(15.4)	4(30.8)	13(34.2)	4.388^{Y}	0.495
No	5(20.0)	3(12.0)	8(32.0)	4(16.0)	2(8.0)	3(12.0)	25(65.8)		

χ^2: Chi square test; Y: Yates corrected Chi square

Table III: Relationship of Reflux Finding Score (RFS) with Reflux Symptom Index (RSI) and Voice handicap index-10 (VHI)

Variables	**RFS (1-7) n (%)**	**RFS (8-26) n (%)**	**Total N(%)**	χ^2	***p* value**
Reflux Symptom Index					
RSI (1-13)	9 (64.3)	5 (35.7)	14(36.8)	10.957^{Y}	0.001*
RSI (14-45)	3 (12.5)	21 (87.5)	24(63.2)		
Voice handicap index-10					
VHI (1-11)	6 (66.7)	3 (33.3)	9(23.7)	6.720	0.01*
VHI (12-40)	6 (20.7)	23 (79.3)	29(76.3)		

χ^2: Chi square test; Y: Yates corrected Chi square; *: *p* value <0.05 (i.e. statistically significant)

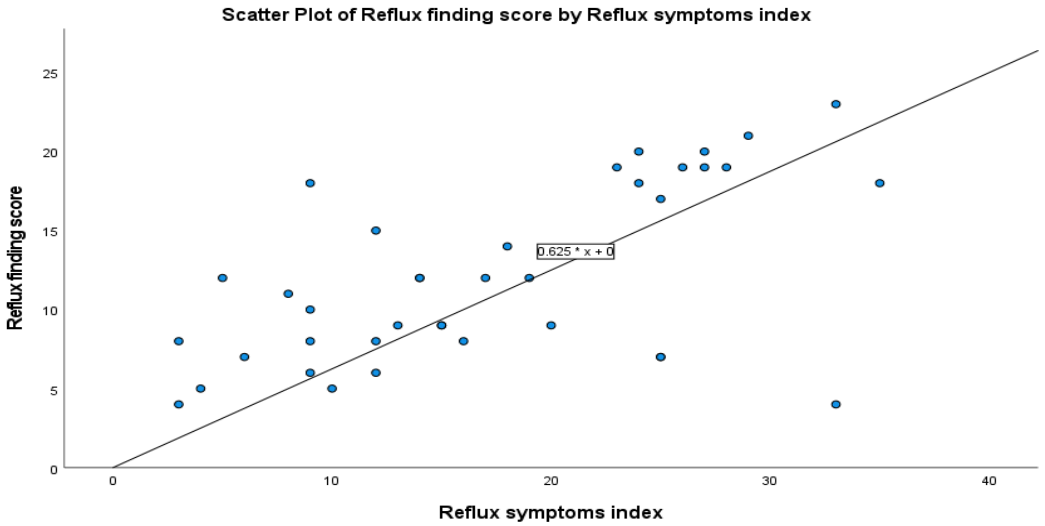

Figure 1A: Scatterplot showing relationship between Reflux Symptoms Index and Reflux Finding Score

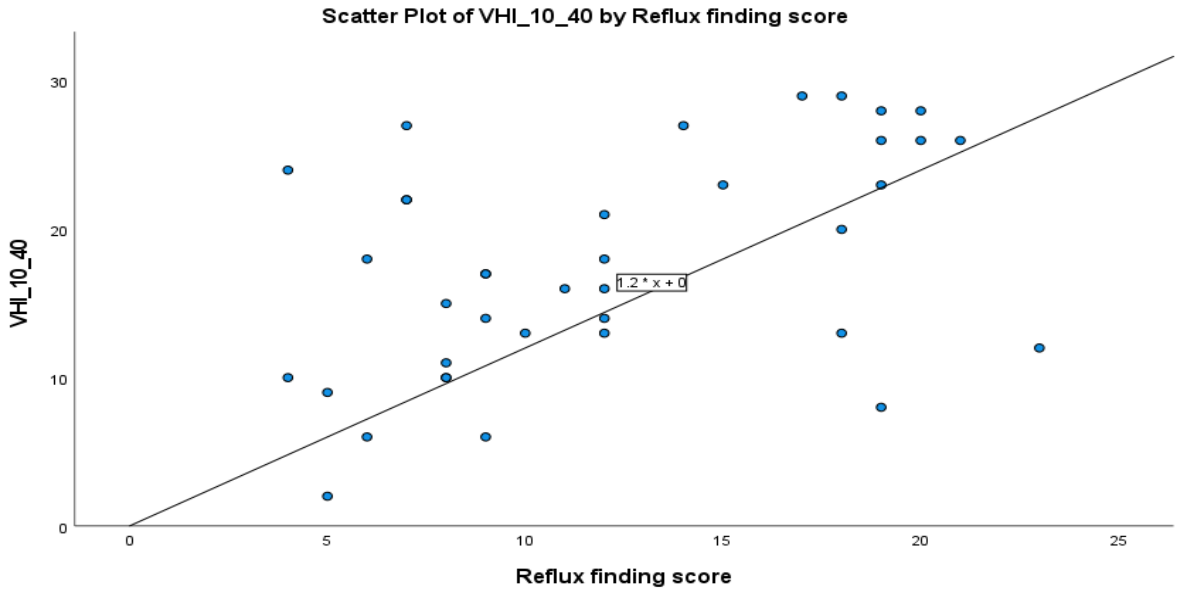

Figure 1B: Scatterplot showing relationship between Reflux Finding Score and VHI-10

