

Pulmonary Manifestations of Long Covid

Dr. Sanjeev Nair,
Government Medical College, Thrissur

Discussion plan

- **Pulmonary manifestations of Long Covid / Post Covid condition**
- **The local scenario**
- Common pulmonary manifestations seen in clinics
- **Therapeutic options**
- **Public health issues and strategies**

The long journey

CORRESPONDENCE

First confirmed case of COVID-19 infection in India

A case report

Andrews, M.A.^{1*}; Areekal, Binu²; Rajesh, K.R.³; Krishnan, Jijith³; Suryakala, R.⁴; Krishnan, Biju⁶; Murali C.P.⁵; Santhosh, P.V.⁶

Author Information

Indian Journal of Medical Research: May 2020 - Volume 151 - Issue 5 - p 490-492
doi: 10.4103/ijmr.IJMR_2131_20

- COVID-19 INDIA as on : 20 September 2022, 08:00 IST
- Active cases – **47,379**
- Cured cases – **43,967,340**
- Deaths – **528,370**

- Total Vaccinations : **2,16,83,24,537**

What is the right terminology?



A clinical case definition of post COVID-19 condition by a Delphi consensus

6 October 2021



- COVID-19 can cause persistent ill-health.
 - Around a quarter of people who have had the virus experience symptoms that continue for at least a month
 - but one in 10 are still unwell after **12 weeks**. This has been described by patient groups as “**Long COVID**”.
- Most people who develop COVID-19 fully recover, but current evidence suggests approximately 10%-20% of people experience a variety of mid- and long-term effects after they recover from their initial illness.
- **Post COVID-19 condition** occurs in individuals with a **history of probable or confirmed SARS-CoV-2** infection, **usually 3 months from the onset of COVID-19** with **symptoms that last for at least 2 months** and **cannot be explained by an alternative diagnosis**.
 - Symptoms may be **new onset** following initial recovery from an acute COVID-19 episode or **persist** from the initial illness. Symptoms may also **fluctuate** or **relapse** over time.

The extent of the problem

COUNTRY	STUDY	NUMBER OF CASES INCLUDED	RESULTS
Canada	Wong et al. (2020)	78	<ul style="list-style-type: none"> • 51% had persistently reduced quality of life and 50% had shortness of breath at 12 weeks after symptom onset
France	Carvalho-Schneider et al. (2020)	130	<ul style="list-style-type: none"> • 40% reported persistent fatigue and 30% breathlessness at 60 days after symptom onset
Italy	Carfi, Bernabei & Landi (2020)	143	<ul style="list-style-type: none"> • 87% had symptoms, 55% had three or more symptoms at 60 days after discharge
United Kingdom	Cruz et al. (2020)	119	<ul style="list-style-type: none"> • 68% reported persistent fatigue, 57% sleep disturbance and 32% breathlessness at 60 days after discharge
	Arnold et al. (2020)	110	<ul style="list-style-type: none"> • 74% had persistent symptoms, typically breathlessness and fatigue and 10% had persistent anomalies on chest X-ray or respiratory function testing at 12 weeks after discharge

Respiratory symptoms in Long covid

- Population based cohorts

- 26% of participants reported that they had not fully recovered at 6 to 8 months after initial COVID-19
- 55% of participants experienced fatigue, **25% reported shortness of breath** and 26% had symptoms of depression.

- Non-Hospitalized patients

- 27.8% of participants (123/442) experienced at least one symptom (anosmia, ageusia, fatigue or shortness of breath) at 4 months after acute COVID-19 infection; 34.8% (123/353) experienced at least one symptom at 7 months.
 - At 4 months, **6% of patients experienced shortness of breath**, 12.4% reported anosmia, 11.1% reported ageusia and 9.7% had fatigue.
 - At 7 months, symptom distribution was similar with **13.6% experiencing shortness of breath**, 14.7% reporting anosmia, 0% reporting ageusia and 14.7% with fatigue.

- Hospital based cohorts

- Patients who were hospitalized and discharged (USA)
 - **Cardiopulmonary symptoms like cough and dyspnoea – 33%**
 - Worsening difficulty completing activities of daily living – 58%
 - Emotional issues – 49%

Menges D, Ballouz T, Anagnostopoulos A, Aschmann HE, Domenghino A, et al. (2021) Burden of post-COVID-19 syndrome and implications for healthcare service planning: A population-based cohort study. PLOS ONE 16(7): e0254523. <https://doi.org/10.1371/journal.pone.0254523>

Augustin M, Schommers P, Stecher M, Dewald F, Gieselmann L, Gruell H, et al. Post-COVID syndrome in non-hospitalised patients with COVID-19: a longitudinal prospective cohort study. Lancet Reg Health – Eur [Internet]. 2021 Jul 1 [cited 2021 Aug 10];6. Available from: [https://www.thelancet.com/journals/lanep/article/PIIS2666-7762\(21\)00099-5/](https://www.thelancet.com/journals/lanep/article/PIIS2666-7762(21)00099-5/)

Post COVID/ Long COVID [Internet]. [cited 2021 Jun 20]. Available from: <https://www.idsociety.org/covid-19-real-time-learning-network/disease-manifestations--complications/post-covid-syndrome/>

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Outcome Timeframe	Study results and measurements	Comparator Not applicable	Intervention Not applicable	Certainty of the Evidence (Quality of evidence)	Plain language summary
Cough (any type) (People with a history of laboratory- confirmed COVID-19 4-12 weeks after COVID-19 diagnosis	Based on data from: patients in 6 studies. ⁵ (Observational (non- randomized)) Follow up: 4-12 weeks after COVID-19 diagnosis.	Prevalence 28% 95% CI 22% to 35%		Low The systematic review did not report reasons for downgrading	6 studies found that 28% of people reported cough 4-12 weeks after COVID-19 diagnosis. The symptom prevalence could be as low as 22% or as high as 35%.
(People with a history of laboratory- confirmed COVID-19) 12 weeks or more after COVID-19 diagnosis	Based on data from: 2,373 patients in 4 studies. ⁴ (Observational (non-randomized)) Follow up: 12 weeks or more after COVID-19 diagnosis.			Very low The systematic review did not report reasons for downgrading	4 studies found that 22% people reported shortness of breath 12 weeks or more after COVID-19 diagnosis. The symptom prevalence could be as low as 12% or as high as 35%.



The post Covid lung – the next epidemic?



TOI+

SANJEEV ▾

A 3D anatomical illustration of the human respiratory system. The trachea and bronchi are highlighted in a vibrant red color, contrasting with the blue-tinted skeletal structure of the neck, chest, and shoulders. The lungs are also visible in a lighter red hue.

**Post-Covid lung fibrosis is
India's new health crisis**

THIS STORY IS FROM NOVEMBER 29, 2020

Post-Covid lung-fibrosis tsunami looms: Paper

TNN / Nov 29, 2020, 04:33 IST

3738 PTS

FACEBOOK

TWITTER

LINKEDIN

EMAIL



ARTICLES



Post-Covid lung-fibrosis tsunami looms: Paper



Covid-19: Authorities still mum on month-old adverse even...



Online eCHAT Exam for Hotel



Will the post Covid lung diseases overburden the health system?

THE TIMES OF INDIA

City

Goa

Mumbai

Delhi

Bengaluru

Hyderabad

Kolkata

Chennai

Agra

Agartala

Ahmedabad

Ajmer

Allahabad

Amaravati

...

CIVIC ISSUES CRIME POLITICS SCHOOL AND COLLEGES GOA ELECTIONS PHOTOS WEATHER EVENTS

NEWS / CITY NEWS / GOA NEWS / Post-Covid Lung Fibrosis Fills Up Beds At St Inez Chest Hosp

Post-Covid lung fibrosis fills up beds at St Inez chest hosp

Bindiya Chari / TNN / Jun 7, 2021, 04:18 IST

3698 PTS

f FACEBOOK

🐦 TWITTER

in LINKEDIN

✉ EMAIL



ARTICLES

TOI

Post-Covid lung fibrosis fills up beds at St Inez chest hosp



Goa: At current rate, vaccination of 18-44 age

A LASTING SIGNATURE?

► Pulmonary fibrosis is a

Normal alveoli

Data analysis doesn't have to be hard.

Post-COVID lung fibrosis: The tsunami that will follow the earthquake

Zarir F Udwadia¹, Parvaiz A Koul², Luca Richeldi³

¹Hinduja Hospital and Research Center, Breach Candy Hospital, Mumbai, Maharashtra, India, ²Department of Pulmonary Medicine, SKIMS, Srinagar, Jammu and Kashmir, India, ³Department of Pulmonary Medicine, Fondazione Policlinico Universitario A. Gemelli, Rome, Italy

ABSTRACT

The SARS-CoV-2 pandemic has already infected in excess of 50 million people worldwide and resulted in 1.2 million deaths. While the majority of those infected will not have long-term pulmonary sequelae, 5%–10% will develop severe COVID-19 pneumonia and acute respiratory distress syndrome (ARDS). The natural history of these severely affected patients is unclear at present, but using our knowledge of closely related coronavirus outbreaks like severe acute respiratory distress syndrome (SARS) and middle east respiratory syndrome (MERS), we would hypothesize that the majority will stabilize or improve over time although some patients will progress to advanced lung fibrosis or post-COVID interstitial lung disease (PC-ILD). Unlike the SARS and MERS outbreaks which affected only a few thousands, the sheer scale of the present pandemic suggests that physicians are likely to encounter large numbers of patients (potentially hundreds of thousands) with PC-ILD. In this review, we discuss the pathogenesis, natural history, and radiology of such patients and touch on clinical, laboratory, and radiographic clues at presentation which might help predict the future development of lung fibrosis. Finally, we discuss the responsible use of antifibrotic drugs such as pirfenidone, nintedanib, and some newer antifibrotics, still in the pipeline. The biological rationale of these drugs and the patient groups where they may have a plausible role will be discussed. We conclude by stressing the importance of careful longitudinal follow-up of multiple cohorts of post-COVID survivors with serial lung function and imaging. This will eventually help to determine the natural history, course, and response to therapy of these patients.

