International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Original Article

Post COVID-19 ENT Manifestations: An Institutional-Based Prospective Study

Debasis Jena[1], Nishikanta Pradhan[2], Shubham Agrawal[3]

[1]Assistant Professor, Department of ENT, SCB Medical College, Cuttack
[2]Associate Professor, Department of ENT and Head and Neck Surgery, Dharanidhar Medical College and Hospital, Keonjhar
[3]Assistant Professor, Department of ENT, Shri Shankaracharya Institute of Medical Sciences, Bhilai

OPEN ACCESS

Corresponding Author:

Shubham Agrawal
Email ID:
shubham.271193@gmail.com

Received: 20-03-2026
Accepted: 15-04-2026
Available online: 30-04-2026

ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) is associated with a wide range of post-infectious sequelae, including persistent ear, nose, and throat (ENT) manifestations that may significantly affect quality of life. However, systematic evidence from the Indian population remains limited. This study aimed to evaluate the spectrum, frequency, and recovery patterns of ENT symptoms among post-COVID-19 patients attending a tertiary care center.

Material and Methods: A prospective, single-center observational study was conducted at the post-COVID clinic of KIMS Bhubaneswar, Odisha, India, from February to May 2021. Adults aged ≥18 years with documented RT-PCR-confirmed COVID-19 infection were enrolled. Patients with pre-existing chronic ENT disorders, incomplete data, or severe critical illness were excluded. A total of 1120 eligible patients underwent structured interviews and detailed ENT examination, including otoscopy, nasal endoscopy, and oropharyngeal assessment. Demographic details, symptom profile, onset, duration, and recovery patterns were recorded and analyzed using descriptive and comparative statistics.

Results: Among 1120 participants, males constituted 54.0% and females 46.0%. The majority were aged 18–45 years (40.4%), followed by 45–60 years (33.6%). Throat pain was the most common symptom (74.3%), followed by breathing difficulty (54.5%), nasal dryness (52.9%), cough (33.6%), headache (30.4%), foreign body sensation in throat (29.3%), and dizziness (29.3%). Other manifestations included oral ulcer (19.6%), loss of smell (11.4%), change in voice (10.0%), nasal obstruction (9.3%), loss of taste (8.6%), sneezing (7.5%), and nasal discharge (5.4%). Otological complaints were less frequent, with ear blockage (6.4%), ear pain (5.4%), tinnitus (4.6%), decreased hearing (2.5%), and ear discharge (2.5%).

Conclusion: Post-COVID-19 patients commonly present with persistent ENT symptoms, predominantly involving the throat and nasal cavity, while auditory manifestations are less frequent but clinically relevant.

Keywords*: COVID-19, Post-COVID Syndrome, ENT Manifestations, Otorhinolaryngology, Long COVID.*

INTRODUCTION:

The coronavirus disease 2019 (COVID-19) pandemic, caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), has posed unprecedented challenges to global health systems since its emergence in late 2019 [1-3]. While the initial focus of clinical research was directed toward respiratory manifestations and systemic complications, subsequent waves of infection highlighted the diverse spectrum of post-COVID sequelae affecting multiple organ systems [4]. Among these, otorhinolaryngological (ENT) manifestations have gained increasing attention due to their frequency, impact on quality of life, and potential to persist beyond the acute phase of illness [5]. The recognition of these symptoms is crucial, as they often represent early indicators of viral involvement in the upper aerodigestive tract and may contribute to long-term

morbidity in recovered patients. COVID-19 primarily targets the respiratory epithelium, but the virus's affinity for angiotensin-converting enzyme-2 (ACE2) receptors, widely expressed in nasal, oral, and pharyngeal mucosa, explains the high prevalence of ENT symptoms [6]. Clinical observations across different populations have consistently reported anosmia, hyposmia, ageusia, sore throat, nasal obstruction, and otological complaints such as tinnitus and hearing loss [5, 6]. These manifestations, though not life-threatening, significantly impair daily functioning, communication, and psychosocial well-being. Furthermore, their sudden onset and variable recovery trajectories raise important questions regarding underlying pathophysiology, including direct viral cytopathic effects, neuroinflammation, and vascular compromise. India, with its vast population and diverse demographic profile, experienced multiple waves of COVID-19 infection, each associated with distinct clinical patterns [7, 8]. During the peak of the pandemic, tertiary care centres across the country witnessed a surge in patients presenting with ENT complaints both during and after recovery [7, 8]. However, systematic documentation of these manifestations in the Indian context remains limited. Most available literature originates from Western populations, where genetic, environmental, and healthcare factors differ substantially. The post-COVID period is particularly relevant for ENT specialists, as many patients continue to experience lingering symptoms despite virological clearance [9]. Persistent sore throat, nasal dryness, foreign body sensation, and oral ulcers have been reported in significant proportions of recovered individuals. Otological symptoms, though less frequent, warrant careful evaluation due to their potential association with sensorineural hearing loss [9]. Importantly, younger patients often present with sudden anosmia and ageusia, whereas older individuals are more prone to auditory dysfunction, suggesting age-related vulnerability and differential tissue response to viral insult. These findings underscore the need for comprehensive ENT evaluation in post-COVID clinics to ensure timely diagnosis, reassurance, and appropriate management.

