

ORIGINAL RESEARCH

Assessment of otorhinolaryngological manifestations in post covid-19 patients

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ABSTRACT

Background: Coronavirus disease (COVID-19) is caused by the single-stranded RNA severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The present study was conducted to assess otorhinolaryngological manifestations in post covid-19 patients. **Materials & Methods:** 76 post covid-19 patients of both genders were subjected to oral cavity examination, direct and indirect laryngoscopic examination, ear symptoms, examination with otoscope, microscope done. Pure tone audiometry and impedance audiometry was done, in case of hearing loss. Anterior rhinoscopy, DNE and imaging study of PNS were done for patients with nose and PNS symptoms

Results: Out of 76 patients, males were 46 and females were 30. Ear (17) showed sensorineural hearing loss in 10, conductive hearing loss in 3, otitis media with effusion in 2 and tinnitus in 2 cases. Pharynx, larynx & oral cavity (20) showed mouth dryness in 8, gustatory dysfunction in 4, sore throat in 3, aphthous ulcer in 2, vocal cord palsy in 1, foreign body sensation in throat in 1 and oral candidiasis in 1. Nose & paranasal sinuses (24) showed olfactory dysfunction in 4, headache in 10, nose dryness in 7 and epistaxis in 3 patients. Multiple ENT manifestation was seen in 15 cases. The difference was significant ($P < 0.05$). **Conclusion:** Nose and paranasal sinuses manifestation were the most common ENT manifestation among post-COVID-19 infected patients.

Key words: Coronavirus disease, sensorineural hearing loss, post covid

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INTRODUCTION

Coronavirus disease (COVID-19) is caused by the single-stranded RNA severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). On January 30, 2020, the World Health Organization (WHO) declared COVID-19 as a pandemic and a public health emergency of international concern. The first case of COVID-19 was reported in December 2019 in Wuhan, Hubei province, China, which presented as a type of pneumonia of unknown cause.¹

The mode of transmission of COVID-19 is both respiratory droplets and direct contact. The average incubation period of COVID-19 is approximately 2 to 5 days, although incubation periods of up to 14 days have been observed.² The severity of a patient's condition ranges from complete absence of symptoms to life-threatening complications. Possible symptoms include fever, cough, myalgia or fatigue, sputum production, headache, hemoptysis and diarrhea. The commonly reported complications are acute respiratory distress syndrome, respiratory failure, multiple organ failure, and even death.³

ENT manifestations have also been noted during infection such as sore throat, headache, loss of smell, tonsillar enlargement, pharyngeal oedema, nasal congestion. Patients also experienced persistent symptoms and a decline in health-related quality of life during post-COVID recovery period for >3 weeks after the diagnosis which is known as post-covid syndrome.⁴ Multiple studies on post-COVID manifestation such as thromboembolic event leading to stroke, myocardial infarction and myalgia, cognitive impairment, worsening on diabetes etc are available.^{5,6} As nose, nasopharynx, oropharynx are the major sites where SARS-CoV2 virus harbours and act as the source of transmission, various ENT related post-COVID manifestations are being observed every now and then.⁷ The present study was conducted to assess otorhinolaryngological manifestations in post covid-19 patients.

MATERIALS & METHODS

The present study consisted of 76 post covid-19 patients of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. For patients with throat complaints, oral cavity examination, direct and indirect laryngoscopic examination were done. For patients with ear symptoms, examination with otoscope, microscope done. Pure tone audiometry and impedance

audiometry was done, in case of hearing loss. Anterior rhinoscopy, DNE and imaging study of PNS were done for patients with nose and PNS symptoms. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Total- 76		
Gender	Male	Female
Number	46	30

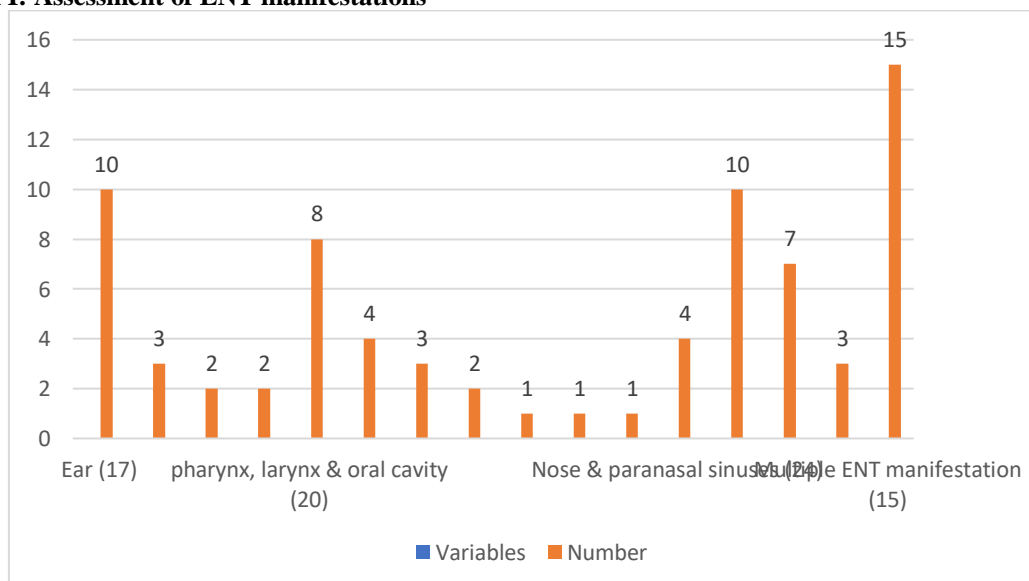
Table I shows that out of 76 patients, males were 46 and females were 30.

