

Home Management and Self-Monitoring in a Patient with Chronic Asthma Suffering from Mild COVID-19 : A Case Report

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Abstract

The second wave of COVID-19 in India during mid-February has brought an unwarranted fear due to high morbidity and mortality. Instead of being perceived as a panic situation, the depleting medical resources of the country warrant better self-monitoring and medical compliance by the people with mild-to-moderate COVID-19 infection. This strategy can help in diverting the limited medical aid to those who are suffering with severe COVID-19 infection. As a ray of positivity, we report mild COVID-19 in a patient with a history of severe asthma. The patient successfully managed herself at home with remote medical consultation, medication compliance, intensive self-monitoring, and self-proning as key measures.

Keywords: Asthma, COVID-19, home management, proning, self-monitoring

INTRODUCTION

The second wave of COVID-19 entered India during mid-February 2021 with almost three times increase in both morbidity and mortality leading to a quick depletion of the medical resources.^[1] Budesonide, a drug of choice for asthma patients, is now being recommended in all mild cases of COVID-19 by the Indian Council of Medical Research (ICMR) update released on April 22, 2021.^[2,3] Furthermore, the update gave emphasis to self-proning and 2 hourly position change as strategies to wean off oxygen among COVID-19 patients.^[4,5] Medication compliance to corticosteroid inhalers among asthma patients, self-proning, and intensive self-monitoring by able persons at home, with remote supervision by clinicians, can help reduce a major part of the health care burden in the country. This can help to reallocate hospital beds for those with severe COVID-19. A case of severe asthma with COVID-19 is presented. This patient was successfully managed at home using strict medication compliance to asthma inhalers, antibiotics, and other drugs, implementing self-proning and intensive self-monitoring with simple devices.

CASE REPORT

A 29-year-old female, living in Gurgaon City in North India, is a known case of bronchial asthma for 2 years of age. She was

taking *Budecort* (Budesonide) Metered-dose inhaler (MDI) 200 mcg through a Zerostat VT spacer (CIPLA), two puffs BID. She has a history of frequent severe exacerbations relieved by corticosteroid nebulization and short-term oral corticosteroids.

She developed fever and malaise on April 23, 2021. After 2 days of fever, she got herself tested at a nearby government facility for COVID-19, by a reverse transcriptase-polymerase chain reaction (RT-PCR) test. Due to the heavy load on laboratories these days, her report was expected not to come before 5 days. Meanwhile, she isolated herself from her family and continued her previous treatment for asthma. Among the authors, LR supervised her during breathing exercises, steam inhalation, awake proning, and recording of vital signs, namely, temperature, heart rate, blood pressure, oxygen saturation (SpO₂), and

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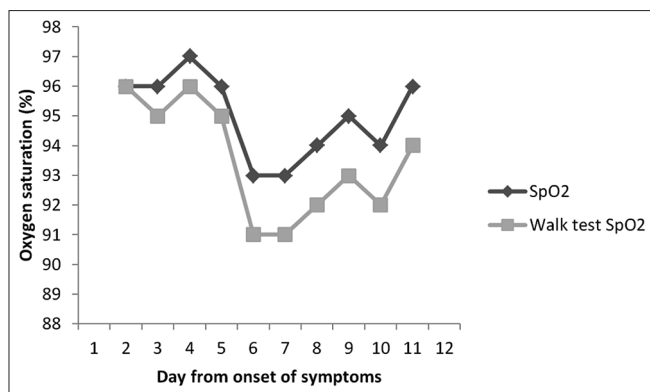


Figure 1: Trend of oxygen saturation and 6-min walk test in the reported case. Day 6-7: Moderate dyspnea; Day 10: Asthma exacerbation

6-min walk test every four hours [Figure 1]. CD and VM kept a check on these records and assessed the patient through a video call twice daily.

While waiting for the RT-PCR confirmation, she was given paracetamol, azithromycin, and levocetirizine. These medications were taken for 3 days and during these days, fever (38°C to 39.5°C) persisted. Her oxygen saturation remained stable (95%–97%) which she was checking herself using a portable pulse oximeter at home. Steam inhalation was done every 4 h. Malaise and lethargy had worsened in these days and she was mostly lying on bed. She was made to lie in the prone position for at least 30 min at a time, every 2 hourly during awake hours. She verbalized relief and reduction in breathlessness in the prone position and was motivated to do it more frequently. At night she slept in the prone position only (effective proning hours: Approximately 14/24 h) She was also doing respiratory exercises, namely, deep breathing, *Anulom-Vilom Yoga* (inhaling through one nostril and exhaling through other nostril, alternatively), and pursed-lip exhalation. These exercises were practiced twice a day, for 5 min each.

On April 28, (day 6 from the onset of initial symptoms) she started developing dyspnea, more during exhalation, which was relieved by *Duolin* (combination of 1.25 mg levosalbutamol and 500 mcg ipratropium bromide) and *Budecort* nebulization at home, twice a day. She was advised to get the following investigations done: A computerized tomography (CT) scan (or a Chest X-ray, whichever was available), complete blood count, and inflammatory blood markers (interleukin-6, C-reactive protein, D-dimer, erythrocyte sedimentation rate, and Ferritin). Due to the shortage of radio-diagnostic facilities because of the sudden surge of the second wave of COVID-19, a chest X-ray was obtained the same day and a plain CT scan and blood tests were done the next day.