DISCUSSION

Hoarseness is one of the common throat symptoms in otorhinolaryngological practice and is associated with a wide range of both laryngeal and extra laryngeal problems, spanning from congenital and inflammatory diseases to neoplastic diseases which can be benign or malignant.12 Though, this study focused on adult patients presenting with hoarseness, and a mean average in the middle age group where we have the highest number of working class people, hoarseness is known to cut across all age groups and professions with high prevalence rates among professional voice users.3 The human voice is described as hoarse when is appears coarse, scratchy or rough resulting from a pathology that affect the functions of vocal folds. This study has

unfolded the diverse pathologies in patients that presented during the study period by assessing the characteristics of hoarseness which varies from persistent to intermittent, progressively worsening and those that are only present in the morning or get worse as the day goes or as the voice is continually being put to use or abuse. According to this study, the characteristics of the hoarseness could not be used to determine the possible diagnosis of the pathology because the clinical presentation of hoarseness and its perception might differ from individuals with similar pathology. Similarly, as the disease progresses, the characteristics of hoarseness change from intermittent to becoming persistent. Since hoarseness is not almost always persistent at the onset of the disease, this explains why the duration of hoarseness before presentation to ENT clinic is about two years on the average. In most cases the pathology is not life threatening, therefore patients prefer to be managed with over-the-counter medications or alternative medicine and only get to present to a Specialist after failed treatment with their voices hardly heard by people around them or there are other associated symptoms that seems to affect their daily activities, feeding or sleep. Two-thirds of the patients who presented during this period have taken one type of treatment or the other before presentation. Some of the trials attempted at treating hoarseness include the intake of bitter cola, honey, lozenges, without proper assessment of the cause of hoarseness. A recent study in our locality has also related late presentation and chronicity to wrong notions that depict hoarseness as symptom of a minor disease and can be self-relieved with time or with the use of alternative or traditional treatment modalities and self-medication.4 Such beliefs and assumptions result in delayed presentation. However, more awareness and improved education among all professionals with increase in efficient medical care will be useful in reducing the health burden of hoarseness.1 It is very important to note that hoarseness may be caused by simple or self-limiting conditions, but may also be the presenting symptom of a more serious or progressive condition requiring prompt and proper evaluation, diagnosis and treatment.1,13 Hoarseness might be the main complaint at presentation in many cases but it does not always present in isolation. Similar to the findings in previous studies,13–15 hoarseness was accompanied commonly by feeling of foreign body sensation in the throat, difficulty in breathing, cough and aspiration, dysphagia, throat pain, throat dryness, excessive throat mucus production or nonproductive throat clearing/hawking.

Similar to other studies,4,5,15,16 identifiable predisposing factors associated with hoarseness in our environment include but not limited to recurrent upper respiratory infection, smoking, tobacco chewing, excessive alcohol intake, neuromuscular disorders, laryngopharyngeal reflux disease, voice abuse, neoplastic lesions in the laryngeal area and exposure to atmosphere pollution from industrialization and urbanization play significant role in the etiology of hoarseness. Almost all the patients in this study who had voice abuse also had inflamed vocal folds and/or vocal nodules on laryngeal examination. A previous retrospective study15 submitted that vocal abuse was the main predisposing factor in those who were diagnosed with vocal cysts and polyps while smoking and tobacco chewing was found commoner among patients with laryngeal malignancy, vocal cord palsy, laryngitis, leukoplakia and laryngeal edema. They also found that the prevailing lower economic status, poor nutrition, poor general health, vocal habits, drinking habits, unhealthy environment, and other social customs found commonly in low socioeconomic regions can determine the incidence of hoarseness.15