Collecting and analysing data from Post-Covid



COVID-19 Outbreak Control and Prevention State Cell

Health & Family Welfare Department

Government of Kerala

GUIDELINES ON THE SETTING UP OF POST COVID CLINICS

[COVID 19 CONVALESCENT CLINICS]

No 31/ F2/2020/ Health- 28th October 2020

Post-acute covid-19 (“long covid”) is multisystem disease, sometimes occurring even after a relatively mild acute illness. Post-acute covid-19 is defined as manifestations extending beyond three weeks from the onset of first symptoms and chronic covid-19 as extending beyond 12 weeks. For some people, some symptoms may linger or recur for weeks or months following initial recovery. This

Data from Pulmonology OP, GMC Thrissur

Symptom	Number	Percentage
Breathlessness	51	82%
Cough	36	58%
Upper respiratory symptoms	5	8%
Chest pain	4	6%
Headache	3	5%
Tiredness	3	5%
Myalgia	3	5%
Low back pain	2	3%
Sleep disturbances	2	3%
Anosmia	1	2%
Cardiac	1	2%
Anxiety	1	2%

n=62

Common clinical manifestations

- In order of frequency – Clinicians experience from Thrissur GMC
 - Breathlessness
 - “Asthma”
 - “Bronchiolitis”
 - “Organising pneumonia”
 - Thrombo-embolic pulmonary hypertension
 - Cough
 - “Asthma”
 - “Bronchiolitis”
 - Secondary infections – Less common
 - Complications
 - Pneumothorax – During and post recovery
 - Surgical emphysema
 - “Lung fibrosis”

Table 2: Symptoms developed during follow-up (n=154)

Variable	Category	Number of participants (n=154)	Percentage	
Symptoms during follow-up (Overall)	Present	22	14.3	
	Absent	132	85.7	
Symptoms at the end of 3 weeks	Present	11	7.1	
	Absent	143	92.9	
Symptoms at the end of 3 months	Fatigue	9	5.8	
	Headache	7	4.5	
	Myalgia	4	2.5	
	Joint pain	3	1.9	
	Exertional dyspnea	3	1.9	
	Orthopnea	1	0.6	
	Dry cough	1	0.6	
	Symptoms at the end of 3 months	Present	18	11.7
		Absent	136	88.3
Symptoms at the end of 3 months	Fatigue	9	5.8	
	Headache	9	5.8	
	Myalgia	5	3.2	
	Exertional dyspnea	4	2.5	
	Joint pain	4	2.5	
	Orthopnea	1	0.6	
	Dry cough	1	0.6	

Manifestations of post COVID syndrome among minimally ill patients

Nalinal Shajahan

¹Department of Community Health Services, Assistant Professor, Thiruvananthapuram

Anjana NKN, Annie TT, et al. *Indian J Fam Med Prim Care*. 2021;10(11):4023–9.

Post COVID syndrome presented with symptoms among patients in Kerala, India

**Thomas Annie²,
Katha Chintha³,
Anjali K³**

¹Department of Community Health Services, Thiruvananthapuram, Kerala, ²Department of Family Medicine, Government Medical College, Kadachira, Kannur, Kerala, India

Factors of post COVID syndrome
Fam Med Prim Care. 2021

Field level experience from Kerala

	Number	Percentage
Post Covid Fatigue	374	28%
Post Covid weakness	330	25%
Post Covid pain	277	21%
Exertional chest pain	271	20%
Sleep loss	208	15%
Post Covid dyspnoea	200	15%
Post Covid Palpitation	178	13%
Post Covid cough	126	9%
Persistent smell loss	73	5%
Persistent taste loss	72	5%
Post Covid MI	16	1%
Post Covid Angio	10	1%

Kallikkadu Panchayath, Trivandrum district – Manu MS, Kamala R et al – unpublished data

NATIONAL CLINICAL EPIDEMIOLOGIST'S MEET

N=1357

Is it long Covid / Post Covid Condition?

Post COVID-19 condition occurs in individuals with a **history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis**

Case 1

- 25 yr old male, had Covid-19 4 months back, RT-PCR positive
- Home care, saturation was normal, mild symptoms
- Recovered well
- Symptoms started 1 month back
- Dyspnea, gradually increasing, More at night
- Detailed history taken – No dyspnea prior to Covid, but had symptoms suggestive of allergic rhinitis
- Diagnosed as Asthma, put on appropriate inhalers, patient improved immediately!

Covid and Asthma

- Have there been more asthma exacerbations during the pandemic? (GINA – Covid-19 and Asthma)
- No. In 2020, many countries saw a *reduction* in asthma exacerbations and influenza-related illness. The reasons are not precisely known, but may be due to handwashing, masks and social/physical distancing that reduced the incidence of other respiratory infections, including influenza
- **? Increased number of previously undiagnosed asthma reporting as Asthma post Covid?**

GINA guidance about
COVID-19 and asthma

Updated 30 March 2021



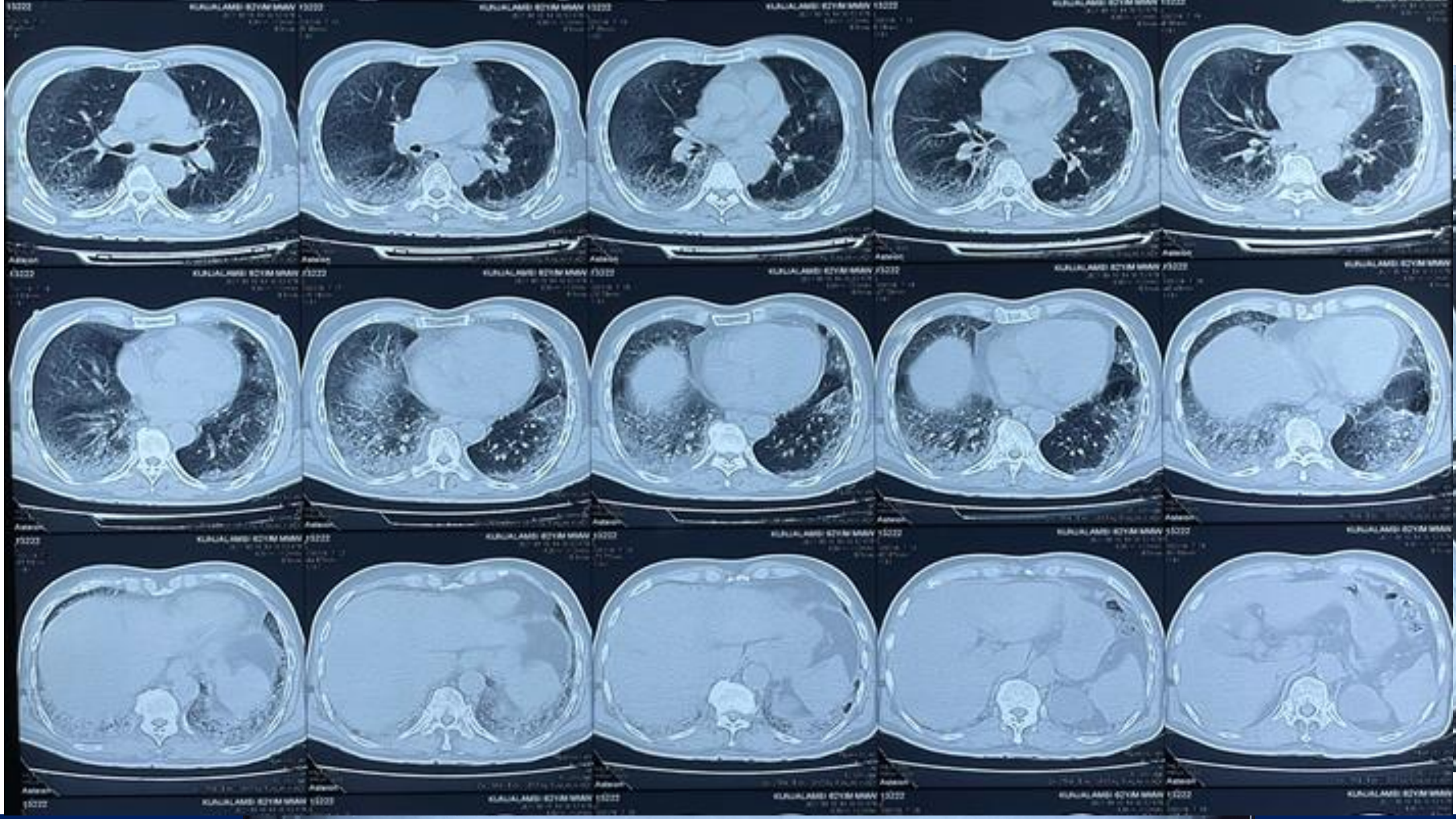
GINA Global Strategy for Asthma
Management and Prevention

www.ginasthma.org

Covid-19 and COPD



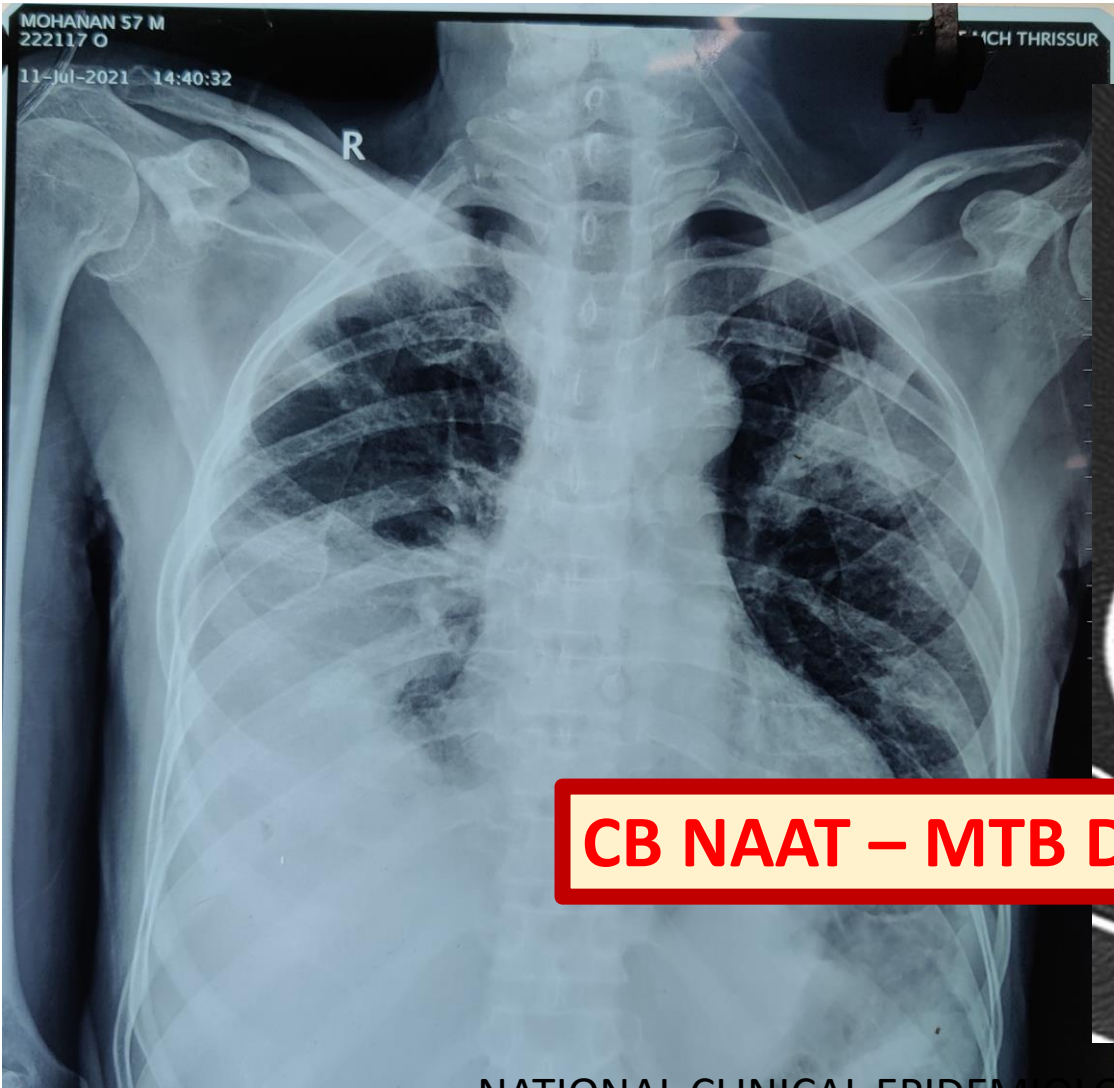
- It is not known definitively yet whether having COPD affects the risk of becoming infected with SARS-CoV-2
- COPD was an independent risk factor for hospital admission for Covid?
- COPD has also been reported to independently increase the risk of severe disease or death in some series but not all
- **There is evidence of a fall in hospitalization rates for COPD during the pandemic.**
- **In multivariate analyses pre-existing COPD does not appear to increase the risk of patients developing long term symptoms post acute COVID**



Diagnosed as “post Covid lung fibrosis”

- Detailed history taken → Records reviewed
- Patients episode of “pneumonia” was prior to the first case of Covid being reported in Kerala!
- Chest X-ray at that time itself showed minimal fibrotic lesions
- Diagnosis modified to interstitial lung disease!

