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

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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.⁴[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 oropharyngeal and nasopharyngeal swab specimens were sent for RT-PCR, which

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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 oral amoxicillin-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%).

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. CDC in their latest update on the diagnosis of COVID-19 has added “new loss of taste or smell” as a minor criteria.

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. 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.

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 (x10^12 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) | 20/19.5/80 | 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 | 8.85/2.97 | 8.45/2.16 |

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.

References

1. WHO SARS (Severe Acute Respiratory Syndrome). Available from: https://www.who.int/ith/diseases/sars/en/. [last assessed on 2020 Apr 18].
2. WHO | Middle East respiratory syndrome coronavirus (MERS-CoV). Available from: https://www.who.int/emergencies/mers-cov/en/. [last assessed on 2020 Apr 18].
3. WHO/Coronavirus disease 2019. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019. [last assessed on 2020 Apr 18].
4. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395:497‑506.
5. Lechien JR, Chiesa-Estomba CM, De Siati DR, Horoi M, Le Bon SD, Rodriguez A, et al. Olfactory and gustatory dysfunctions as a clinical presentation of mild-to-moderate forms of the coronavirus disease (COVID-19): A multicenter European study. Eur Arch Otorhinolaryngol 2020. doi: 10.1007/s00405-020-05965-1.
6. Centers for Disease Control and Prevention. Coronavirus Disease 2019 (COVID-19) – Symptoms. https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html. [Last accessed on 2020 May 26].
7. Shigemura N, Takai S, Hirose F, Yoshida R, Sanematsu K, Ninomiya Y. Expression of renin-angiotensin system components in the taste organ of mice. Nutrients 2019;19:E2251.
8. Xu H, Zhong L, Deng J, Peng J, Dan H, Zeng X, et al. High expression of ACE2 receptor of 2019-nCoV on the epithelial cells of oral mucosa. Int J Oral Sci 2020;24;12:8.
9. Hoffmann M, Kleine-Weber H, Schroeder S, Krüger N, Herrler T, ErichsenS, et al. SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by a clinically proven protease inhibitor. Cell 2020;181:271‑80.e8.
10. Zou L, Ruan F, Huang M, Liang L, Huang H, Hong Z, et al. SARS-CoV-2 viral load in upper respiratory specimens of infected patients. N Engl J Med 2020;382:1177-9.