Case Report

A case report of moderate COVID 19 patient managed through integrative approach (Siddha and conventional medicine)

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1. Introduction

COVID-19 is a public health crisis which threatens the world by its rapid spread and mortality. WHO declared the outbreak of COVID-19 as a Public Health Emergency of International Concern on 30th January 2020 [1]. More than two million deaths have been associated with COVID-19 infection and the fatality rate is more than 5% around the world by the end of Jan2021 [2]. During the second wave of COVID-19, there was a catastrophic rise in cases, hospitals were overwhelmed and scarcity of medical equipment and beds become a major problem [3]. Management of COVID-19 infection mainly includes antivirals, corticosteroids, immunomodulatory drugs and oxygen support [4,5]. Globally various research works have been done by researchers, but till now there is no effective treatment available for COVID-19. During the first wave of COVID-19, Siddha system of medicine played a vital role in lowering the disease burden by earlier virologic clearance and thereby reducing the length of hospital stay [6,7]. The clinical manifestations of COVID-19 viral infection may be compared with "Kabasuram [8]" for the treatment of which various formulations are mentioned in the Siddha literature. Scientific evaluation of these formulations also revealed that they had antiviral properties. In this case report, an outcome of Siddha intervention along with conventional medicine in a moderate COVID-19 infected patient is discussed which emphasizes the significance and safety of Siddha integrative approach in the management of COVID-19 viral infection.

2. Case presentation

2.1. Patient information

61-year-old male, a Lecturer, staying at Ariyalur, Tamil Nadu, India.

2.2. Medical history

On DAY 1 the patient had a mild fever, headache and tiredness. He did not take any medication for it. On 3rd day, the fever worsened. The
patient took Nilavembu kudineer on his own. After that, patient was apparently normal for 3 days. On the 7th day, he experienced symptoms of fever, dry cough, tiredness, loss of appetite, smell and taste. The patient reported at the Siddha clinic on Day 7. Siddha intervention was started on Day 8.

2.3. Past medical history

The patient is Non-smoker, Non-Alcoholic, Non-Diabetic. The patient was on T. Thyronorm 25 mg for Hypothyroidism since 4 years. He suffered from Guillain Barre Syndrome for 6 years from 2013 to 2019 for which he underwent allopathy treatment. He also had hypertension since 4 years and coronary artery disease (CAD) since a year, suffered a mild cardiovascular arrest before 1 month and was on the following medications Aztor 40 mg, Monotrate 25 mg, Flavedon 35 mg, Ecosprin 75 mg, Clopilet 75 mg and Cardace 2.5 mg. He had a family history of systemic hypertension. The patient was attending election campaigns from where he possibly could have got infected by COVID-19. He did not take any prophylactic medicines for COVID-19.

3. Clinical findings

Siddha examination: Naadi-Kabavatham. Physical examination revealed that the patient was conscious, oriented, well built, with a height of 167 cm and weighing about 78 kg. Vital examination: Temperature-101°F, Pulse rate-76/min, Respiratory rate-24/min, Blood pressure-130/70 mmHg and the level of Spo2 was 97% on Day 8. On general examination: Pallor, icterus, Pedal oedema and lymphadenopathy were not found. Systematic examination revealed that cardiovascular system-S1, S2 heard, no added sounds; Respiratory system -NVBS−, BAE−, no added sound was present; Central nervous system-mental status, sensory and motor neurological functions were normal; Abdomen Examination-Soft, nontender and no organomegaly was seen. Body temperature and the level of Spo2 were monitored daily.

4. Diagnostic assessment

RT-PCR test was positive; Laboratory findings showed a high level of CRP – 43.7 mg/L, ESR(1hr) -105mm and D-Dimer-360ng. CT chest result suggested features of viral pneumonia, CORADS -5, CT severity score-10/25. Percentage of parenchymal involvement was about 30–40% which helps to confirm COVID-19 viral infection with pneumonia. Based on the CT Chest result (severity score) and laboratory investigation, I diagnosed it as a moderate COVID 19 viral infection.

5. Therapeutic intervention

5.1. Siddha intervention

Siddha intervention was started on the 8th day of illness. Details of day-wise intervention are mentioned in Table 1.

5.2. Conventional therapy

Conventional therapy was started on the 12th day due to the fall of Spo2 to 88% and the patient was admitted to the hospital. Inj.Ceftriaxone, Inj.Fandafluo2.5 Od and Inj.Decadron 8 mg. IV, Bd was given at the hospital for 3 days. On 3rd day the patient was discharged and conventional therapy was stopped. Details of Conventional therapy are mentioned in Table 2.