Co-infections



CB NAAT – MTB Detected, Rif Resistance not detected

More TB cases in Long Covid from Kerala

Is COVID-19 flaring up TB in Kerala?

1. 43 yr old diabetic admitted to hospital for COVID, discharged on day 10. Treated with steroids. Cough developed after 2 weeks. Sputum AFB done on **one month** follow up showed smear positive TB - Kannur.
2. 20 yr old female treated for COVID. Developed fever and cough. Sputum done **1 month** later showed sputum positive for AFB - Kannur.
3. 42 yr old Male diagnosed to have covid, treated abroad, developed cough after **one month**. Treated there with no relief, returned to India. Smear done from govt hospital Irritty was AFB positive.
4. 42 Year old diabetic treated for COVID at tertiary care center. Developed cough. Diagnosed as TB after **6 weeks**- Kolenchery.
5. 52 Female, diabetes, COVID diagnosed on 25th April, treated at hospital. TB diagnosed on May 20th- Ernakulam

Slide courtesy – Dr. Rakesh PS

More cases from around the state2

6. 42 yr old female, North Paravoor, treated for COVID. Diagnosed as TB **one month** later.
7. 72 year old female, diabetes, treated for COVID. Diagnosed as smear positive TB **28 days after discharge**- Angamali.
8. 70 year old previously healthy lady without any comorbidities, who was Covid positive **1 month** back, presented with persistent cough and chest discomfort. Was started on steroids with diagnosis of Post Covid cough. Cough worsened. Sputum AFB 3+, chest Xray suggestive of TB – Kannur
9. 53yr old female, diabetes, post covid patient with history of dyspnea on exertion persisting even after **three weeks** of covid negative. She had history of evening rise of temperature. CXR showed reticular opacities. LN enlargement noticed recently. Biopsy suggestive of TB – Kozhikode
10. 37 yr old treated for COVID. presented with LN, right Cervical. Biopsy suggestive of TB - Vatakara. These 10 cases of TB within **6 weeks** after treatment for COVID-19 were reported by TB program managers in this weeks review.

“All of them had history of treatment with steroids for COVID. Many had diabetes also. These reports might be just tip of the iceberg. We need to systematically and proactively screen all category B and C COVID patients for TB during follow up. Post COVID clinics need to proactively screen for TB.”

Government's action



**COVID-19 Outbreak Control and Prevention State Cell
Health & Family Welfare Department
Government of Kerala**

Advisory for Ensuring TB Services in Kerala in the context of COVID-19

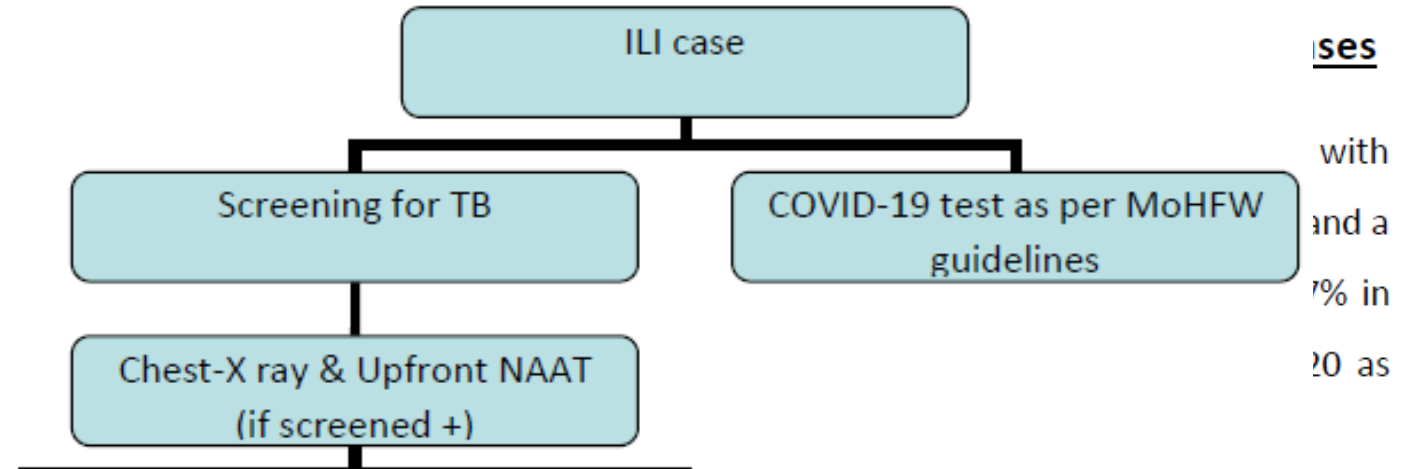
NO: 31 /F2/2020/Health- 20th April 2020

COVID 19 pandemic has posed challenges to the health care services worldwide. While we fight the pandemic with all our strength, it is important to see the access to TB care services are maintained without interruption. TB patients are at increased risk of missing diagnosis and unfavorable treatment outcome during COVID 19 pandemic. While all citizens are encouraged to stay at home and follow the government orders on state lock-down, health system has to ensure that the essential health care services are maintained uninterrupted. This guidance document is issued to ensure that the interruptions to TB care service delivery in the state is foreseen and prevented.

One direction is not enough!

Guidelines

similar
slowly
differ
comp



Cough for > 2 weeks,
Persistent fever for > 2 weeks,
Significant weight loss,
Night sweats

History of contact with TB case
History of TB
ILI symptoms persisting >10 days

(smoking, HIV etc) that increase their vulnerability. In order to address this dual morbidity of Tuberculosis and COVID-19, the following activities should be carried out:

- A. Bi-directional TB-COVID screening
- B. TB screening for ILI cases
- C. TB screening for SARI cases

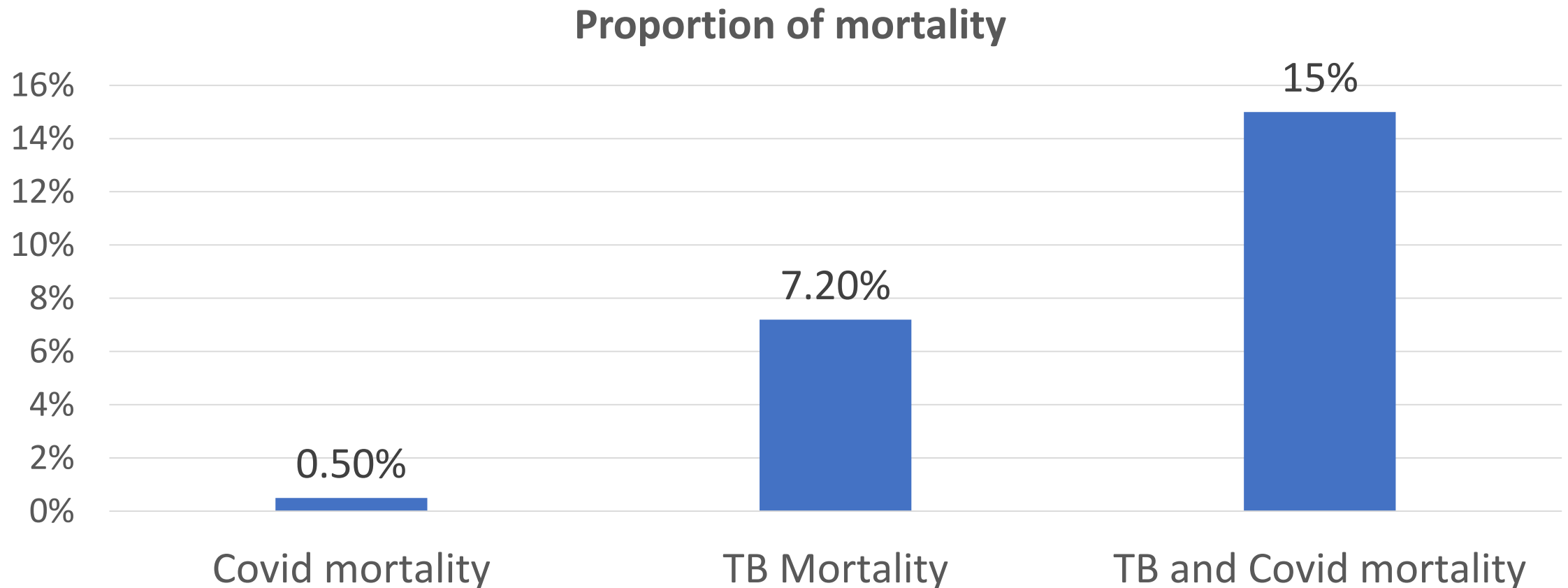
Table 1. Details of screening for TB among post COVID patients

	Number
A) <u>Total</u> number of patients contacted telephonically and screened for TB	8720
B) Out of (A) Total presumptive TB identified	2310
C) Out of (B) total underwent testing	1643
D) Out of (C) Total TB diagnosed	54 (TPR 3.3%)

Table 2. Details of screening for TB among SARI cases as part of bilateral screening for TB & COVID (June, 2021)

	Number
A) Number of SARI cases in June 2021	16698
B) Number screened for TB	7839
C) Number of presumptive TB identified	1900
D) Number tested for TB	1849
E) Number found positive for TB	99 (5.3%)

What happens when Covid and TB Occur together?



TB Covid 2021



- TB patients screened for Covid-19 – 1272728
- Number detected – 4004 (0.3%)



Common clinical manifestations

The persistent dyspnea

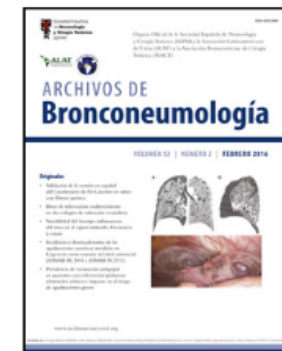
- Dyspnea during Covid infection, but no desaturation
- Persisting even at the end of three months!
- No desaturation
- Physical findings –
 - no lung signs!
 - Expiratory wheeze
- Exertional dyspnoea, affects quality of life, often associated with extreme tiredness
- Spirometry normal / obstruction

The persistent cough!

