

An Ayurvedic management of post covid lung fibrosis: A case study

Case Report

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Abstract

SARS- COVID has been forged to most significant pandemics in recent history. There is a swift gathering of information regarding its epidemiological, clinical progression, diagnostic assessment, treatment and its complications. Most survivors of severe COVID-19 experience varying degrees of long-term health effects, including respiratory, neurological, psychological, and cardiovascular issues. One of the primary concerns following recovery from the pandemic is post-COVID-19 pulmonary fibrosis. The risk factors contributing to the development of fibrotic-like radiographic abnormalities following severe COVID-19 are not yet fully understood. Such Fibrotic changes can be linked to symptoms and physical functioning. A 42-year-old female patient came at Dr. Sevak's OPD in June 2023. Patient had symptoms of persistent dry cough, irritation in throat, chest congestion and loss of appetite appeared after the SARS COVID infection and were gradually increased. The patient was diagnosed with lung fibrosis following a clinical examination and by investigation like chest radiology. The patient was successfully treated with medications like *Sameer pannag rasa*, *yashtimadhu churn*, *hingvashtak churn*, *Eladi vati*, *haridra-manjistha- pippali churn* and *Talisadi churn*. Within six and a half months, all symptoms had completely subsided, providing the patient with full relief. For rejuvenation and preventive purposes, Agasti Haritaki Rasayan (Avleha) was administered and continued for an additional six months. Medications were chosen appropriately at each follow-up according to condition and recovered completely.

Keywords: Lung fibrosis, SARS-COVID, Post COVID complication, *Ayurveda*, *Sameerpanag rasa*.

Introduction

Post-COVID-19 pulmonary fibrosis, has the most profound long-term effect on patients' respiratory health. It is a chronic, progressive, and often fatal condition marked by the deposition of interstitial collagen and varying levels of alveolar bronchiolization. SARS-CoV can trigger a fibrotic cascade diffusely.(1) To diagnose patients with post-COVID-19 pulmonary fibrosis, clinical examination, radiology, pulmonary function tests, and pathological findings should be conducted.(2) Patients with pulmonary fibrosis often report symptoms such as a dry cough, fatigue, and shortness of breath. They typically experience weight loss due to physical deconditioning, which results in reduced functional capacity, diminished quality of life, and potential loss of income. (3) Modern treatments for pulmonary fibrosis, including immunosuppressants, antifibrinolytics, and corticosteroids,(4) can sometimes worsen the patient's condition rather than aiding in recovery. In our clinical experience, we have observed that Ayurvedic interventions in pulmonary fibrosis may

enhance patients' conditions and improve their quality of life with Ayurvedic medications.

Case history

A 42-year-old female patient reported to OPD with symptoms of a persistent dry cough, irritation in her throat, shortness of breath, chest congestion, and loss of appetite since a year. Patient was taking symptomatic modern medications for above symptoms but did not get relief. Hence patient turned towards ayurveda for cure of disease. Based on her symptoms, medical history, and investigations the patient was diagnosed with lung fibrosis.

Informed consent

All aspects of disease management were thoroughly discussed with the patient before starting treatment. Both the benefits and risks were detailed and included in the consent process. Additionally, consent was obtained for publishing the case study.

Patient information

In June 2023, a 42-year-old female visited Dr. Sevak's clinic with on-going issues of a persistent dry cough, throat irritation, shortness of breath, chest congestion, and a loss of appetite. These symptoms had persisted since testing positive for COVID-19 in March 2022. The patient's weight was 66 kg and height were 155cm. Initially, the patient used allopathic medications for the aforementioned symptoms, but as the condition

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worsened, she switched to Ayurvedic treatments for further disease management.

Past history

The patient tested positive for SARS-CoV via RT-PCR in March 2022 and had taken all the emergency management for the same. After the recovery patient still had above mentioned symptoms for which she was taking allopathic medications.

Major illness: Hypothyroidism since 2018 and taking Eltroxin 75mcg since then.

Addiction: No any

Family history: Mother: Hypothyroidism since 20yrs and managed with allopathic medicine.

General examination: Temperature: 97.8°F; Pulse: 88/min; RR:28/min; HR: 92/min; BP: 130/90mmHg; SpO2 : 94% at room temperature; Height: 155cm; Weight: 66kg.

Systemic examination

CVS: S1S2 + normal; CNS: normal; RS: bilateral crackles heard; Per abdomen: soft.