The psychosocial implications of post-COVID ENT symptoms cannot be overlooked. Loss of smell and taste, for instance, not only diminishes nutritional intake but also affects emotional health by impairing sensory experiences integral to daily life [10]. Similarly, chronic throat pain or voice changes may hinder professional performance, particularly in occupations requiring verbal communication. Dizziness and headache, frequently accompanying ENT complaints, further compound patient distress and reduce productivity.

In this context, the present prospective study was conducted at KIMS Bhubaneswar "to systematically detect, analyze, and discuss the spectrum of ENT manifestations among COVID-19 recovered patients." The central research question of this prospective institutional study is: "What is the spectrum, frequency, and recovery patterns of otorhinolaryngological (ENT) manifestations among patients who have recovered from COVID-19 infection?" Based on preliminary observations, the working hypothesis is that "post-COVID patients commonly present with throat pain, nasal dryness, cough, anosmia, and ageusia, with younger individuals more prone to sudden smell and taste disturbances, while older patients are more likely to experience auditory symptoms such as hearing loss; most of these manifestations resolve within 8–10 days, though a subset may persist, highlighting the need for systematic ENT evaluation in post-COVID care."

MATERIALS AND METHODS

This study was designed as a prospective, single-centre, observational investigation. The study was conducted over a four-month period, from February to May 2021, coinciding with the peak of the COVID-19 outbreak in India. The research was carried out at the post-COVID clinic of KIMS Bhubaneswar, a tertiary care teaching hospital in Odisha, India.

Study Population

Patients aged 18 years and above with a documented positive RT-PCR test for SARS-CoV-2 between February and May 2021 were included. Only those who completed the entire questionnaire and consented to ENT evaluation were considered eligible. Patients younger than 18 years, those with incomplete questionnaires, or individuals with ENT symptoms predating COVID-19 infection by more than two months were excluded. Additional exclusion criteria included absence of confirmed RT-PCR positivity, recent initiation of new medications, history of chronic nasal problems, recent head injury or ENT surgery, severe respiratory failure, or admission to intensive care units.

Sample Size

A total of 1120 patients fulfilled the inclusion and exclusion criteria and were enrolled in the study.

Outcome Parameters

The primary outcome parameters were the prevalence and type of ENT manifestations among post-COVID patients. Secondary outcomes included age- and gender-related distribution of symptoms, onset and duration of complaints, and recovery patterns. Specific symptoms assessed included throat pain, nasal dryness, anosmia, ageusia, cough, otological complaints, and oropharyngeal manifestations.

METHODOLOGY

All participants underwent a structured interview using a validated questionnaire that captured demographic details, clinical history, and ENT symptoms. Detailed otorhinolaryngological examination was performed, including nasal endoscopy, otoscopy, and oropharyngeal inspection, to confirm clinical findings. Symptom onset, severity, and recovery duration were

documented. Patients were followed up to assess resolution or persistence of complaints, with special attention to auditory and olfactory dysfunction.

Data Collection

Data were collected prospectively during clinic visits. Responses were recorded in standardized case record forms and subsequently entered into electronic databases for analysis. Symptom frequencies were tabulated, and age- and gender-wise distributions were calculated. Clinical findings were corroborated with patient-reported outcomes to ensure accuracy.

Statistical Analysis

Descriptive statistics were applied to summarize demographic variables and symptom prevalence. Frequencies and percentages were calculated for categorical data, while mean and standard deviation were used for continuous variables. Comparative analysis was performed to identify associations between age groups, gender, and specific ENT manifestations. Statistical significance was determined using appropriate tests, with p-values <0.05 considered significant.

Ethical Consideration

"The study protocol was reviewed and approved by the Institutional Ethics Committee of KIMS Bhubaneswar. All participants provided written informed consent prior to enrollment. Confidentiality of patient data was maintained throughout the study, and procedures adhered to the principles of the Declaration of Helsinki."

