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Journal of
Respiratory Medicine and Research

ISSN 2831-3240

Case Report

Idiopathic Non-Glass Ground Opacities Appearance In A Patient Post COVID-19; A Case Study.

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Abstract

A 48-year-old female with a history of COVID-19 presented two and a half months later with persistent fever and shortness of breath. Initial imaging revealed multiple lung opacities, which were atypical for post-COVID pneumonia. Despite antibiotic and corticosteroid treatment, the lesions persisted. A biopsy of the lung tissue suggested a granulomatous process, and further investigations ruled out tuberculosis and fungal infections. The patient was started on a prednisone regimen, leading to gradual symptom resolution and shrinkage of the lesions. After six months of treatment, the lesions disappeared, and the patient was weaned off steroids. This case underscores the importance of considering alternative diagnoses, such as granulomatous diseases, in patients with persistent post-COVID lung findings. It also highlights the critical role of imaging and biopsy in diagnosing unusual respiratory complications following COVID-19 and the need for tailored treatment strategies to manage these complex cases.

BACKGROUND

The COVID-19 pandemic has greatly challenged the healthcare system worldwide [1]. The primary target of the virus (SARS-CoV-2) in the human body is the lungs and can cause conditions like pneumonia, sepsis, acute respiratory distress syndrome [ARDS], sepsis, and infection [2]. In this regard, we present a case of a patient infected with COVID who developed idiopathic patches on her lungs, the possible cause of these patches, and the course of treatment and management followed for this novel case.

CASE PRESENTATION

A 48-year-old female patient presented to the outpatient department on 23rd September 2021 with a history of fever for the past 2 months, with temperatures as high as 101 degrees Fahrenheit and shortness of breath. Her fever was relieved by taking paracetamol. She had been diagnosed with COVID 2.5 months prior and took treatment for it for which she was admitted and treated in a tertiary care hospital until the test came back negative. She worked as a medical officer at an airline company.

On examination, she was febrile, with a temperature of 101 degrees Fahrenheit, a BP of 132/70, and heart rate of 92 beats/min, and Sp02 of 98%. Her respiratory rate was 20 breaths per minute. On auscultation, fine crackles were heard in both lungs.

INVESTIGATIONS

An initial x-ray scan was performed on the patient on 27th September 2021 (**Fig.1**.), which demonstrated multiple patches of opacities on both lungs, suggestive of infection.

The patient's complete blood count indicated borderline normal white blood cell count(10.2×10^3/uL), neutrophilia (72%), lymphocyte count (19%), hemoglobin (9.7g/dl) and platelets (463×10^3); Biomarkers demonstrated a raised CRP

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Received: 07-Feb-2025, Manuscript No. JRMR - 4510 **; Editor Assigned:** 08-Feb-2025 **; Reviewed:** 24-Feb-2025, QC No. JRMR - 4510 **; Published:** 10-Mar-2025, **DOI:** 10.52338/jrmr.2025.4510
Citation: Noman Mansoor. Idiopathic Non-Glass Ground Opacities Appearance In A Patient Post Covid-19; A Case Study. Journal of Respiratory Medicine and Research. 2025 February; 9(1). doi: 10.52338/jrmr.2025.4510.

level(4.57mg/dl). LDH (158), D-DIMER (0.13) and serum ferritin(46.4ng/ml) were in the normal range. These findings indicated the presence of a lung infection. An HRCT (**Fig. 2**.) was performed 2 days later on 23rd September which demonstrated multifocal rounded opacities in both lungs, the largest one in the superior segment of the left lobe, it measured 38mm x 38mm in size. Borders of the lesions were lobulated. These findings were atypical of Covid pneumonia.

Figure 1. X - ray 2.5 months post COVID-19 demonstrating multiple opacities in both lungs. This finding is suggestive of an infection.