- Cough persisting / occurring after recovering from Covid-19
- Paroxysms of cough, extremely disturbing to patient, affects QoL
- No respiratory signs / Occasional wheeze
- Chest X-ray normal



Article

Long COVID: Distinction between Organ Damage and Deconditioning
 ARCHIVOS DE
Bronconeumología
www.archbronconeumol.org


Scientific Letter

**Improvement in Walking Distance Lags Raise
in Lung Function in Post-COVID Patients**


La distancia caminada en pacientes que padecieron COVID-19 se recupera más lentamente que otras pruebas de función respiratoria

To the Director,

apy consisting of dyspnea management with paused abdominal breathing and secretion management if present.

PFTs were performed according to American Thoracic Society and European Respiratory Society guidelines^{11–15} on a Master-Screen PFT and Master-Screen Body-PFT (Vyaire; Hochberg, Germany). The 6-MWT was performed in a 30-m corridor using a pulse oximeter with a finger sensor (Massimo SET, Rad 57, Massimo, Irving, US). All PFT lab staff wore personal protective equipment;

NAT

 Accepted: 24 August 2021
 Published: 24 August 2021

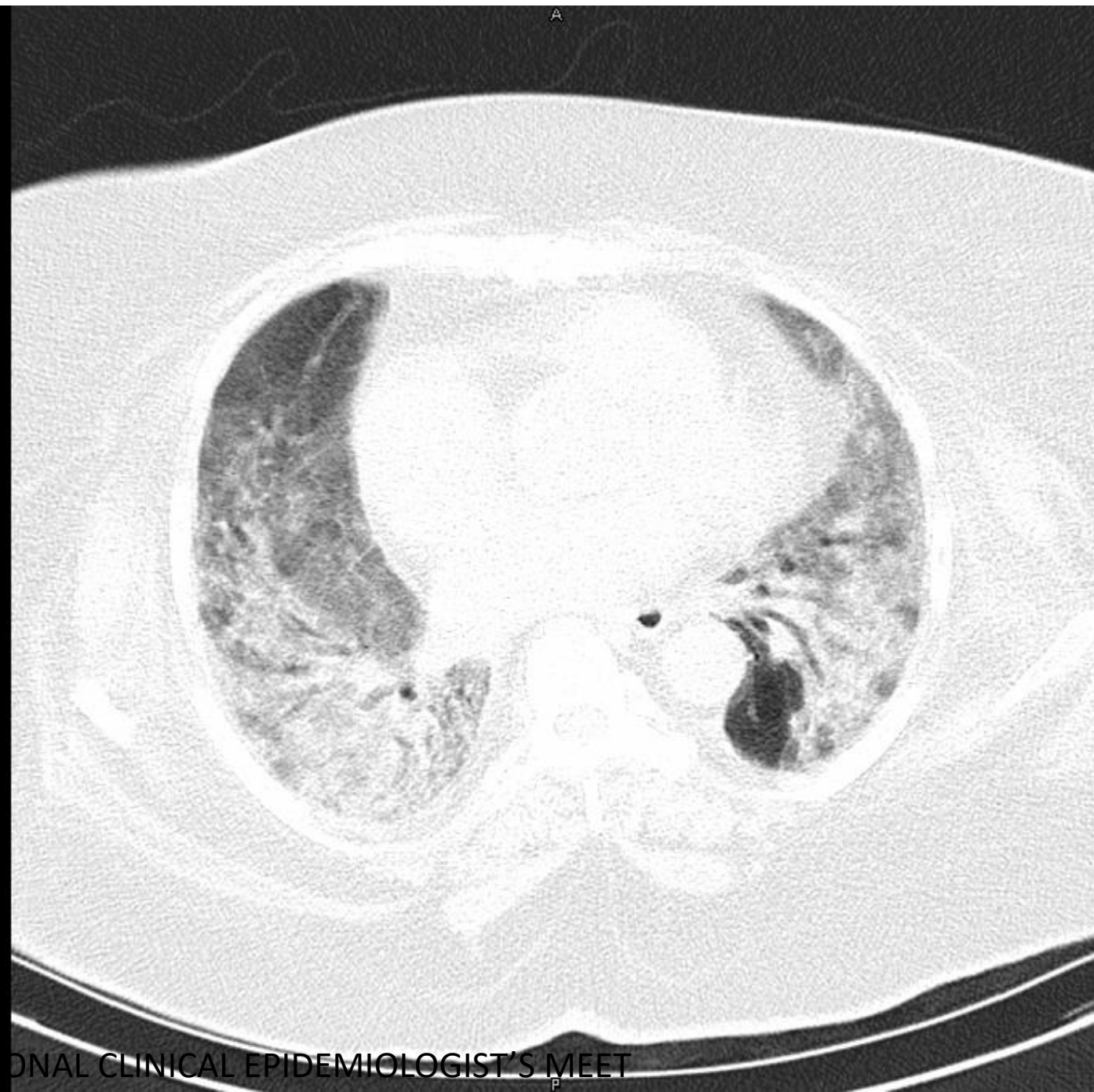
long COVID syndrome is practicable and rational in terms of resource allocation. With this approach, manifest organ damage can be accurately and comprehensively diagnosed and distinguished from functional complaints.

Slowly resolving lesions on CXR / CT

- Patient with severe Covid, hospitalized, needed O₂ / ICU care
- CXR / CT during Covid showed varied lesions (airway opacities / interstitial opacities)
- Symptoms slowly resolving, CXR / CT lesions show mild clearance, but still present! – s/o COP / Consolidation / Disc atelectasis / Interlobular septal thickening / Ground glassing
- No desaturation now, physical examination shows crepitations

Name: MARY 69/F***
ID: CTR NO-0/15096
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Date: 10-Nov-21
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Model: Emotion 16
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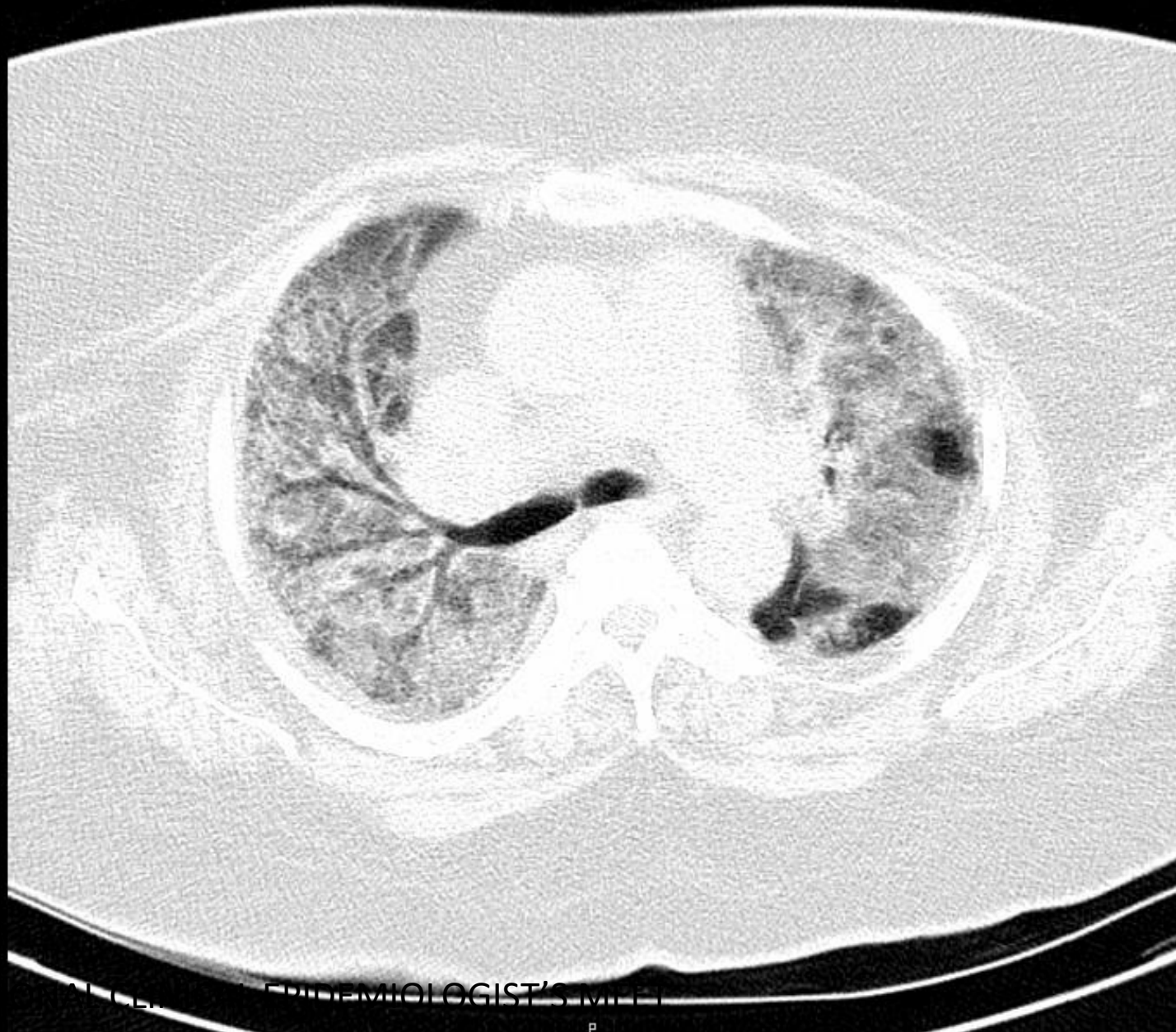
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ONAL CLINICAL EPIDEMIOLOGIST'S MEET

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EPIDEMIOLOGIST'S MEET

Patient with persisting hypoxia

- Severe Covid
- Hospitalized with high O₂ requirement or mechanical ventilation / NIV
- Post Covid stay in the hospital after testing negative → needed high flow oxygen
- Patient discharged on home oxygen
- Oxygen requirement continues!