5.3. Changes in intervention

From Day 8 to Day 11 patient was treated in OPD with Siddha medicine alone. On Day 12, when Spo2 level decreased to 88% in the early morning hours, upon his own request the patient was hospitalised and conventional therapy was started. From Day 12 to Day 14 patient was treated in hospital IPD with both Siddha and Conventional medicine. On Day 14, he was discharged from the hospital. After discharge, allopathy medicines were completely stopped and the patient took Siddha medicines alone in OPD from Day 15 to Day 23. Siddha medicines were gradually reduced and stopped completely on Day 23. After that patient was advised to take Nilavembu kudineer twice a week (Fig. 1).

6. Follow-up and outcomes

From Day 16 of illness, the patient showed a good prognosis symptomatically and the level of Spo2 gradually raised. On Day 23, the patient was completely alright with no symptoms and Spo2 level was maintained between 98 and 99%. Medicines were stopped on that day and the patient was further followed up to 3 months without medication. No adverse effect was reported by the patient during the course of treatment and the follow-up period (Table 3).

7. Discussion

COVID-19 is a highly infectious disease caused by the SARS-COV-2 which leads to fatal complications like multi-organ failure, septic shock, pulmonary oedema, severe pneumonia, and Acute Respiratory Distress Syndrome [9]. This case report discusses about the moderate COVID-19 patient with pneumonia managed through an integrative approach. The therapeutic intervention was made based on symptoms and regulating deranged humour using Siddha herbal and metallic preparations. Nilavembu kudineer has anti-viral, anti-inflammatory, hepatoprotective, anti-oxidant, immune—modulatory properties [10,11] and showed binding and blockade effects against the ACE2 receptor, the prime drug target of COVID-19 virus [12]. Trachyspermum Ammi is the main ingredient of oma kudineer and maantha dravagam which has antifungal, antioxidant, antimicrobial, cytotoxic activity, bronchodilating, anti-tussive, hypolipidaemic and antihypertensive activities [13]. Syzygium aromaticum in lavangadi chooranam has analgesic, antioxidant, anti-septic, anti-inflammatory, anti-viral, antifungal, and antibacterial activity [14]. Pavala parpam has antibacterial, haemostatic and anti-inflammatory activity [15,16]. The pharmacological activity may be responsible for the effect of drugs in the management of COVID-19 symptoms. The patient showed a good prognosis and completely recovers within 16 days of treatment. Previous studies on COVID-19 showed that older patients with chronic co-morbidities such as cardiovascular disease, hypertension and pulmonary disease are more prone to critical and fatal outcomes [2,17,18]. In this case, even though the patient had multiple co-morbidities and sought treatment after the development of pneumonia, his clinical condition did not worsen. This showed that the Siddha intervention prevented the stage progression of the disease. The median time for onset of symptoms to recovery is 2 weeks for patients with mild infection and 3–6 weeks for those with serious illnesses [18]. In this case, the patient being a moderate case completely recovered within 23 days (16th day from the onset of Siddha medicines) even the patient started medicine after 7 days. So, we can assume that the duration of the disease was shortened by Siddha intervention. On Day 12, his Spo2 level dropped to 88% in

B. Neethi, P. Shanmugapriya, G. Janaranjani et al. Journal of Ayurveda and Integrative Medicine 13 (2022) 100623
the early morning for which he was admitted to a hospital by his family members out of their concern. But he did not need oxygen support in the hospital and his Spo2 level was maintained above 90% in room air. Fall in Spo2 level may be due to the fact that oxygen saturation normally reduces at night time [20]. The main strength is that the oxygen support is superfluous because the patient continued medicine throughout the course even at the hospital. Biomarkers like lymphocytopenia, thrombocytopenia,