RESULTS

A total of 1120 patients answered all questions during the study period according to inclusion and exclusion criteria. The patients ranged in age from 18 to 65 years. Table 1 shows a slight male predominance among the 1120 patients, with males comprising 54.01% (605) of the sample compared to 45.98% (515) females, indicating a relatively balanced gender distribution with a modest skew toward male patients.

Table 1: Gender distribution of patients.

Gender	Frequency	Percent
Male	605	54.01
Female	515	45.98
Total	1120	100.0

Table 2 reveals that the majority of patients fall within the younger and middle-aged adult groups, with the 18–45 years age group representing the largest proportion at 40.4% (452), followed by the 45–60 years group at 33.6% (376), while pediatric patients (0–18 years) constituted only a negligible fraction at 1.8% (20), and elderly patients above 60 years accounted for nearly a quarter of the sample at 24.3% (272).

Table 2: Age-wise distribution of patients

Age	NUMBER (1120)	PERCENTAGE
>60 years	272	24.3
0-18 years	20	1.8
18-45 years	452	40.4
45-60 years	376	33.6
Total	1120	100.0

Table 3 outlines the distribution of otological (ear-related) symptoms among the patients, with ear blockage being the most frequently reported symptom at 6.4% (72), followed by ear pain at 5.4% (60) and tinnitus at 4.6% (52), while decreased hearing and ear discharge were each reported by only 2.5% (28) of patients, suggesting that ear-related complaints were relatively uncommon in this cohort.

Table 3: Showing Otological symptoms

SYMPTOMS	NUMBER (1120)	PERCENTAGE
Decreased Hearing	28	2.5
Tinnitus	52	4.6
Ear pain	60	5.4
Ear blockage	72	6.4
Ear discharge	28	2.5

Table 4 highlights the nasal symptoms experienced by patients, where breathing difficulty and nasal dryness emerged as the predominant complaints, reported by 54.5% (610) and 52.9% (593) of patients respectively, while other symptoms such as loss of smell (11.4%), nasal obstruction (9.3%), sneezing (7.5%), and nasal discharge (5.4%) were considerably less frequent, indicating that dryness and breathing issues were the most burdensome nasal problems in this population.

Table 4: Showing Nasal Symptoms

Loss of smell	128	11.4
Nasal obstruction	104	9.3
Nasal discharge	60	5.4
Sneezing	84	7.5
Nasal dryness	593	52.9
Breathing difficulty	610	54.5

Table 5 presents the oral cavity, throat, oropharyngeal, and other associated symptoms, with pain in throat being overwhelmingly the most common complaint at 74.3% (832), followed by cough and foreign body sensation in throat at 33.6% (376) and 29.3% (328) respectively, while headache (30.4%) and dizziness (29.3%) were also notably prevalent; symptoms like oral ulcer (19.6%), change in voice (10.0%), and loss of taste (8.6%) were reported less frequently, painting a picture where throat pain dominated the symptomatic profile.

Table 5: Showing Oral cavity, Throat and Oropharyngeal symptoms

Loss of taste	96	8.6
Foreign body sensation in the throat	328	29.3
Pain in the throat	832	74.3
Cough	376	33.6
Change in voice	112	10.0
Oral ulcer	220	19.6
Other symptoms		
Headache	340	30.4
Dizziness	328	29.3

DISCUSSION

The present study investigated the prevalence of ear, nose, and throat symptoms in a cohort of patients, revealing distinct symptomatic patterns. Oropharyngeal complaints, particularly throat pain and cough, dominated the clinical picture, while nasal symptoms were primarily characterized by breathing difficulty and dryness. Otological symptoms were comparatively infrequent in this cohort. Age distribution analysis showed a concentration of patients in the young and middle-aged adult groups, with a slight male predominance observed in the gender profile.