Case 3

- 79 year old lady with known C/O Diabetes Mellitus on Ayurvedic treatment
- Had Covid-19 six months back and has been hypoxemic since.
- She has been on Nintedanib and steroid as a CT Chest showed interlobular septal thickening and traction bronchiectasis.
- Nintedanib tapered to 100 mg bd due to loose stools and completely stopped last week due to severe nausea.
- She is on apixaban also.
- A repeat CT on Nov 3rd showed fibrotic bands, traction bronchiectasis and honey combing involving both lungs.
- She is still on O₂, increased requirement

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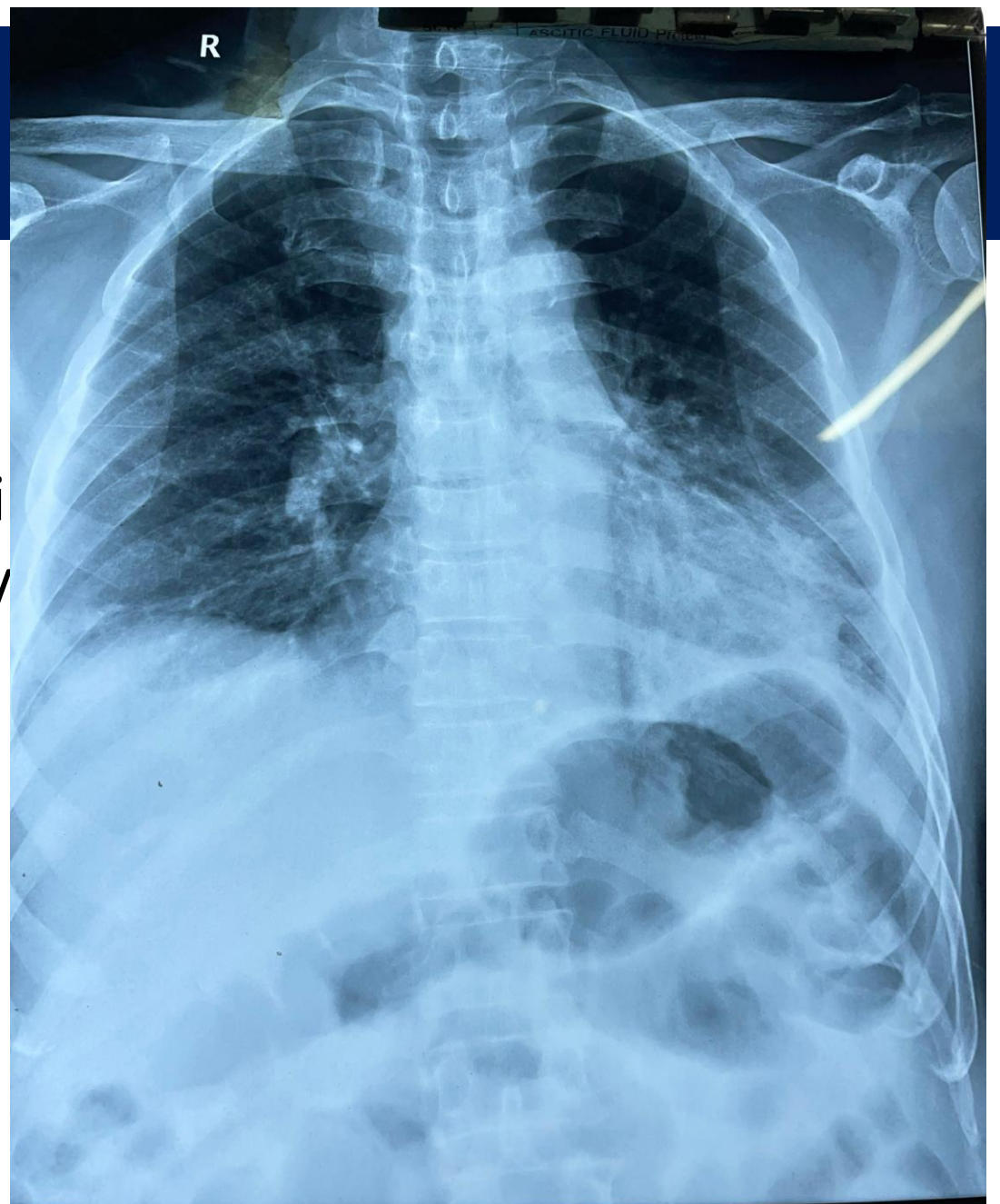


BHAVADASAN 56/M CHEST AP 30/10/2021
DISTRICT HOSPITAL, PALAKKAD

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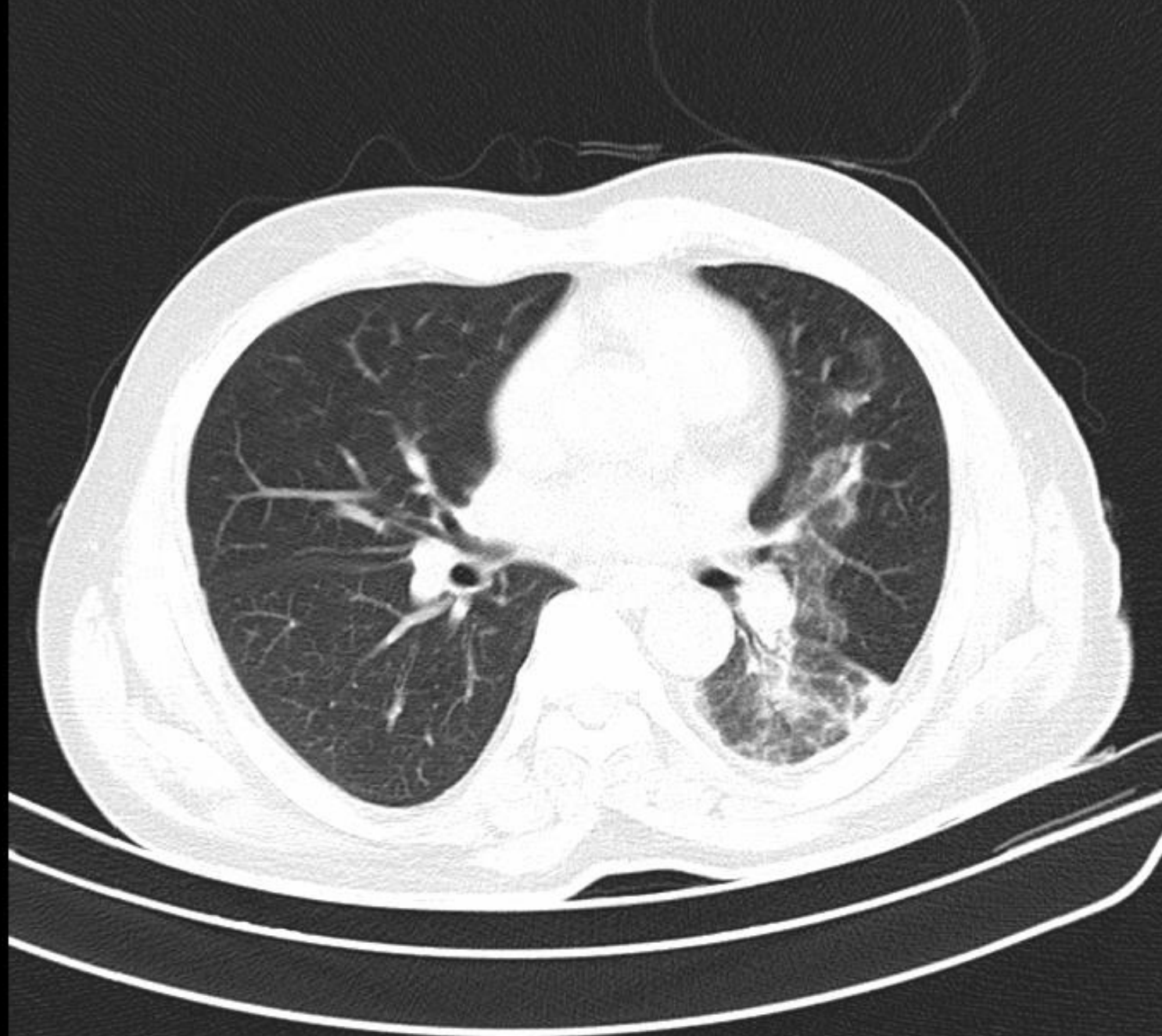
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BHAVADAS 56/M NEW ID antero-posterior Factory1 02-11-2021
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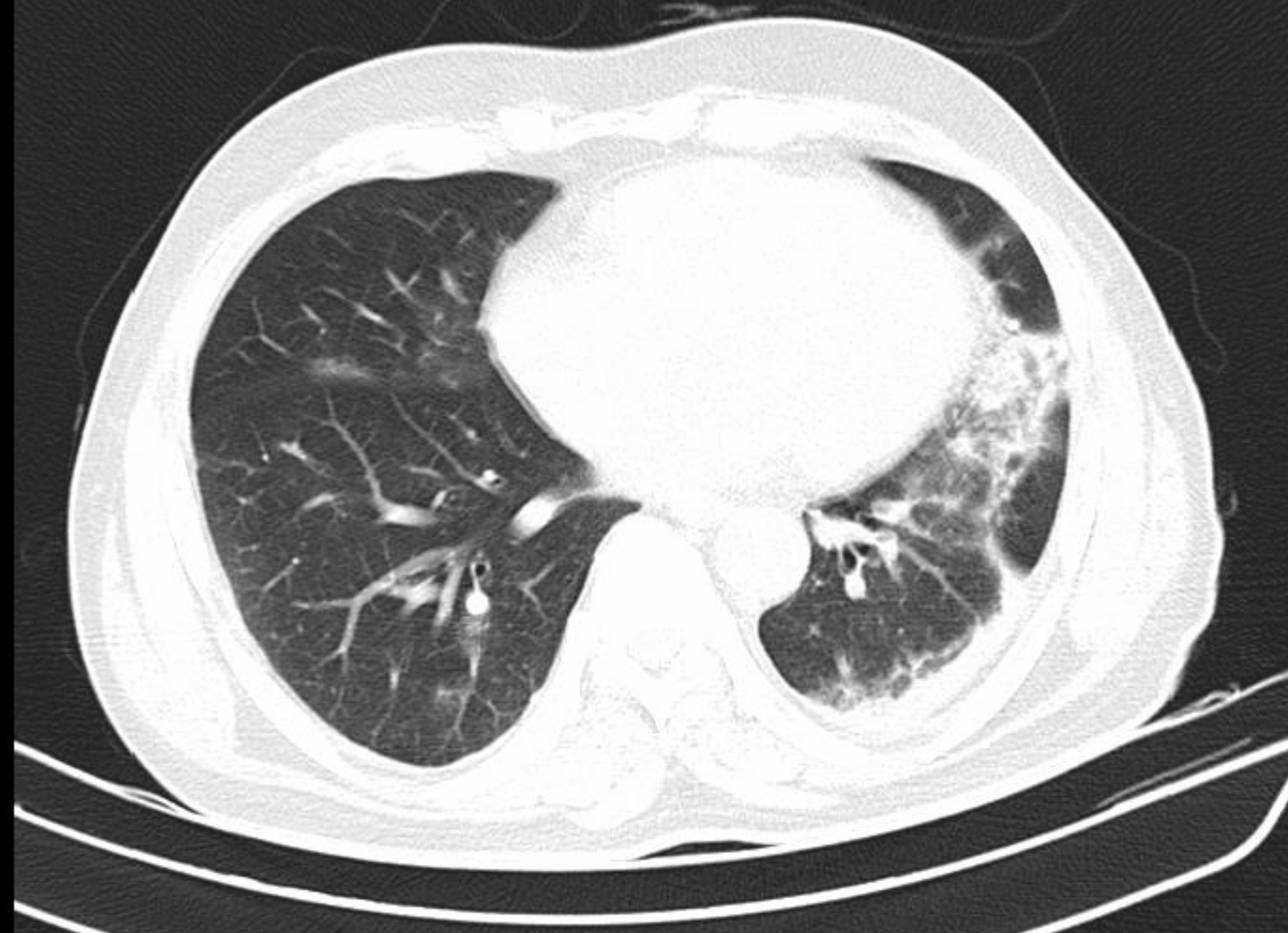
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DoB: 06-Nov-65
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30

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AcqNo:2
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NATIONAL CLINICAL EPIDEMIOLOGIST'S MEET