| Date       | Symptoms and Events                                                                 |
|------------|--------------------------------------------------------------------------------------|
| Day 1,2    | Mild fever, Headache, Tiredness                                                     |
|            | 09.5.21-10.5.21                                                                      |
| Day 3      | Fever worsened. He took Nilavembu kudineer on his own                                 |
|            | 11.5.21                                                                              |
| Day 4-6    | Patient was apparently normal without symptoms                                       |
|            | 12.5.21-14.5.21                                                                      |
| Day 7      | Fever, dry cough, throat pain, loss of smell, taste, tiredness and loss of appetite developed, unable to eat or drink and hoarse voice. |
|            | Temp-101°F; Spo2-97%(RA)                                                             |
| Day 8      | The level of Spo2 increases from 93% to 97% 1 hr after the administration of Mantha dravagam |
|            | 16.5.21                                                                              |
| Day 9-10   | Fever, cough becomes intense, mild difficulty in breathing, tiredness, loss of smell and taste persists. Temp-100.6°F; Spo2-93%(RA). |
|            | 17.5.21-18.5.21                                                                      |
| Day 11     | The patient was hospitalised, conventional treatment started along with Siddha. Fever subsides, cough persists, mild difficulty in breathing at early morning. Patient shifted to hospital. |
|            | 19.5.21                                                                              |
| Day 12     | At early morning: Temp-98.4°F; Spo2-88%; RS examination: Bilateral crepitus+          |
|            | 20.5.21                                                                              |
| Day 13,14  | Evening: Temp-97.8°F; Spo2-92%                                                        |
|            | 21.5.21-22.5.21                                                                      |
| Day 15     | Cough and difficulty in breathing persists. Temp-97.8°F; Spo2-92%(RA)                 |
|            | 23.5.21                                                                              |
| Day 16-19  | Difficulty in breathing reduced well. Intensity of cough reduced gradually. Tiredness reduced. Temp -97° to 99°F; Spo2 Level (RA): Day 16-94%; Day 17-97%; Day 18-96%; Day 19-98% |
|            | 24.5.21-27.5.21                                                                      |
| Day 20     | Symptoms reduced well, mild cough only persists. Patient feels good and able to eat food normally. Temp-98.2°F; Spo2-98%(RA) |
|            | 28.5.21                                                                              |
| Day 21,22  | Siddha interventions were stopped. The patient felt normal. Cough reduced well. Temp-98.4°F; Spo2-99%(RA) |
|            | 29.5.21, 30.5.21                                                                     |
| Day 23     | 31.5.21                                                                              |

Fig. 1. Timeline illustrating the course of disease.
Table 1
Details of Siddha intervention.

| S.No | Name of drug               | Dose          | Adjuvant | Route | Duration From To | Indication                                      | Procurement                      | Reference                  |
|------|----------------------------|---------------|----------|-------|------------------|------------------------------------------------|----------------------------------|----------------------------|
| 1    | Lavangadhchooranam          | 1 gm, bd, AF  | Honey    | oral  | 8.5.21 to 27.5.21| Difficulty in breathing, Fever                   | GMP certified pharma (Earth India Naturals) | Chikitsaratha Deepam       |
| 2    | Mahasudharsana chootaranam | 1 gm, bd, AF  | Honey    | oral  | 8.5.21 to 27.5.21| All types of fever, cough, difficulty in breathing | GMP certified pharma (Earth India Naturals) | Chikitsaratha Deepam       |
| 3    | Pavala parpam              | 200 mg, bd, AF| Honey    | oral  | 8.5.21 to 27.5.21| Fever, Tuberculosis                              | GMP certified pharma (Medisidd)  | The Siddha Formulary of India |
| 4    | Mahaboopathy parpam        | 200 mg, bd, AF| Honey    | oral  | 8.5.21 to 27.5.21| Tuberculosis, Difficulty in breathing             | GMP certified pharma (Earth India Naturals) | Chikitsaratha Deepam       |
| 5    | Muthu chendhuram           | 100 mg, bd, AF| Honey    | oral  | 8.5.21 to 27.5.21| Sinusitis, nasal polyp                            | GMP certified pharma (Earth India Naturals) | The Siddha Formulary of India |
| 6    | Nilavembu Kudineer          | 5 gm, bd, AF  | Water    | oral  | 8.5.21 to 27.5.21| Fever                                              | GMP certified pharma (Earth India Naturals) | The Siddha Formulary of India |
| 7    | Oma kudineer               | 5 gm, bd, AF  | Water    | oral  | 8.5.21 to 30.5.21| Loss of appetite, indigestion                     | GMP certified pharma (Earth India Naturals) | The Siddha Formulary of India |
| 8    | T.Bramananda bairavam      | 2 Nos         | Honey    | oral  | 19.5.21 to 27.5.21| All types of fever                                | GMP certified pharma (IMPCOPS)    | Siddha Vaidiya              |
| 9    | Mantha dravagam            | 5 ml, bd, AF  | Water    | oral  | 19.5.21 to 20.5.21| Indigestion, loss of appetite                     | GMP certified pharma (Earth India Naturals) | Veerama munivar Nasakaandam |
| 10   | Maldevi chendhuram         | 100 mg, bd, AF| Ginger juice and honey | oral to | 20.5.21 to 22.5.21| Fever, difficulty in breathing                    | GMP certified pharma (Earth India Naturals) | Chikitsaratha Deepam       |
| 11   | Poorana chandrodhayam      | 75 mg, bd, AF | Honey    | oral  | 23.5.21 to 27.5.21| Cough, fever, all types of pain, tuberculosis     | GMP certified pharma (Earth India Naturals) | The Siddha Formulary of India |