When comparing these findings with previous research on post-COVID-19 ENT manifestations, both consistencies and divergences emerge. The high prevalence of throat pain and cough in our cohort aligns with the broader post-viral upper respiratory symptom complex described by Okada et al. (2024), who identified persistent upper respiratory symptoms as significant components of Long COVID, though their work specifically emphasized the prognostic value of severe initial chemosensory loss in predicting long-term symptoms [11]. Notably, our observation of breathing difficulty as a predominant nasal symptom resonates with the pulmonary sequelae highlighted in the systematic review by Groff et al. (2021), who reported that chest imaging abnormalities and functional mobility impairments were among the most common post-acute sequelae of SARS-CoV-2 infection, suggesting that respiratory distress manifests across both upper and lower airway domains [12]. In contrast to the rich literature documenting chemosensory dysfunction in COVID-19 patients, the present study did not identify smell and taste disturbances as dominant features. This diverges significantly from the foundational work by Hopkins et al. (2020), who reported that 86.4% of their cohort experienced complete anosmia, with an encouraging cumulative improvement rate of 79% within weeks [13]. The long-term trajectory of such symptoms has been further clarified by Boscolo-Rizzo et al. (2021), whose matched case-control studies demonstrated that olfactory dysfunction persisted in 27.9% of post-COVID-19 patients at two-year follow-up, with 3.2% remaining functionally anosmic—an excess prevalence significantly higher than the 10.8% observed in matched controls [14]. Similarly, Vaira et al. (2022) confirmed through psychophysical testing that 26.5% of post-COVID-19 cases had measurable olfactory dysfunction at one year compared to only 3.5% of controls, providing robust evidence that post-viral olfactory loss constitutes a genuine long-term sequela rather than reflecting background population rates [15]. The relatively low frequency of otological symptoms observed in our sample merits consideration against dedicated investigations of audio-vestibular dysfunction. Thrane et al. (2022) found that among COVID-19 patients with chemosensory loss, 26.2% reported concomitant hearing loss or tinnitus, with auditory symptoms demonstrating concerning persistence—only two of seventeen patients with hearing loss experienced full recovery after an average follow-up of 266 days [16]. Kartal and Kılıç (2023) similarly documented that 28% of recovering COVID-19 patients reported tinnitus, with 10% experiencing new-onset tinnitus during treatment, suggesting that while otological manifestations may affect a minority, they impose significant long-term morbidity [17]. The dysphagia and dysphonia literature further contextualizes our oropharyngeal findings, as Regan et al. (2021) demonstrated that among intubated COVID-19 patients, 90% required modified oral intake post-extubation and 66% presented with dysphonia, with these deficits persisting at hospital discharge in 27% and 37% of cases, respectively [18].

In summary, while the present results capture a cross-sectional profile emphasizing painful and obstructive throat and nasal symptoms, the existing evidence base underscores that COVID-19-associated ENT manifestations extend considerably beyond acute complaints to include persistent chemosensory, auditory, and swallowing dysfunction that may endure months to years beyond the initial infection, warranting continued surveillance and multidisciplinary rehabilitation planning.

This study has several limitations that should be acknowledged. The cross-sectional design precludes establishing temporal or causal relationships between reported symptoms and any underlying etiology, and the absence of a control group limits the ability to determine whether the observed symptom prevalence exceeds that of the general population. The single-center setting may also limit the generalizability of these findings to broader or more diverse populations.

CONCLUSION

The findings reveal that throat pain was overwhelmingly the most prevalent complaint, affecting nearly three-quarters of the cohort, followed by cough and foreign body sensation, establishing oropharyngeal symptoms as the dominant clinical feature. Nasal symptoms were primarily driven by breathing difficulty and nasal dryness, each reported by more than half of the patients, whereas otological symptoms such as ear blockage, ear pain, and tinnitus were comparatively uncommon. The demographic analysis showed a slight male predominance, with the majority of patients concentrated in the young and middle-aged adult groups. This symptomatic pattern underscores the need for targeted diagnostic and therapeutic attention toward oropharyngeal and nasal complaints in similar patient populations, while also recognizing that less frequent auditory symptoms, though rarer, may still contribute significantly to individual patient distress and require appropriate clinical consideration.