CM:
GT:0.003
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W: 01200

Name: BHAVADAS, 56 Y^{***}
ID: CTR NO- 0/14797
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Inst: Medical College,
Model: Emotion 16
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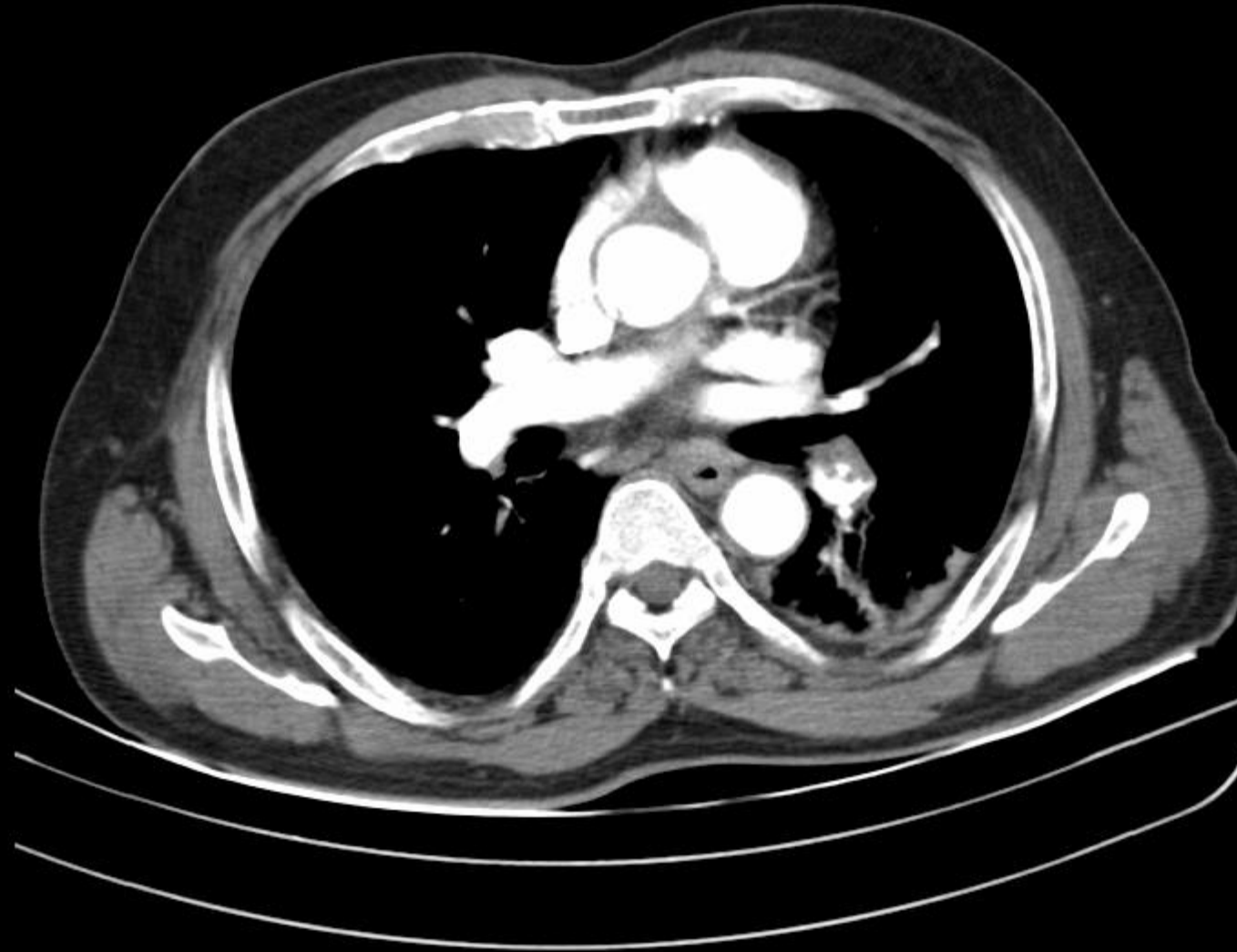
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C: 00040

Name: BHAVADAS, 56 Y
ID: CTR NO- 0/14797
DoB: 06-Nov-65
Date: 06-Nov-21
Time: 10:22:47 AM
No.: 26
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Inst: Medical College,
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Name: BHAVADAS, 56 Y
ID: CTR NO- 0/14797
DoB: 06-Nov-65
Date: 06-Nov-21
Time: 10:22:48 AM
No.: 30
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Inst: Medical College,
Model: Emotion 16
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Summary of clinical presentation

- Post Covid respiratory symptoms are common
- Commonest –
 - Persistent dyspnea
 - Persistent cough
- Lesions on CT / CXR often take time to resolve, even when patient is responding well clinically
- Pulmonary fibrosis – not as frequent as was predicted
- Secondary infections, Pulmonary embolism – seen now and then
- Persistent hypoxia in a minority of patients

What are the possible management strategies?

Management strategies

- Pulmonary rehabilitation
- Pharmacotherapy
 - Steroids
 - Inhaled corticosteroids
 - Anti-fibrotics
 - Nintedanib
 - Perfenidone
- Oxygen – LTOT
- Lung transplantation

Breathing Control exercises to manage Post covid cough

In the absence of signs or symptoms suggestive of bacterial superinfection or pleural inflammation, persistent cough may be managed by breathing control exercises.

- Mild/ moderate exercise
 - Daily practice of Yogasana, Pranayama and Meditation, as much as health permits or as prescribed.
 - Breathing exercises as prescribed by treating physician.
 - Daily morning or evening walk at a comfortable pace as tolerated.

(ii) At the level of community

- Recovered individuals to share their positive experiences with their friends and relatives using social media, community leaders, opinion leaders, religious leaders for creating awareness, dispelling myths and stigma.
- Take support of community based self-help groups, civil society organizations, and qualified professionals for recovery and rehabilitation process (medical, social, occupational, livelihood).
- Seek psycho-social support from peers, community health workers, counsellor. If required seek mental health support service.
- Participate in group sessions of Yoga, Meditation etc. while taking all due precautions like physical distancing.

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September, 2020

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Proportion of COPD patients getting various components of Pulmonary Rehabilitation

	Number of eligible patients	Number of patients who received n (%) and 95% CI
Asked about Smoking	756	695 (91.9%)
Smoking cessation advice	642	533 (83.0%)
Doctor asked about diet	756	147 (19.4%)
Doctor advice about diet	756	24 (3.2%)
Advice on breathing exercises	756	62 (8.2%)
Advice on Limb strengthening exercises	756	47 (6.2%)
Referral to a Pulmonary rehabilitation program	756	5 (0.7%)

Advantages in Kerala

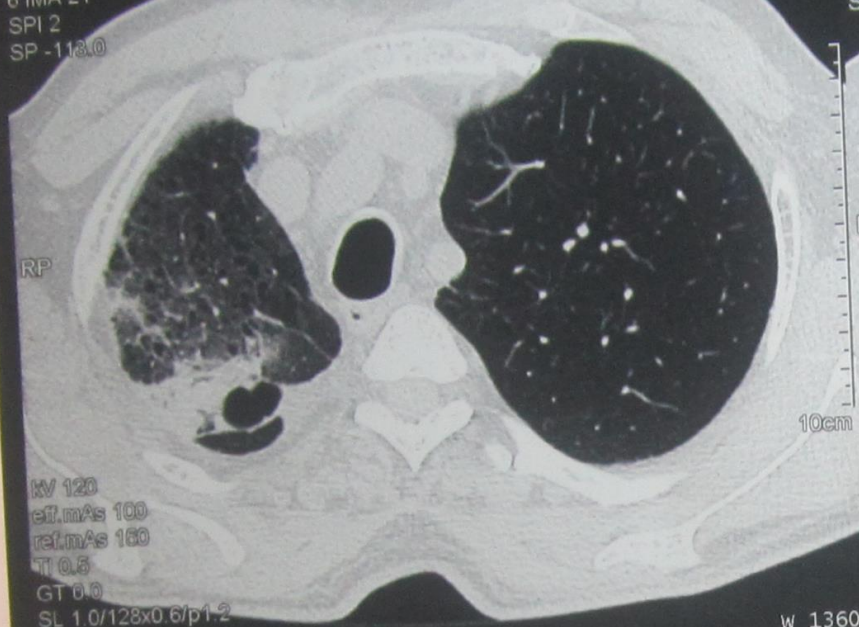


- Only state in India to have a strategy in place for managing COPD and Asthma at Primary care level
- Nurses trained along with doctors for providing care and support to chronic respiratory diseases
- Training also given in Pulmonary rehabilitation
- Covid hit the SWAAS program hard!
 - Spirometry stopped!
 - Inhalers diverted to Covid care centres!
 - Staff diverted from SWAAS clinics!

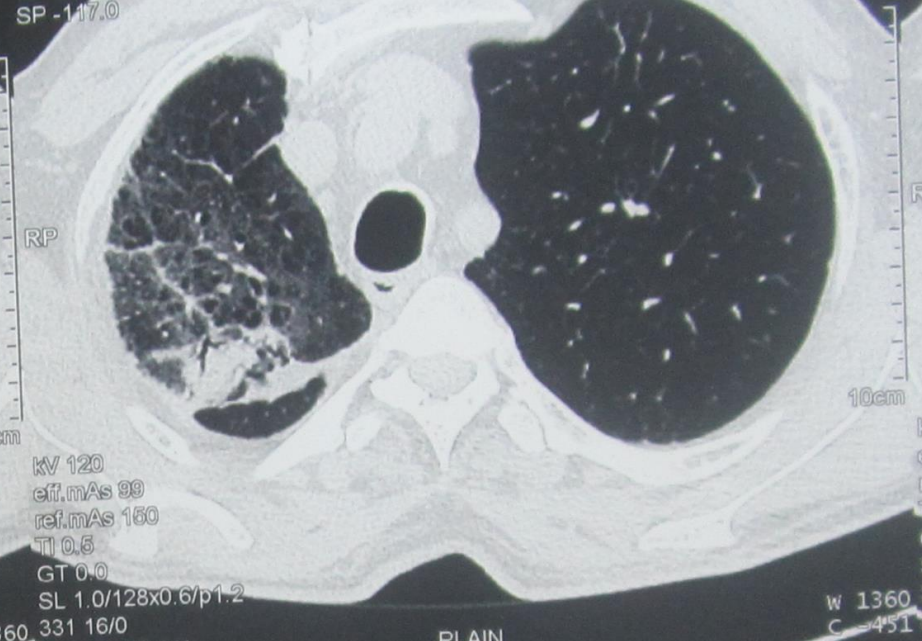
Approach to the patient with dyspnoea

- Bronchodilators and pulmonary rehabilitation
- Inhaled corticosteroids / LABA combination
- Pulmonary function test? Impulse oscillometry?
- HRCT thorax
- Longer course / repeat course of Oral steroids?
- Evaluation for other causes
 - PTE
 - Cardiac causes
- Consider antifibrotics

