Case Report

Anosmia and ageusia as presenting complaints of coronavirus disease (COVID-19) infection

Ritin Mohindra[1], K. Gowri Sainath[1], Poonam Kanta[2], Mini P. Singh[2], Kapil Goyal[2], P. V. M. Lakshmi[3], Ashish Bhalla[1], Vikas Suri[1]

Departments of [1]Internal Medicine, [2]Virology and [3]Community Medicine and School of Public Health, Postgraduate Institute of Medical Education and Research (PGIMER), Sector 12, Chandigarh, India

Abstract

The recently discovered SARS-CoV2 virus produces a influenza like illness named Coronavirus disease 2019 (COVID-19). The usual presentation is with upper/lower respiratory tract symptoms and rarely gastrointestinal symptoms. Although some of the clinical features of this novel disease like fever, dry cough, and shortness of breath have been well documented in literature, we report hitherto infrequently reported clinical features of this disease, namely Anosmia and Ageusia.

Keywords: Ageusia, anosmia, COVID19

Background

The world has experienced a number of pandemics like plague (black death), small pox, Spanish flu, and more recently, swine flu (H1N1). The fag end of December 2019 witnessed the emergence of a novel coronavirus in Wuhan city (Hubei province) of China, when several cases of pneumonia of unknown origin were reported simultaneously. This virus rapidly spread to almost 200 countries within a period of 3 months, prompting the World Health Organization to designate it as a pandemic on March 11, 2020.[1,2]

Coronavirus disease (COVID-19) is caused by a novel coronavirus belonging to Coronaviridae family, which are enveloped, positive sense single stranded RNA viruses. As of April 3, 2020, it has affected more than 1 million people with more than 45692 people having succumbed to the illness in more than 206 countries, over a period of 3 months.[3]

The usual presentation is with upper/lower respiratory tract symptoms and rarely gastrointestinal symptoms and rarely gastrointestinal symptoms. We present this case report with a hitherto unreported symptoms of the disease namely, anosmia and ageusia.

Case Report

A 26-year-old female with history of recent international travel presented with fever and excessive fatigue for 1 day. She also complained of sudden onset loss of taste and smell. On admission she was stable, with normal vital parameters, no tachypnoea and maintained 100% saturation on room air. The systemic examination was unremarkable. In view of her symptoms and history of recent international travel, a clinical diagnosis of COVID-19 was made. The oropharyngeal and nasopharyngeal swab specimens were sent for RT-PCR, which

Address for correspondence: Dr. Vikas Suri, Department of Internal Medicine, Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh – 160 012, India.
E-mail: surivikas9479@gmail.com

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were positive. The swabs were also tested for Influenza A and H1N1 coinfection, but were negative. Complete blood counts and other investigations performed during hospitalization are summarized in Table 1. Chest X-ray was normal. She was initiated on oralamoxycillin-clavulanate and azithromycin for 5 days. Defervescence of fever was noted on Day 2 and she remained afebrile during her hospitalization. However, her anosmia and ageusia were persistent. Repeat test for COVID-19 on Day 7 (2 samples) and day 14 (2 samples) were negative. She was discharged subsequently after a period of hospital isolation of 14 days. However, there was little improvement in the symptoms of loss of taste and smell, which were still persistent.

Discussion

COVID-19 is an evolving disease, and varied clinical features are being increasingly reported from several countries. Common clinical symptoms include fever, cough, dyspnoea, myalgia, fatigue, sore throat, rhinorrhoea, headache, chills, nasal congestion, nausea or vomiting, and diarrhea, occurring with variable frequencies.

The most common symptom at presentation in a cohort of 41 patients from Wuhan, China was fever (98%), followed by cough (76%), dyspnoea (55%), and myalgia/fatigue (44%). Less common symptoms included sputum production (28%), headache (8%), hemoptysis (5%), diarrhea (3%).[4]

Interestingly, of late, there have been several anecdotal reports from South Korea, China, Italy and Germany, of cases of COVID-19 presenting with alteration in sense of smell and taste. There have been many anecdotal reports of anosmia being commonly encountered in many of the confirmed COVID-19 cases across world. Among 417 mild-to-moderate patients with COVID-19 patients, 85.6% and 88.0% of patients reported olfactory and gustatory dysfunctions with olfactory dysfunction (OD) appearing before the other symptoms in about 11.8% of cases.[5] CDC in their latest update on the diagnosis of COVID19 has added "new loss of taste or smell" as a minor criteria.[6]

Our patient had symptoms of fever, myalgia, and sudden onset loss of smell and taste as her main complaints. Fever and myalgia improved a day after treatment, but anosmia and ageusia were still persisting at the time of discharge even after 2 weeks of hospitalization.

Significant change in chemosensory function is observed in COVID-19 patients and it takes long time to restore the sensitivity for taste and smell. The viral particles get entry through oral and nasal routes where they multiply to increase the viral copy numbers. Recent studies have shown that virus utilize Angiotensin converting enzyme-2 (ACE-2) receptor distributed in many organs including oral and nasal cavities for its entry into the cells.[7] ACE-2 interacts with spike protein of virus and promotes the endocytosis of virus and replicate to spread the infection. Multiple studies in mice have reported that ACE-2 is also expressed in taste buds and epithelial lining of tongue.[7-9] After viral entry, the cellular functions are hijacked by the virus and further many changes occur in the cells of these sense organs which is also regulated by angiotensin pathway.[7] The SARS-CoV is detected for long time in oral and nasal swabs which would indicate the presence of viral particles in these cells and might be responsible for loss of chemosensory function for long time.[10]

This brings us to the important question, namely the patients who develop only anosmia or ageusia as their initial symptom, who are not screened as they do not fall under the current testing strategy of WHO. More data is needed to determine the frequency of this symptom among confirmed cases.

Conclusion

With this case, we wish to highlight the novel symptoms namely anosmia/ageusia in COVID-19 patients. More robust data are needed regarding its frequency in COVID-19 patients. Public awareness regarding these symptoms may be needed with self-reporting, quarantine, and early testing of such patients might help in decreasing community transmission of this disease.

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Table 1: Investigations

Date	On admission	Day 7	At discharge
Hemoglobin (g/dL)	12.4	12.3	11.0
TLC (/microL)	6600	8100	9100
DLC (N/L/M/E/B)	38/50/7/4/1	52/37/8/2/1	63/27/6/3/1
Platelets ($\times 10^3$cells/microL)	372	372	383
Electrolytes (Na/K/Cl) (mmol/L)	133/4.0/99	133/4.2/98	139/4.2/107
Urea/creat (mg/dL)	17.5/0.66	18/0.6	16.8/0.45
Bilirubin (Total/conjugated) (mg/dL)	0.08/0.06	0.21/0.08	0.11/0.07
AST/ALT/ALP (U/L)	20.6/19.5/80	18.5/20.7/90	16/15.3/92
Total protein/albumin (g/dL)	7.43/3.96	7.56/3.89	6.9/3.56
CRP (mg/L)		5.89	
Calcium/phosphorous (mg/dL)	8.37/3.60	8.85/2.97	8.45/2.16

Conflicts of interest

There are no conflicts of interest.

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