AF- after food; bd – bis in die (twice daily).

Table 2
Details of Conventional therapy.

| S.No | Name of drug          | Dose | Route | Duration From To | Uses               |
|------|-----------------------|------|-------|------------------|--------------------|
| 1    | Inj.Ceftriaxone       | 2 gm, Od | IV   | 12.5.21 to 14.5.21 | Antibiotic         |
| 2    | Inj.Fanda            | 2.5 mg, Od | IV   | 12.5.21 to 14.5.21 | Anticoagulant      |
| 3    | Inj.Decadron         | 8 mg, bd | IV   | 12.5.21 to 14.5.21 | Corticosteroid     |

Od – Once a day; bd – bis in die (twice daily); IV - Intravenous.

Table 3
Results of Laboratory investigation before and after treatment.

| Blood Parameters         | Before Treatment | After Treatment |
|--------------------------|------------------|-----------------|
| Total WBC                | 10,800 cells/cu.mm | 8,400 cells/cu.mm |
| Platelet count           | 26.6 lakhs/cu.mm  | 25.5 lakhs/cu.mm  |
| Haemoglobin              | 12.5 gm/dl        | 12.5 gm/dl       |
| Polymorphs               | 80%               | 66.2%            |
| Lymphocytes              | 13%               | 23.7%            |
| Total bilirubin          | 0.7 mg/dl         | 0.8 mg/dl        |
| Direct Bilirubin         | 0.2 mg/dl         | 0.8 mg/dl        |
| SGOT                     | 36 IU/L           | 13 IU/L          |
| SGPT                     | 31 IU/L           | 27 IU/L          |
| Alkaline phosphatase     | 150 IU/L          | 124 IU/L         |
| Blood Urea               | 27 mg/dl          | 31 mg/dl         |
| Serum Creatinine         | 0.6 mg/dl         | 0.9 mg/dl        |
| CRP                      | 43.7 mg/L         | 13.5 mg/dl       |
| ESR (1Hour)              | 105 mm            | Not tested       |
| D-dimer                  | 360 ng/ml         | 312.65 ng/ml     |
| Ferritin                 | 393 ng/ml         | 69.9 ng/ml       |

7.1 Limitations

The patient sought treatment only after the development of pneumonia (7 days from onset of the first symptom) which might have caused a mild delay in prognosis and fall of Spo2. As per the Siddha system of medicine, a proper diet regimen should be followed while taking Siddha medicines. The patient was unable to follow the diet during his stay in the hospital. From the present case study, we cannot estimate the safety parameters of an integrative medical approach like drug-to-drug interactions. CT chest was not taken at the end of treatment due to the unwillingness of the patient.

8. Conclusion

This case report shows that COVID-19 with co-morbidities can be successfully managed through Siddha integrative approach. In this case, although the patient had multiple co-morbidities and sought treatment only after the development of pneumonia, his condition did not get critical and the prognosis was faster after taking Siddha medications. This case report also provides a lead in the implementation of an integrative approach in critical conditions.
9. Patient perspective

I suffered from fever, cough, throat pain, tastelessness, tiredness, loss of appetite for 7 days. I consulted Siddha doctor, he advised me to take investigations. I was tested positive for COVID-19. She had given medicine and advice on diet. After that my health condition improved progressively. I was completely alright 13 days after taking medicines. I could see my oxygen level maintaining at 98 and 99 and it never decreased after that. My cough reduced as days went on and I have no post-COVID-19 symptoms. I thank my doctor for providing me effective treatment with the necessary guidelines day by day during my illness.

10. Informed consent

Informed consent was obtained from the patient before the onset of treatment and for publishing the details obtained from him.

CRediT author statement

B. Neethi: Conceptualization, Study design, Validation, Writing – original draft, review and editing.

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Declaration of competing interest

None.

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