Ashtavidha pariksha

Nadi (Pulse type): *Pitta Pradhan kaphanubandhi*; **Mala** (stool frequency and appearance): 2-3 times/ day and sticky stool; **Mutra** (Urination): *Prakrita* (Normal), **Jivha** (tongue): *Ishat saam* (Coated); **Shabda** (Voice): *Prakrita* (Normal); **Sparsha** (Touch): *Prakrita* (Normal); **Drika** (Vision): *Prakrit* (Normal); **Akruti** (Physical appearance): *Mdhayam* (Medium).

Dashavidha Pariksha:

Prakruti (constitutional status): *pitta pradhan kaphanubandhi*; **Sarta** (status of tissue and its related system): *Madhyam* (medium); **Satva** (mental state): *madhyam* (medium); **satmya** (diet status): *hina*, **Vyayam shakti** (physical capacity): *madhyam* (medium); **Vaya** (age factor): *madhyam* (medium); **Vikruti**: *Kaphapradhan vatnubandhi*; **Abhyavaharan** (diet capacity) and **Jaran shakti** (digestive capacity): *madhyam* (medium).

Investigations

Haematological examination (09/06/2023)

Hb: 11g/dl; Platelet: 262×10³; Lymphocyte: 19; Neutrophil: 75%; Serum creatinine: 0.68mg/dl; Blood urea: 36mg/dl; LDH:173U/L; Ferritin: 73ng/ml; D-dimer: 1.49 mcg/ml; CRP: 132mg/L; AST: 46U/L; ALT:53U/L; Procalcitonin: 0.41ng/ml; PT/APTT/INR: N/A.

Chest radiograph (09/06/2023)

Apical pleural thickening is seen on right side- sequelae to prior infection likely. Tiny nodular opacity is seen in left upper zone- fibrotic likely.

Chest radiograph (05/02/2024)

Both lung fields are clear. Both costophrenic angles are clear. Cardiac shadow appears normal. Bony thorax appears normal. Both dome of diaphragm appears normal.

Before and after chest radiographs

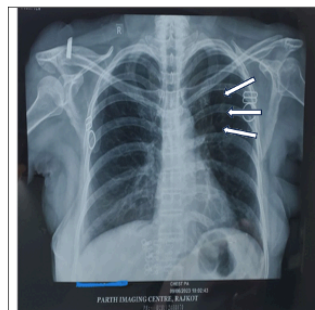


Image 1: chest radiograph dated on 09/06/23

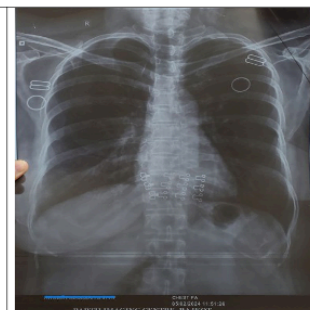


Image 2: chest radiograph dated on 05/02/24

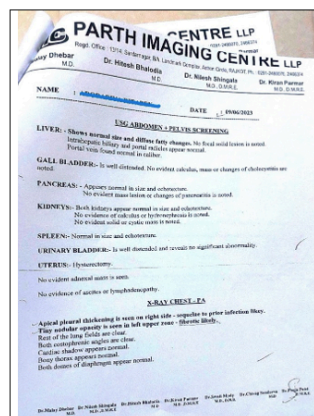


Image 3: X-ray report dated on 09/06/2023

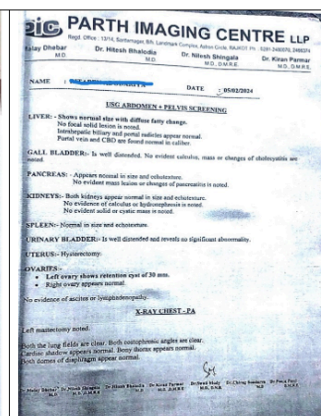


Image 4: X-ray report dated on 05/02/2024

Pre and post-treatment subjective measures

Table 1: Symptoms of patient before and after treatment

Complaints	Before treatment	After treatment
Dry cough	Present +++	Absent
Shortness of breath	Present ++	Absent
Chest congestion	Present +	Absent
Throat irritation	Present +++	Absent
Loss of appetite	Present	Absent

Spirometry test:

Table 2: Spirometry values for spirometry test

Before treatment	After treatment
08/06/2023	05/02/2024
60%	78%

Therapeutic intervention

The diagnosis of patient as lung fibrosis was made based on, past history of SARS- COVID, clinical presentation and chest radiograph. In Ayurveda, lung fibrosis is seen as a condition where the *vata* and *kapha doshas* are vitiated. This vitiation leads to an increase in the *kharatva* and *kanthinya* of the lung tissue, causing the lung parenchyma to undergo fibrotic changes. Hence the drugs and formulations predominantly acting

Table 3: Therapeutic Intervention

Time period	Date	Complaints	Treatment plan
1st day	09/06/2023	Persistent dry cough +++, shortness of breath++, irritation in throat++, chest congestion+, anorexia	<i>Sameer pannag Rasa</i> 30mg + <i>yasthimadhu churn</i> 1.5mg BD with lukewarm water, <i>Eladi vati</i> 2 BD, <i>Hingvashtak churn</i> with ghee 1.5 gm BD.
16 th day	24/06/2023	Persistent dry cough+++, shortness of breath++, irritation in throat ++, chest congestion+, anorexia ↓	Same as above
1 ½ month	24/07/2023	Persistent dry cough++, shortness of breath+, irritation in throat+, no chest congestion	<i>Sameer pannag Rasa</i> 30mg + <i>yasthimadhu churn</i> 1.5mg BD with lukewarm water, <i>Eladi vati</i> 2 BD, <i>manjistha</i> + <i>pippali</i> + <i>haridra churn</i> BD with lukewarm water.
2 ½ months	24/08/2023	Persistent dry cough +, Shortness of breath +, no other symptoms	Same as above
3 ½ months	24/09/2023	Shortness of breath +, Anorexia.	<i>Eladi vati</i> 2 BD, <i>manjistha</i> + <i>pippali</i> + <i>haridra churn</i> BD with lukewarm water, <i>Talisadi churn</i> 1.5gm with lukewarm water BD
4 ½ months	24/10/2023	Shortness of breath+, no other fresh complaints	Same as above
6 ½ months	24/12/2023	No any fresh complaints.	Same as above and <i>Agasti haritaki rasayan</i> (or <i>avleha</i>) 1TSF BD.
7 months and 11 days	05/02/2024	No any complaints.	<i>Agasti haritaki rasayan</i> (or <i>avleha</i>) 1TSF BD.

on vitiated *vata* and *kapha dosha* were administered. Additionally, the involvement of the *pitta dosha* is considered as per *ashrayashrayi bhava* with *rakta dhatu*. The treatment was started by taking into account the aggravated *doshas* and focusing on digestive and metabolic therapies, as the patient's condition was *ishat saam*. At the initial visit, the patient was given *Sameer Pannag Bhasma* with *Yasthimadhu Churna*, *Eladi Vati*, and *Hingvastak Churna*. These same medicines were prescribed at the first follow-up visit, and changes were made later based on the patient's signs and symptoms.

Follow up and outcome

At the first follow-up, minor improvements in throat irritation and anorexia were observed. By the second follow-up, throat irritation had significantly

decreased, anorexia had disappeared, and there was no chest congestion. Patient was feeling much better than earlier. The frequency and intensity of dry cough was also reduced. By the third follow-up, the only remaining symptoms were a mild dry cough and shortness of breath. By the sixth follow-up, after 6 ½ months, all symptoms had disappeared, and the patient was feeling well. However, the treatment was continued to ensure complete cure (*apunarbhava chikitsa*). To date, the patient has no symptoms. At the end of the treatment, the spirometry test showed an improvement, increasing from 60% to 78%. The SpO2 was also increased from 94% to 99%.