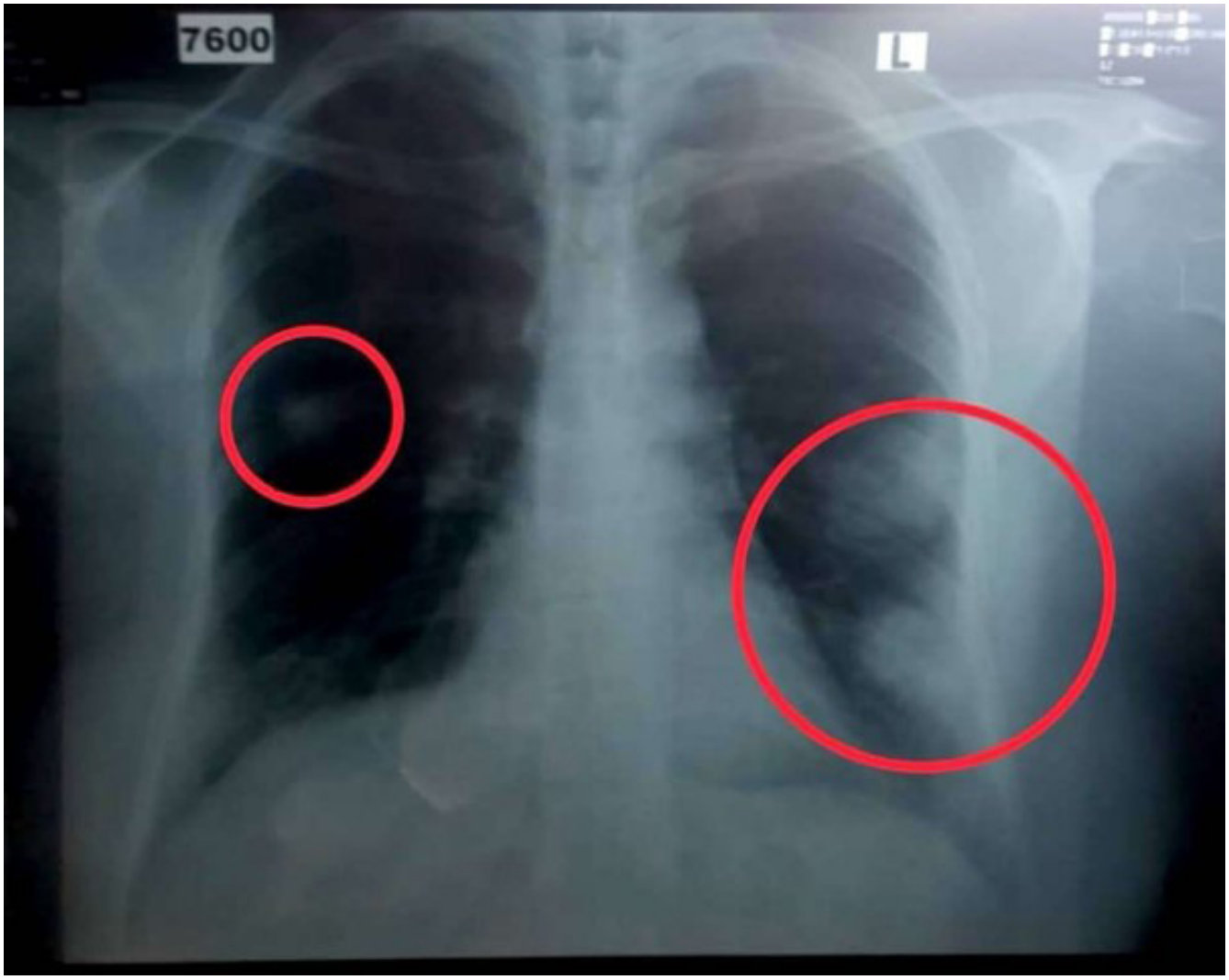
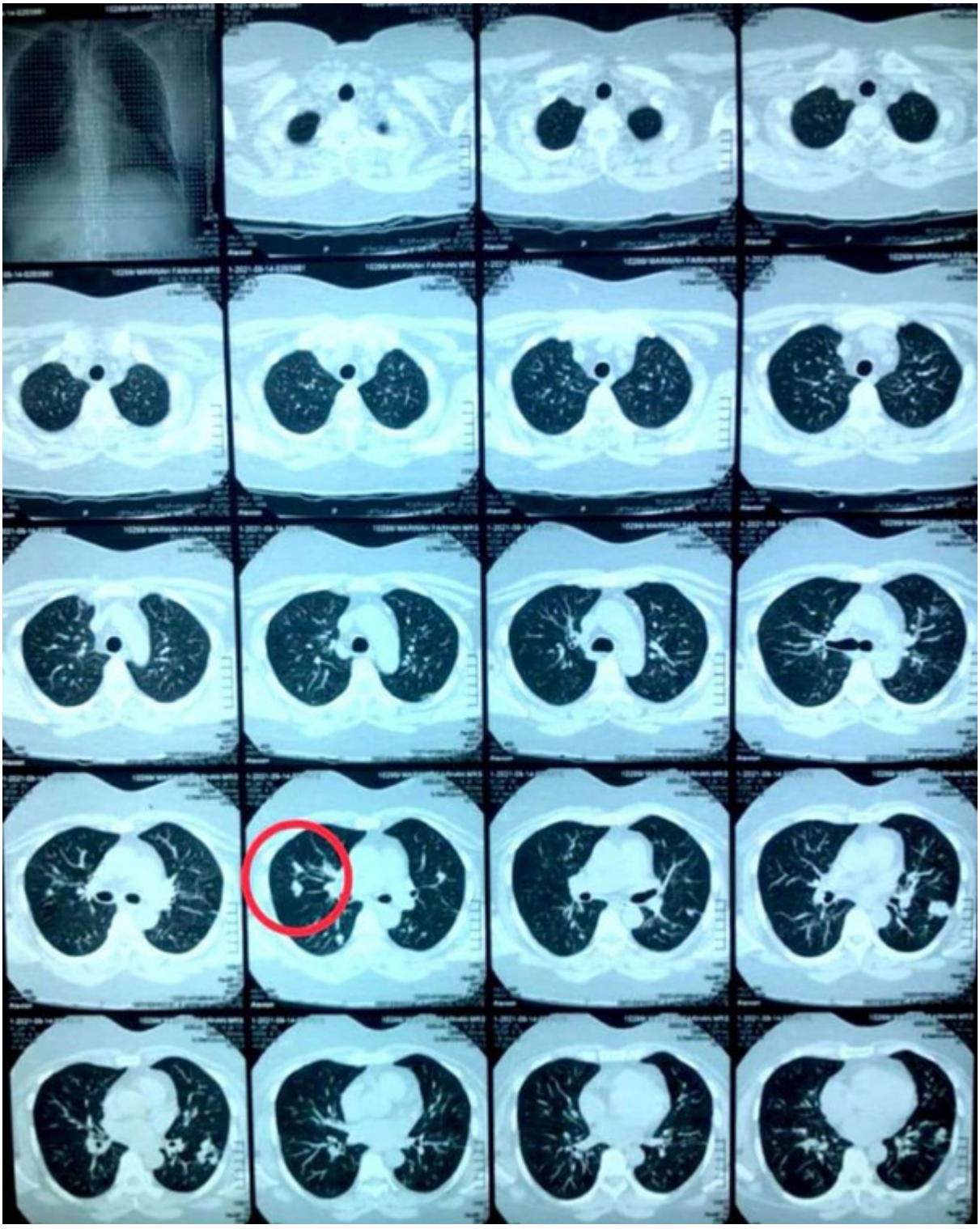