Hoarseness is not a diagnosis on its own, however, it is either a symptom and/ or a sign that is associated with diseases that are related to the laryngeal region; either due to muscle dysfunction, innervation, inflammation, or neoplastic conditions among other less common causes.2,13 Video laryngoscopic examination of the laryngeal airway column either with a flexible or rigid telescope is very important in making diagnosis of the cause of hoarseness especially when the complaint has become continuous for more than two weeks as at presentation. In our study, all patients with hoarseness were examined with 70 degrees rigid telescope. The relationship between the findings on laryngeal endoscopy and the clinical diagnosis of the pathology related to hoarseness is statistically significant. The diagnostic efficiency of laryngeal endoscopy has already been established in the literature.17 It affords the opportunity for a detailed examination view of the endolarynx via a simple, safe, easy-to-use and well tolerable office procedure for patients with indicated clinical features. The recurrent feature seen in most cases was edematous vocal folds which were either part of a generalized inflammation of the laryngeal and pharyngeal airway regions or a localized pathology. Another common feature was growths over the vocal cords which were either fleshy, exophytic, nodular or warty growths. In a few cases, there were associated growths in the supraglottic region obscuring the proper view of the vocal cords. It was also deduced that the clinical diagnosis or the possibility of affectation from voice abuse cannot be predicted from mere assessing the characteristics of hoarseness at presentation. This further corroborates the importance of endolaryngeal assessment with appropriate telescopes. Laryngoscopy revealed a patient with whitish plagues over the glottis region which turned out to be a case of tuberculous laryngitis. Larynx is a common extra

pulmonary site for tuberculosis that needs high index of suspicion or else, it can be easily misdiagnosed.

Inflammatory conditions, whether in form of acute or chronic laryngitis, and laryngopharyngeal reflux disease (LPRD) appeared to be the commonest diagnoses in these studies as it was alluded to by other studies.[11,16,17] There is a varying degree of reflux in LPRD based on multiple factors, among which is certainly the type of feeds at dinner. The degree of dysphonia from LPRD has a course that varies even more than organic lesions of the glottis like vocal nodules, cysts and polyps.[8,18]

Over 60 percent of patients with hoarseness had scores that are related to reflux disease in both Reflux Symptom Index (RSI) and Reflux Finding Score (RFS) with a statistically significant relationship between the two-scoring system. This also fell within the range of patients diagnosed with inflammatory pathologies in this study. Despite the subjectivity of the symptoms score (RSI), it complements the laryngeal findings as reported on the RFS. Both tools, as invented and validated by Belafsky et al[9,10] are very important clinical parameters for independent evaluation, diagnosis and monitoring the disease evolution and treatment of LPRD. Due to the significant correlation between the symptomatic and endoscopic parameters, they can be used independently in our clinical practice. The results can be compared with the other time consuming and cost intensive investigative modalities.[9,10,11,18] Despite the previous belief that LPRD causes diagnostic dilemma and only represents a minority of patients with hoarseness, more recent studies agree with our findings that the diagnostic acumen and treatment efficacy has improved with the implementation of RSI and RFS for clinical assessment before and after instituting treatment.[19,20]

Consequently, more than 70% of patients in this study had an abnormal voice handicap index score which insinuates the fact that hoarseness has significant public health implications like depression, social isolation, and low disease-specific and general quality of life (QoL) especially among professional voice users where hoarseness and its treatment can affect work-related functions; that is, need for frequent clinic visits with resultant work absenteeism and low productivity.[1,6] Treatment of hoarseness should therefore not be limited to orthodox medicine but the protocol of management should include measures to improve the effect of hoarseness on the quality of life of the individual. While there is evidence to guide management of certain causes, there are no current evidence-based clinical practice guidelines for hoarseness management. For example, there are variations in the use of different treatment modalities like voice therapy, steroids, and postoperative voice rest and in the treatment of laryngopharyngeal reflux disease. Due to this clinical practice variations and the significant public health burden of hoarseness, a general guideline is very much necessary.[1] In our clinical setting, the various treatment modalities include medical treatment with antibiotics, anti-inflammatory agents and anti-reflux medications which entails proton pump inhibitors (PPIs) and histamine-2 receptor antagonists. Surgical intervention included direct laryngoscopy with biopsy of laryngeal masses, chemoradiation for early laryngeal carcinoma, excisional biopsy of vocal nodules, polyps and laryngeal papilloma. Conservative therapy like steam inhalation, voice rest and voice therapy are integral part of management of hoarseness following laryngitis or vocal nodules resulting from voice abuse while surgical intervention is indicated in neoplastic origin or in some cases that had failed conservative or medical treatment. Patients with hoarseness sometimes benefit from the expertise of the Psychologists, Speech Therapists and Speech Pathologist as the case may be.[1,4] In some circumstances, complete resolution of hoarseness may not be achieved and the clinician's responsibilities will include minimizing hoarseness and optimizing patients' functions and QoL as well as assisting the patient in developing understanding and realistic expectations.

CONCLUSION

Management of hoarseness can be challenging because the clinical profile of hoarseness varies from one locality to another and from an individual to another. Therefore, every patient should be evaluated carefully and thoroughly. Proper diagnosis that is born out of a detailed history and thorough physical examination will go a long way to produce an early and prompt management. However, treatment should be individualized based on the diagnosis, individual intrinsic factors, needs and effects on quality of life. LPRD is becoming a more commonly diagnosed disease among patients with voice and laryngopharyngeal disorders. The use of the symptomatic and endoscopic scoring parameters can simply and independently diagnose LPRD clinically and can be useful tools in assessing the efficacy of treatment in these patients. However, a larger sample size and multi-centre study will help to further establish the findings of this study.

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