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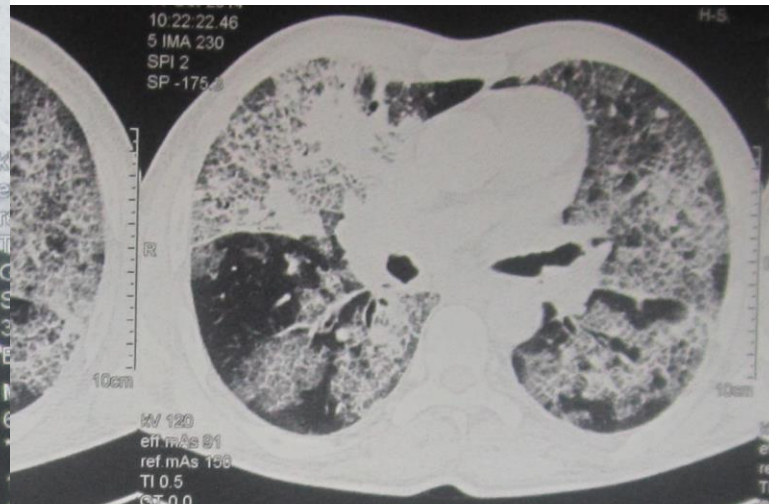


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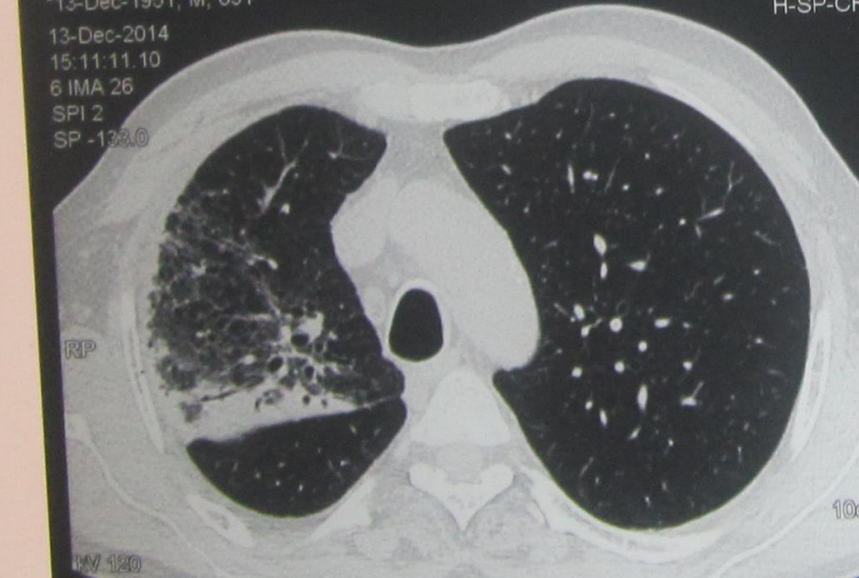


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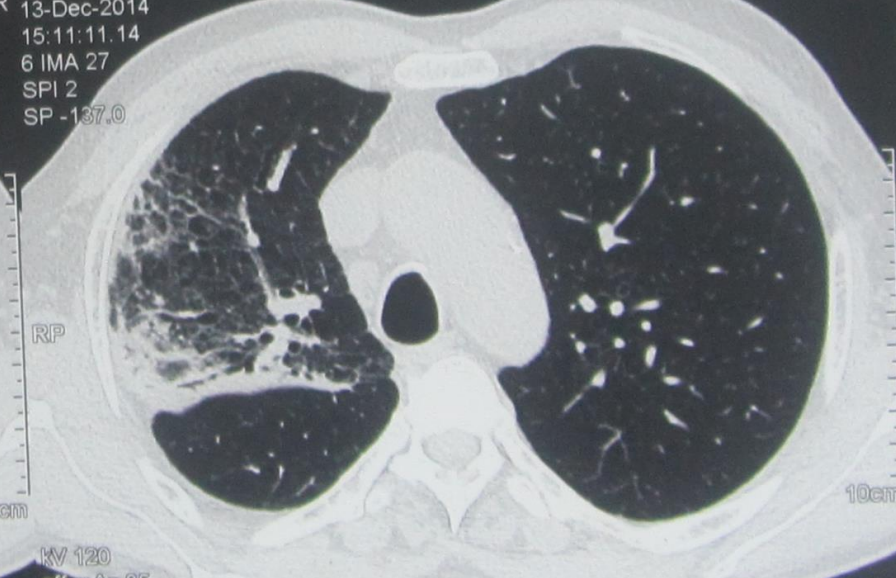
Resistant lung



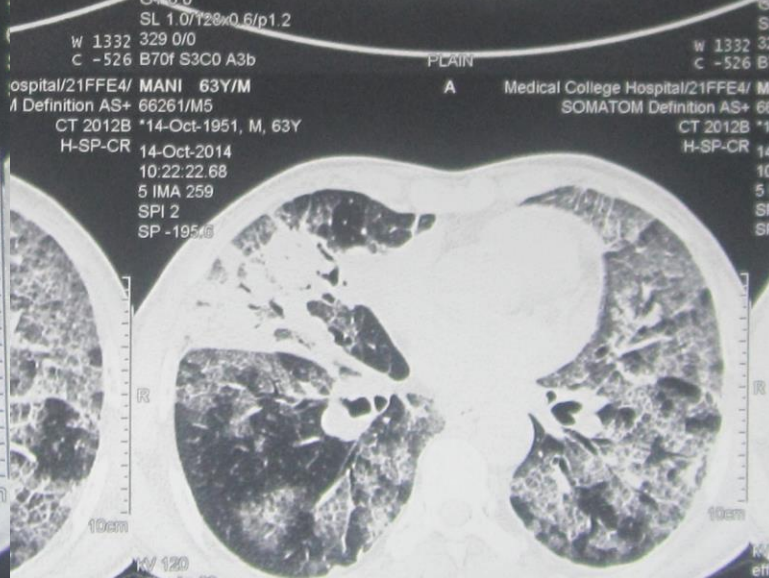
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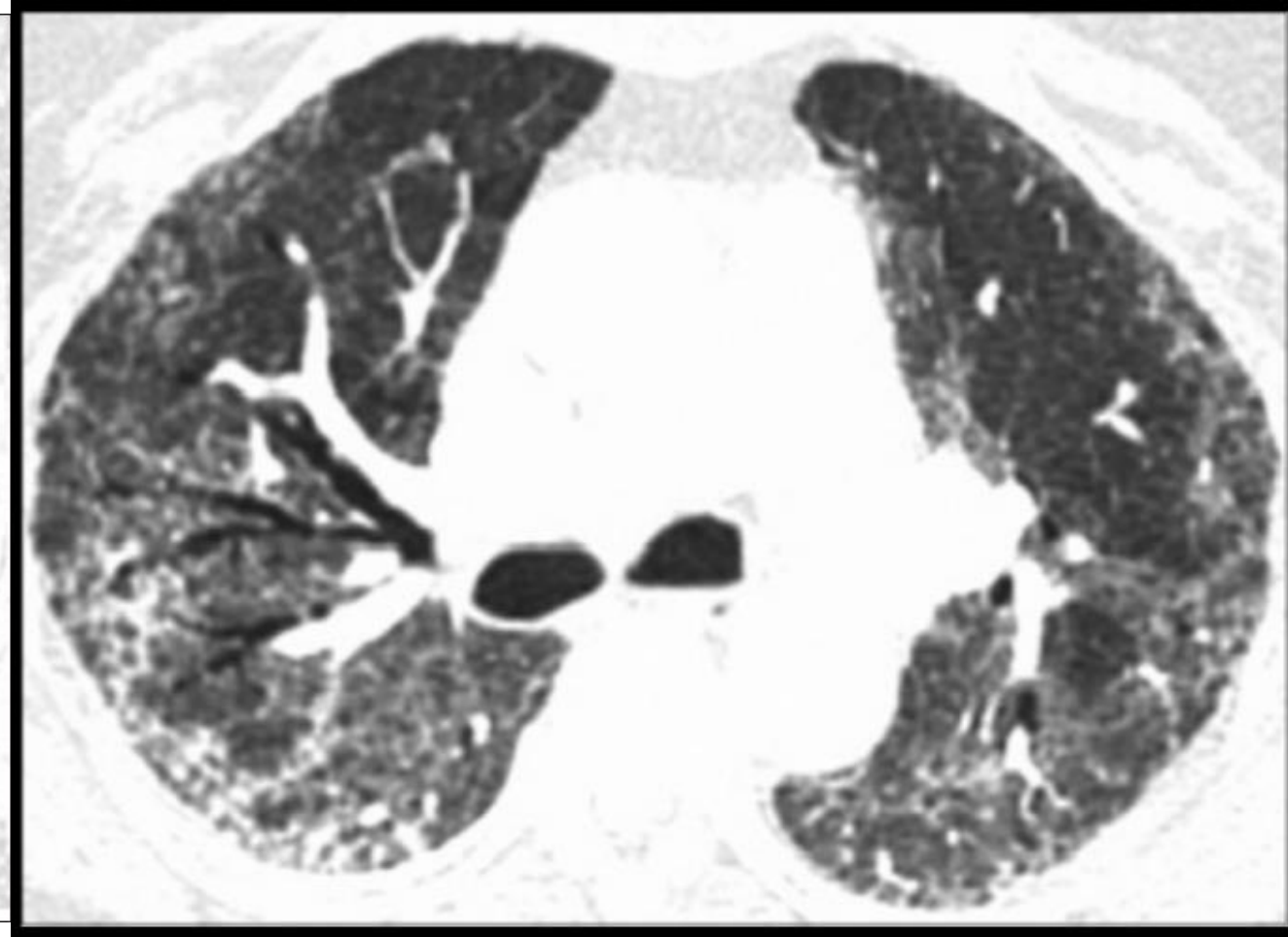
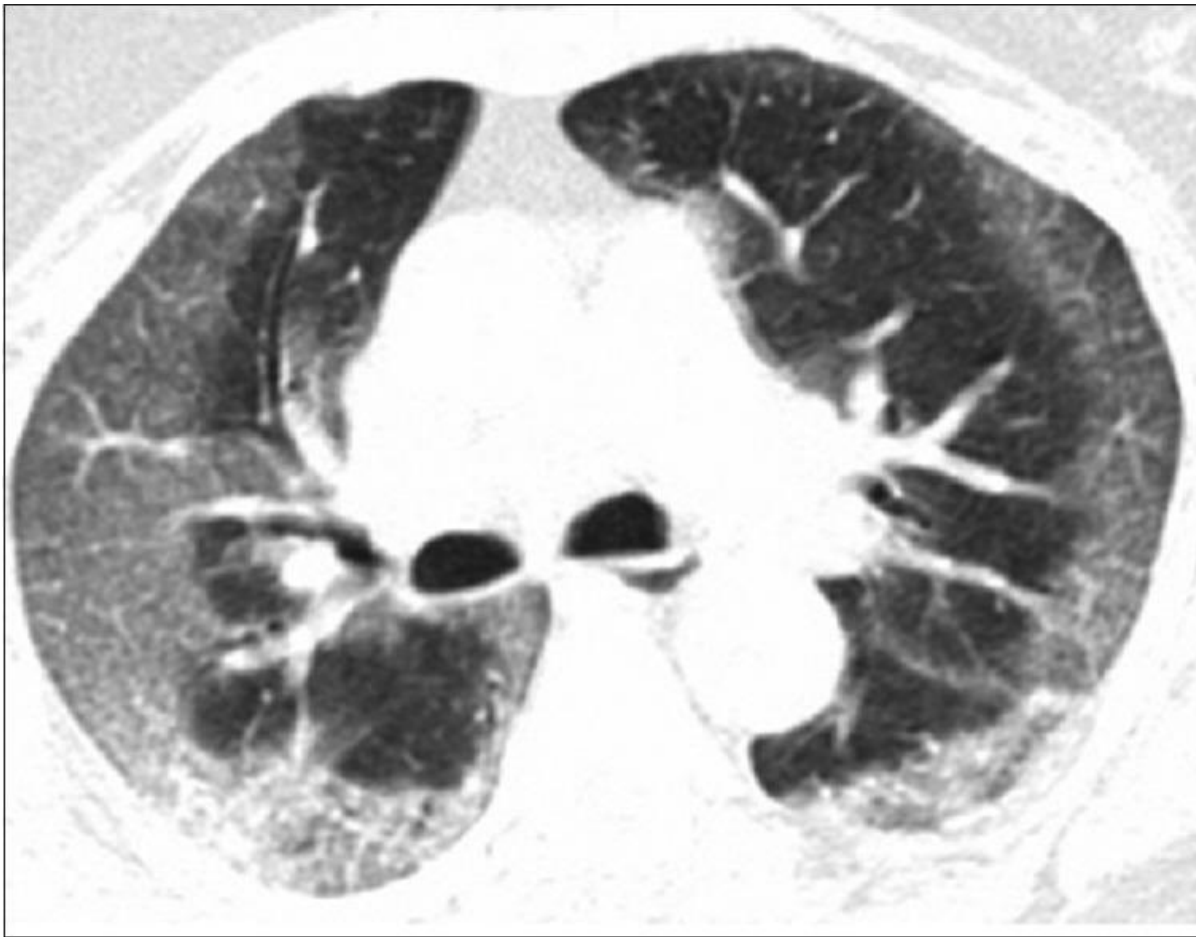