Figure 2. High resolution CT-scan demonstrating multifocal rounded opacities in both lungs Note that the largest one is in the superior segment of the left lobe, measuring 38mm x 38mm in size. Borders of the lesions are lobulated. These findings are atypical of COVID pneumonia, suggestive of some other cause of the opacities.



Treatment

The patient was started on prednisolone 5mg twice a day for a week, reduced to 2 times a week for next 5 days and once a week for another 5 days. She was also prescribed cefixime 400 mg once a day for 1 week. Multivitamins, calcium and vitamin D3 were prescribed once daily. Thyroxine 50 mg once daily. She was also advised 2 weeks of rest.

Differential Diagnosis

Once the corticosteroid cycle was completed, the patient began experiencing fever of low grade. Fever subsided for a week but

started again so HRCT was repeated again.
The second HRCT scan on 8th October 2021 re-demonstrated multiple opacities in both lungs. Largest measuring 31 x 28 x 30 mm in size in TS, AP and CC dimensions. These findings were strongly suggestive of metastasis of unknown primary
A biopsy on 30th October 2021 was arranged for the left lower lung revealed linear cores of lung parenchyma with extensive areas of necrosis. On deeper levels, one necrotic area exhibited few elongated probable epithelioid cells bordering it, indicating a possibility of infectious etiology like tuberculosis. An AFB Smear and culture were performed, which came back negative. Additionally Fungal smear and culture were performed which came back with no positive findings.

Figure 3. High resolution CT scan. This is a follow up scan demonstrating multiple opacities in both lungs, primarily in the superior segment of left lower lobe with lobulated borders, 31 x 28 x 30 mm in TS, AP and CC dimensions. These findings were strongly suggestive of metastasis of unknown primary.