REFERENCES

1. Xia W, Shao J, Guo Y, Peng X, Li Z, Hu D. Clinical and CT features in pediatric patients with COVID-19 infection: different points from adults. Pediatr Pulmonol 2020 May;55(5):1169–74.
2. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. Acta bio-medica: Atenei Parmensis 2020 Mar;91(1):157–60.
3. Drosten C, Günther S, Preiser W, Van Der Werf S, Brodt HR, Becker S, et al. Identification of a novel coronavirus in patients with severe acute respiratory syndrome. N Engl J Med 2003 May;348(20):1967–76.
4. Guo P, Lim JT, Wee LE, Tay AT, Zhai Y, Chiew CJ, Ong B, Lye DCB, Tan KB. Characterization of post-acute multi-organ sequelae following SARS-CoV-2 Infection in the Delta and Omicron Eras in a highly boosted population. BMC Glob Public Health. 2026 Feb 5;4(1):15. doi: 10.1186/s44263-026-00247-0.
5. Zięba N, Lisowska G, Dadok A, Kaczmarek J, Stryjewska-Makuch G, Misiołek M. Frequency and Severity of Ear–Nose–Throat (ENT) Symptoms during COVID-19 Infection. *Medicina*. 2022; 58(5):623. https://doi.org/10.3390/medicina58050623
6. Beyerstedt S, Casaro EB, Rangel ÉB. COVID-19: angiotensin-converting enzyme 2 (ACE2) expression and tissue susceptibility to SARS-CoV-2 infection. Eur J Clin Microbiol Infect Dis. 2021 May;40(5):905-919. doi: 10.1007/s10096-020-04138-6.
7. Andrews MA, Areekal B, Rajesh KR, Krishnan J, Suryakala R, Krishnan B, Muraly CP, Santhosh PV. First confirmed case of COVID-19 infection in India: A case report. The Indian Journal of Medical Research. 2020 May;151(5):490.
8. Singh S, Sharma A, Gupta A, Joshi M, Aggarwal A, Soni N, Sana, Jain DK, Verma P, Khandelwal D, Singh V. Demographic comparison of the first, second and third waves of COVID-19 in a tertiary care hospital at Jaipur, India. Lung India. 2022 Nov-Dec;39(6):525-531. doi: 10.4103/lungindia.lungindia_265_22. Erratum in: Lung India. 2023 Jan-Feb;40(1):98. doi: 10.4103/0970-2113.365497.
9. Guntinas-Lichius O, Bitter T, Takes R, Lee VHF, Saba NF, Mäkitie AA, Kowalski LP, Nixon IJ, Ferlito A. Post COVID-19 and Long COVID Symptoms in Otorhinolaryngology-A Narrative Review. J Clin Med. 2025 Jan 14;14(2):506. doi: 10.3390/jcm14020506.
10. Crotty TJ, Corbett M, Gary S, Davey MG, Hughes JP, Keogh IJ, Patil NP, Doherty E. The psychological impact of COVID-19 on ear, nose and throat (ENT) specialists. Ir J Med Sci. 2022 Feb;191(1):51-57. doi: 10.1007/s11845-021-02569-4.
11. Okada M, Ishida N, Kanzaki S, Kawada I, Nagashima K, Terai H, et al. Upper respiratory symptoms as Long COVID: Insight from a multicenter cohort study. OTO Open. 2024 Jan;8(1):e120.
12. Groff D, Sun A, Ssentongo AE, Ba DM, Parsons N, Poudel GR, et al. Short-term and long-term rates of postacute sequelae of SARS-CoV-2 infection: a systematic review. JAMA Netw Open. 2021 Oct;4(10):e2128568.
13. Hopkins C, Surda P, Whitehead E, Kumar BN. Early recovery following new onset anosmia during the COVID-19 pandemic–an observational cohort study. J Otolaryngol Head Neck Surg. 2020 Jan;49(1):26.
14. Boscolo-Rizzo P, Hummel T, Hopkins C, Dibattista M, Menini A, Spinato G, et al. High prevalence of long-term olfactory, gustatory, and chemesthesis dysfunction in post-COVID-19 patients: a matched case-control study with one-year follow-up using a comprehensive psychophysical evaluation. Rhinology. 2021;59(6):517-27.

15. Vaira LA, Salzano G, Le Bon SD, Maglio A, Petrocelli M, Steffens Y, et al. Prevalence of persistent olfactory disorders in patients with COVID-19: a psychophysical case-control study with 1-year follow-up. Otolaryngol Head Neck Surg. 2022 Jul;167(1):183-6.
16. Thrane JF, Britze A, Fjaeldstad AW. Incidence and duration of self-reported hearing loss and tinnitus in a cohort of COVID-19 patients with sudden chemosensory loss: a STROBE observational study. Eur Ann Otorhinolaryngol Head Neck Dis. 2022 May;139(3):125-8.
17. Kartal A, Kılıç M. Tinnitus in patients recovering after COVID-19: observational and cross-sectional study. Eur Arch Otorhinolaryngol. 2023 Feb;280(2):573-80.
18. Regan J, Walshe M, Lavan S, Horan E, Gillivan Murphy P, Healy A, et al. Post-extubation dysphagia and dysphonia amongst adults with COVID-19 in the Republic of Ireland: A prospective multi-site observational cohort study. Clin Otolaryngol. 2021 Nov;46(6):1290-9.