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*14-Oct-1951, M, 63Y
14-Oct-2014
10:22:22.68
5 IMA 259
SPI 2
SP -195.0

Progression to lung fibrosis



Udwadia ZF, Pokhariyal PK, Tripathi AKR, Kohli A. Fibrotic interstitial lung disease occurring as sequelae of COVID-19 pneumonia despite concomitant steroids. Lung India. 2021 Mar;38(Supplement):S61-S63. doi: 10.4103/lungindia.lungindia_533_20.

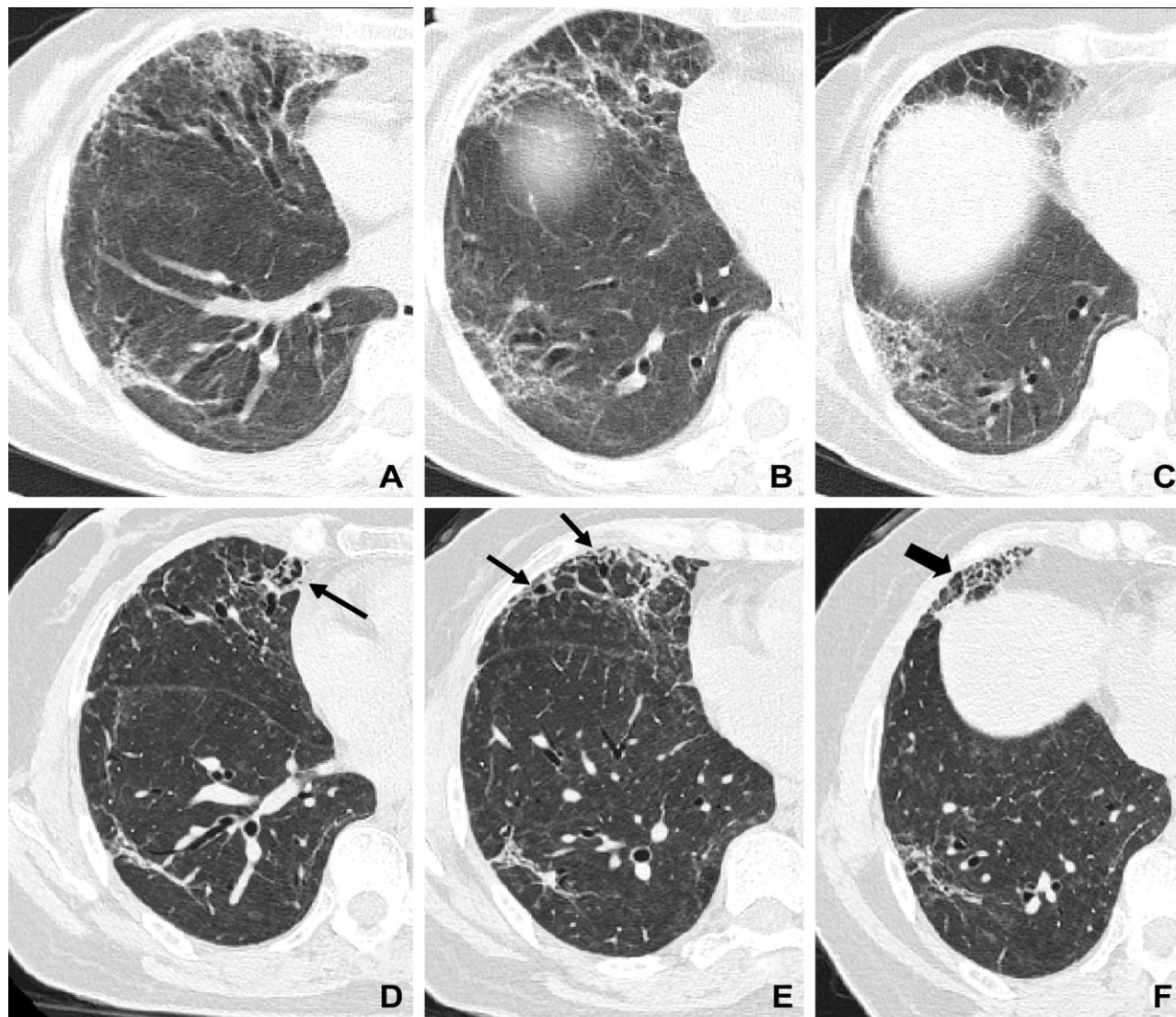


Figure 3: Serial CT scans in a 46-year-old woman with severe coronavirus disease 2019 pneumonia. *A–C*, Scans obtained on day 32 after symptom onset show multiple ground-glass opacities and interstitial thickening with mild cylindrical traction bronchiectasis involving the middle lobe and lower lobe of the right lung. *D–F*, Scans obtained on day 198 show partial absorption of the abnormalities, reduced extension, traction bronchiectasis (arrows in *D* and *E*), and localized “honeycombing” (arrow in *F*) in the subpleural region of the right middle lobe.

Han X. Published Online: January 26, 2021

<https://doi.org/10.1148/radiol.2021203153>

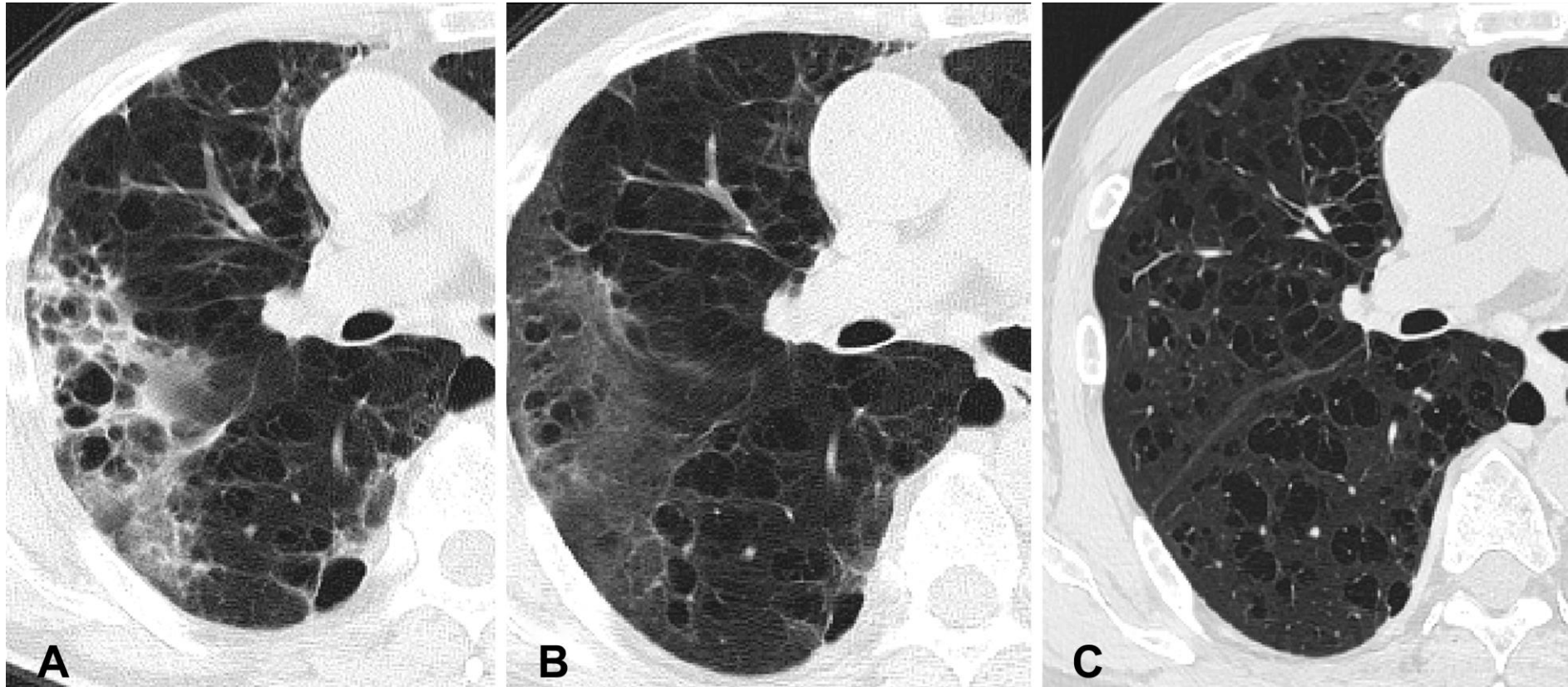


Figure 4: Serial CT scans in a 63-year-old man with emphysema and severe coronavirus disease 2019 pneumonia. *A*, Axial CT scan obtained on day 27 after onset of symptoms shows multiple ground-glass opacities in the subpleural right lung. *B*, Scan obtained on day 72 shows obvious absorption of the abnormalities. *C*, Scan obtained on day 164 shows complete resolution.

Use / Over use of Anti-fibrotics / Steroids

- Patient in ICU with ARDS – Either mechanically ventilated or on NIV
- Recovers, symptoms yet to resolve fully
- No HRCT taken
- Empirically started on anti-fibrotics assuming that the patient would develop lung fibrosis!
- Long prescription – covering for all eventualities!

To conclude

- Pulmonary symptoms are common in patients who have recovered from Covid, long after their recovery
- Manifestations can be varied, starting from the mild to the most severe
- Fortunately, the numbers / proportions with severe residual lesions are not too high
- Need to strengthen Pulmonary rehabilitation and increase access
- Lack of clarity on use of steroids / antifibrotics in patients with persistent lesions
 - ?Overuse

Thank you