Discussion

Post COVID pulmonary fibrosis represents the stage of various diffuse parenchymal lung diseases, marked by excessive matrix build up, destruction of lung parenchyma, and worsening respiratory insufficiency. (9) In simple word it is a condition in which the lungs develop scarring and stiffness after being infected with COVID-19. This scarring may cause long-term respiratory problems and decrease lung function. According to Ayurveda, the increased *kharatva* and *kathinya* of lung tissue are attributed to vitiation of the *kapha* and *vata doshas*, affecting the *pranavaha* and *annavaha strotas*. Therefore, *Sameer Pannag Rasa* is utilized as the primary treatment as its pharmacodynamics are characterized by its *Katu Rasa* (pungent taste), *Katu Vipaka* (pungent post-digestive effect), *Ushna Guna* (hot qualities), *Ushna Virya* (hot potency) and its ability to balance *Kapha* and *Vata doshas* (*Kapha Vataghna*). (10) These properties are effective in disrupting the development of lung fibrosis. The increased *kharatva* and *kathinya* are due the *ruksha guna*; To counteract and balance this *sgnidha Dravya* that have properties to pacify *vata* and *kapha* should be used. *Yasthimadhu* (*Glycyrrhiza glabra*) has all these properties along with *vranaropan* (scar healing) property. (11) In *Bhaishajya Ratnavali*, under the section on *raktapitta*, *Eladi Gutika* is described useful in *raktapitta*, *kasa* and *shwas*, containing ingredients such as *Ela* (cardamom), *Tamalapatra* (bay leaf), *Twak* (cinnamon), *Yasthimadhu* (licorice), *Pippali* (long pepper), *Draksha* (black resin), *Sarkara* (sugar), *Kharjura* (dates) and *Madhu* (honey). These ingredients helped alleviate persistent dry cough. (12) One of the major symptoms of patient was anorexia which needs *dipan pachan* achieved by the *hingvashtak churn* and to overcome the increased *vata dosha*, *churn* was given with *ghrita* (ghee) in *apan kala*. The *snigdha* and *guru guna* and *Madhur vipaka* of *go-ghrita* acts as *tridosh shamaka*. It enhances the efficacy of *hinavashtak churn* and act as *agnidipan*. *Hingvashtak churn* has *Shuddha hingu* as a prime content which has *katu rasa* (pungent), *katu vipaka* (pungent post-digestive effect) and *ushna veerya* (hot potency) and *vatakapahara* in nature. It renders the *agnimandya* and promote *dipan pachan karma*. (13) Within 1 ½ months there were no symptoms of chest congestion and anorexia. Also, the dry cough and shortness of breath were noticeably

reduced. During the second follow-up, *Manjistha*, *Haridra*, and *Pippali churn* were introduced, after discontinuing *Hingvashtak churn*. In Ayurveda, the lungs are composed of *rakta dhatu* (blood tissue) and its *phena* (foam). Therefore, to repair lung tissue and restore normal lung parenchyma, herbs that act on *rakta dhatu* were recommended. (14) In the ancient world, *Manjistha* was renowned as an effective blood purifier and was widely used to treat blood disorders. (15) *Haridra* contains curcumin as main phytochemical and various experimental animal models have investigated the effects of this curcumin on lung fibrosis. These studies show that curcumin reduces lung injury and fibrosis. (16) Also act as good blood purifier. *Pippali* improves lung function and acts both on *pranavaha* and *annavaha strotas* due to its *katu ras* (pungent taste), *madhur vipaka* (sweet post-digestive effect) and reduces the *kharatva* by its *snigdha guna*. (17) During the subsequent follow-up, all symptoms had resolved except for shortness of breath. However, the patient began experiencing anorexia, the treatment plan was altered. With the relief of dry cough and chest congestion, *Sameer Pannag* and *Yashtimadhu Churna* were discontinued, and *Talisadi Churna* was introduced. *Talisadi Churna* is a polyherbal Ayurvedic formulation commonly used to enhance appetite and aid digestion. It is effective in treating both the respiratory and gastrointestinal ailments. (18) By 6 ½ months, the patient had fully recovered. However, to ensure *apunarbhava chikitsa* (complete recovery), *Agastya Haritaki Rasayana* (*avleha*) was administered for an additional two months. *Agastya Haritaki Rasayana*, a well-known *Avaleha* preparation, acts on multiple levels, including *Dhatu*, *Agni* (digestive fire), and *Srotas* (channels), enhancing the *Vyadhi-kshmatva* (body's immunity). (19) Most of the diseases listed in *Phalashruti* are predominantly of the Vata-Kapha type, and the ingredients in *Agastya Haritaki Rasayana* possess *Vata-Kapha* balancing (*Samana*) and *Tridosha*-balancing (*Tridosha-hara*) properties. It is mainly used for *pranavaha* and *annavaha strotas vikar*. (20) After the complete treatment course all the hematological parameters were normal on auscultation there was normal air entry in both lungs.

Conclusion

Pulmonary fibrosis is one of the serious complications of COVID-19 in which there is scarring of lung parenchyma. Ayurveda can treat such cases using *Kapha-Vata* balancing herbo-mineral drugs, as well as drugs that act on *rakta dhatu*. This case study showed the potency and effectiveness of ayurvedic medicine in lung fibrosis with no any subsequent harmful effects of medicament medicine till date. However, as this is only a single case study, more extensive research with additional studies is necessary.

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