Table II: Assessment of ENT manifestations

Parameters	Variables	Number	P value
Ear (17)	Sensorineural hearing loss	10	0.04
	Conductive hearing loss	3	
	Otitis media with effusion	2	
	Tinnitus	2	
pharynx, larynx & oral cavity (20)	Mouth dryness	8	0.05
	Gustatory dysfunction	4	
	Sore throat	3	
	Aphthous ulcer	2	
	Vocal cord palsy	1	
	Foreign body sensation in throat	1	
	Oral candidiasis	1	
Nose & paranasal sinuses (24)	Olfactory dysfunction	4	0.03
	Headache	10	
	Nose dryness	7	
	Epistaxis	3	
Multiple ENT manifestation (15)		15	-

Table II, graph I shows that ear (17) showed sensorineural hearing loss in 10, conductive hearing loss in 3, otitis media with effusion in 2 and tinnitus in 2 cases. Pharynx, larynx & oral cavity (20) showed mouth dryness in 8, gustatory dysfunction in 4, sore throat in 3, aphthous ulcer in 2, vocal cord palsy in 1, foreign body sensation in throat in 1 and oral candidiasis in 1. Nose & paranasal sinuses (24) showed olfactory dysfunction in 4, headache in 10, nose dryness in 7 and epistaxis in 3 patients. Multiple ENT manifestation was seen in 15 cases. The difference was significant (P< 0.05).

Graph I: Assessment of ENT manifestations



DISCUSSION

The main reservoir is the upper respiratory tract, from where a swab is usually collected to diagnose COVID-19 disease.⁸ Recently, many studies have been conducted to investigate the otolaryngological symptoms related to COVID-19. Cough and anosmia are among the most commonly reported symptoms. Also, there were unanimously reported symptoms, such as ageusia, sore throat, nasal congestion, postnasal discharge, otalgia, runny nose, and hoarseness.^{9,10} However, there is a limited number of studies that focused on the following: detailed otolaryngological presentation of COVID-19 using SNOT-22 questionnaire that measures the impact of sinonasal symptoms on sleep quality and psychology of infected patients; subjective analysis of the otolaryngological symptoms over a longitudinal course; and the effect of otolaryngological-related pathologies and chronic diseases on the manifestation of otolaryngological symptoms in COVID-19 patients.^{11,12} The present study was conducted to assess otorhinolaryngological manifestations in post covid-19 patients.

We found that out of 76 patients, males were 46 and females were 30. Kumar et al¹³ conducted a study on 136 patients, males(88, 65%) were the most common to develop post-ENT manifestations. The most common affected age group was 41-50 years (48, 35%). Among these 136 patients, 20(15%), 51(37%), 33(24%) and 32(24%) patients developed Ear, Nose, Throat and multiple manifestations respectively. The most common symptom was headache seen in 22(16%) patients while least common was the tinnitus noted in 1(1%) patient. Ear manifestations include sensorineural hearing loss (11, 8%), conductive hearing loss (4, 3%), otitis media with effusion(4, 3%) and tinnitus(1, 1%). The nose & paranasal sinus manifestations include headache (22, 16%), dryness of nose (14,10%), olfactory dysfunction (12,9%) and epistaxis (3, 2%). The larynx and pharyngeal manifestation include dryness of mouth (11,8%), sore throat (5, 4%), gustatory dysfunction (5,4%), LPR (4, 3%), vocal cord palsy (3, 2%), aphthous ulcer (3, 2%) and oral candidiasis (2, 1%)

We observed that ear (17) showed sensorineural hearing loss in 10, conductive hearing loss in 3, otitis media with effusion in 2 and tinnitus in 2 cases. Pharynx, larynx & oral cavity (20) showed mouth dryness in 8, gustatory dysfunction in 4, sore throat in 3, aphthous ulcer in 2, vocal cord palsy in 1, foreign body sensation in throat in 1 and oral candidiasis in 1. Nose & paranasal sinuses (24) showed olfactory dysfunction in 4, headache in 10, nose dryness in 7 and epistaxis in 3 patients. Multiple ENT manifestation was seen in 15 cases. Alrusayyis et al¹⁴ described the picture of COVID-19-associated otorhinolaryngological manifestations and recovery to explore individualized treatment, onward referral, and complications prevention. The questionnaire was sent to 363 patients and the response rate was 70.80%

(n = 257). The mean age was 34.58 years (SD = 11.22) and the rate of male participants was 60.7%. The most common otorhinolaryngological symptoms at the time of enrollment was fever (48.6%), whilst the commonest severe symptom was cough (57%). After 1 month, only 11 participants had persistent severe symptoms, especially sleep and psychological symptoms (73%), and the majority were female (63.6%). All of them had at least 1 comorbidity. There was a significant difference between the mean age of participants with severe symptoms (mean = 27.45, SD = 8.39) and without severe symptoms (mean = 34.90, SD = 2.53, $t(255) = 2.17$, $P = .031$).

The most common otorhinolaryngological manifestations found by Elibol¹⁵ were anosmia (35.4%), ageusia (16.1%), sore throat (27%), cough (43.8%), nasal congestion (12.9%), and postnasal discharge (6%). El-Anwar¹⁶ reported that sore throat and headache are the most common otorhinolaryngology manifestations with rates of 11.3% and 10.7%, respectively. These are followed by anosmia (6%), pharyngeal erythema (5.3%), nasal congestion (4.1%), and nasal obstruction (3.4%).

The limitation the study is small sample size.

CONCLUSION

Authors found that nose and paranasal sinuses manifestation were the most common ENT manifestation among post-COVID-19 infected patients.

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