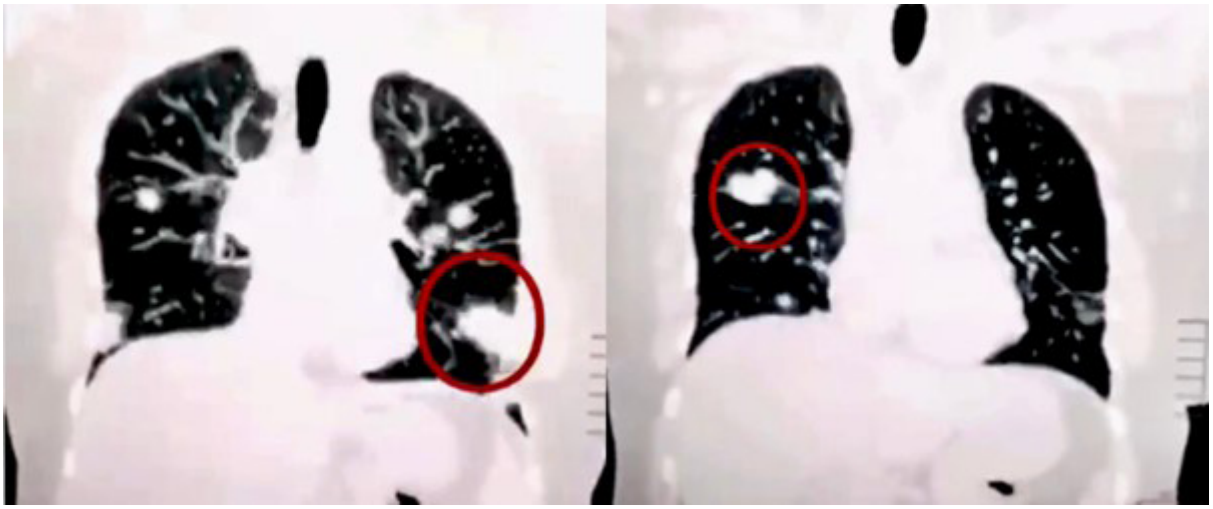
Treatment For Lesion

The patient was started on prednisone 40MG once daily with septran ds three times a week for 30 days. Prednisone was then decreased to 30 mg once daily for the next 2 weeks and once daily for the 30 days. She was advised for a CT scan in 12 weeks.

Outcome And Follow Up

The lesion did not shrink as expected. A third HRCT was arranged on 19th February 2022 which demonstrated multiple nodules randomly involving both lungs, some of them sharply defined, rounded in morphology and some of them irregular in outline. This indicated in favor of granulomatous disease.

Figure 4. High resolution CT scan. Multiple nodules can be identified, revealing a possible underlying granulomatous disease.



Alternate Treatment Of Lesion

The patient was suggested two courses of treatments; 0.75 mg/ kg/day prednisone for 4 weeks, followed by 0.5 mg/kg/ day for another 4 weeks, then 20 mg/day during next 4 weeks, then 10 mg/day during 6 weeks, a then 5 mg/yd during last 6 weeks.

The second option was to start azathioprine or mycophenolate mofetil. This treatment is to be continued for 6 months with tapering off of prednisone over 4 to 6 weeks and CT chest was to be performed.

The patient opted for the first option, and this prescription was followed from November 2021 till February 2022.

Outcome

In March, with the tapering of steroids, the symptoms reappeared, so prednisone tablet 10mg was continued till June and 5 mg currently. CRP was performed with a high value of 46, so she was advised to continue prednisone on a lower dose.

The patient continued this treatment regimen for the next six months. On a follow up, the lesions were observed shrinking in size, so she was advised to continue with the treatment plan. On a follow up two months later, the lesions disappeared and she was weaned off the steroids. Chest X-ray was advised to her every two months to check for any recurrences and the patient has been complaint with it.

DISCUSSION AND CONCLUSION

Appearance of residual opacities is very common in patients after SARS-CoV-2 virus infection, which is shown by a study indicating 75% of the patients developing them post Covid-19. However, it is to be noted that these opacities have a ground glass appearance, unlike our patient who had no such demonstration [3]. It is also to be noted that it is still not clear whether the opacities occurred as a result of COVID, as the patient had no available prior scans. There are no cases of non-glass ground opacities appearances in patients post COVID till date.

This case demonstrates the patching and lesion of the lungs as a possible outcome in patients with COVID. The primary cause of the lesion is still unknown, so further workup needs to be done for a proper diagnosis of the patient. This case report emphasizes the importance of diagnostic imaging techniques, such as HCRT in the identification of pathologies secondary to covid-19. This case also stresses that other respiratory disorders cannot be ignored in patients with COVID. A purely tunnelled perspective of the treatment of COVID without taking into account the presence of other respiratory disorders should be avoided by doctors, as it may treat COVID but lead to the worsening of other respiratory diseases or even death.

Abbreviations

COVID – Coronavirus disease 2019
CRP - C-reactive protein.
LDH - Lactate dehydrogenase.
TS - Transverse
AP - Anteroposterior.
CC - Craniocaudal
PCR test - Polymerase Chain Reaction.
x-ray - x-radiation.
HCRT - High Resolution Computerized Tomography.
AFB - Acid fast bacilli

Consent

Consent was taken from the patient prior to submission.

Conflict of interest

The authors declare no conflict of interest.

Funding disclosure

No funding was provided by the institution.

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