She was started on the following drugs, without waiting for any of the above tests: doxycycline, ivermectin, ecosprin, and along with supplements (Vitamin C and Zinc). Nebulization, steam inhalation, breathing exercises, and prone positioning were continued as before.

CT scan revealed multifocal patchy areas of ground-glass opacities typical of COVID-19. Fibroatelectatic changes were noted in the anterior segment of the right upper lobe, right middle lobe, and lingula. CT score was 5/25 showing mild disease. On day 7 from the onset, other inflammatory blood markers revealed moderate infection.

On May 2, (day 10 of onset) she had an acute asthma exacerbation (uncontrolled cough, dyspnea, and breathlessness, oxygen saturation was 94%–95%. 6-min walk test showed a saturation dip to 91%. She was relieved of her symptoms by taking *Duolin* and *Budecort* nebulization at that time and was completely settled in about an hour. She had the same exacerbation episode the next noon again. She responded well to these inhalers and was able to control her exacerbations at home, maintaining good oxygen saturation (94%–95%). Asthma exacerbation also did not occur again after day 11. She continued her *Budecort* MDI as previously. As per the latest national guidelines,^[3] she was not retested for COVID-19 was let out of isolation on the day 18 from the onset.

DISCUSSION

During the tough times of the second wave of COVID-19 in India, rapid exhaustion of medical resources is evident.^[1] The people with asthma are living with an added fear of already compromised lung conditions. Such panic is often a trigger to an asthma exacerbation. To prevent the worsening of the respiratory condition during COVID-19, persons with asthma should maintain good compliance to their inhalers. Regular metered dose inhalers of corticosteroids may not be able to reduce the susceptibility of these people but can prove helpful in maintaining healthy lung conditions. Early awake proning after onset,^[4,5] corticosteroid nebulization, along with steam inhalation, a balanced diet can prove beneficial in preventing the need of supplemental oxygenation in people with asthma.^[6,7] Further, the case shows that early budesonide inhalation is not just helpful in healthy population,^[2] but can also be helpful in improving outcomes among people with asthma. Intensive self-monitoring using a simple pulse oximeter and 6-min walk test can help in the early detection of any worsening of the lung function. Other drugs administered to the patient during this period, as per the ICMR guidelines for home management of COVID-19 cases in India,^[3] namely, paracetamol, azithromycin, levocetirizine, doxycycline, ivermectin, ecosprin, along with supplements (Vitamin C and Zinc) play a key role in the home management of this case. Finally, self-proning is an easy measure that can be practiced by anyone from the day of onset itself to prevent oxygen requirements in the later stages of the disease.

CONCLUSION

During the COVID-19 pandemic, people with asthma maintaining good compliance to their inhalers can have good

COVID-19 outcome. Fear can only lead to an undue asthma exacerbation. Intensive self-monitoring using pulse oximetry and 6-min walk test can help in early detection of worsening of condition, whereas early self-proning can help people in preventing the need for supplemental oxygenation, even with asthma.

Declaration of patient consent

The authors certify that appropriate consent forms have been obtained from the patient. The patient has given consent for reporting her clinical information in the journal with concealed identity. The name and initials will not be revealed at any stage. Anonymity cannot be guaranteed but due efforts will be taken to conceal any identification.

Acknowledgment

We thank the patient for her consent to present her case as a report to support the management of other asthma patients suffering from mild-to-moderate COVID-19.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Ranjan R, Sharma A, Verma MK. Characterization of the second wave of covid-19 in India. medRxiv 2021;(21255665). Available from: <https://doi.org/10.1101/2021.04.17.21255665>. [Last accessed on 2021 Jun 05].
2. Ramakrishnan S, Nicolau DV, Langford B, Mahdi M, Jeffers H, Mwasuku C, *et al.* Inhaled budesonide in the treatment of early COVID-19 (STOIC): A phase 2, open-label, randomised controlled trial. *Lancet Respir Med* 2021;19:1-10.
3. AIIMS/ICMR-COVID-19 National Task Force/Joint Monitoring Group (Dte. GHS) Ministry of Health and Family Welfare GOI. Clinical Guidance for Management of Adult Covid-19 Patients; April, 2021. Available from: https://www.icmr.gov.in/pdf/covid/techdoc/COVID19_Management_Algorithm_22042021_v1.pdf. [Last accessed on 2021 Jun 05].
4. Whittemore P, Macfarlane L, Herbert A, Farrant J. Use of awake proning to avoid invasive ventilation in a patient with severe COVID-19 pneumonitis. *BMJ Case Rep* 2020;13:1-2.
5. Jena SK, Pradhan SK, Subhankar S, Rao CM. Awake self-proning in a nonintubated COVID patient: A case report from a tertiary care COVID hospital in Eastern India. *Indian J Respir Care* 2020;9:221-3.
6. Ong KY, Tan TL, Chan AK, Tan KL, Koh MS. Managing asthma in the COVID-19 pandemic and current recommendations from professional bodies: A review. *J Asthma* 2020:1-8.
7. Ari A. Practical strategies for a safe and effective delivery of aerosolized medications to patients with COVID-19. *Respir Med* 2020;167:(105987).