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CLINICAL AND MEDICAL CASE REPORTS
Case Report

Pulmonary Hyalinizing Granulomas (PHG): A Case Report and Review of the Literature

Ahmed Abduljabbar[1], Mohammed Wazzan[1], Khaled Mohammed Bahubaishi[2], Mohammed Jamil Addas[3]*, Ibrahim Alghamdi[2] and Malik Jamil Addas[4]

[1]Associate Professor and Consultant Radiology, King Abdulaziz University Hospital, KSA, Jeddah, Saudi Arabia

[2]Radiology Resident, King Abdulaziz University Hospital, KSA, Jeddah, Saudi Arabia

[3]Radiology Trainee (Attachment), King Abdulaziz University Hospital, KSA, Jeddah, Saudi Arabia

[4]Medical Student, King Abdulaziz University Hospital, KSA, Jeddah, Saudi Arabia

***Corresponding Author:** Mohammed Jamil Addas, Radiology Trainee (Attachment), King Abdulaziz University Hospital, KSA, Jeddah, Saudi Arabia.

Received: September 23, 2020; **Published:** October 31, 2020

Abstract

Background: Pulmonary hyalinizing granuloma (PHG) is a benign and rare disease that has an unknown cause. It presents as distinct nodules rounded in shape within the parenchyma of the lung [1]. It sometimes presets as single and sometimes numerous pulmonary nodules [6]. It is seen in patients of middle age and is usually symptomatic. Radiologically, it appears as numerous, bilateral nodules that might look like lung neoplasms [2].

Case Description: PHG is a non-infectious, non-common, fibrosing lung lesion. It might look like malignancy on imaging studies.

Conclusion: PHG is a rare non-infectious benign fibrosing lesion of the lung. It can sometimes mimic lung malignancy.

Keywords: *Pulmonary Hyalinizing Granuloma (PHG); Parenchyma of the Lung*

Introduction

Pulmonary hyalinizing granuloma (PHG) is an uncommon, non-infectious disease that affects the lung and has an unknown cause. The diagnosis of the disease is made upon taking an open lung biopsy or after surgical excision of the nodules noted on chest radiography [3]. PHG differs from fibrosing lesions of the lung, containing whorled deposits of lamellar collagen in the center [5]. So far, PHG is thought to be linked to deposition of immune complexes in the parenchyma of the lung caused by autoimmune diseases or infection [4].

Case Presentation

42 years old female patient, known case of asthma, hypertension, and abdominal hernia for four years.

The patient came to emergency department complaining of vomiting and abdominal pain for 10 days at the hernia site aggravated by coughing.

Patient has positive history of sleep apnea and interrupted sleep period patient is hookah smoker Once every two days for 20 years and reported 10 kg weight loss in one month.

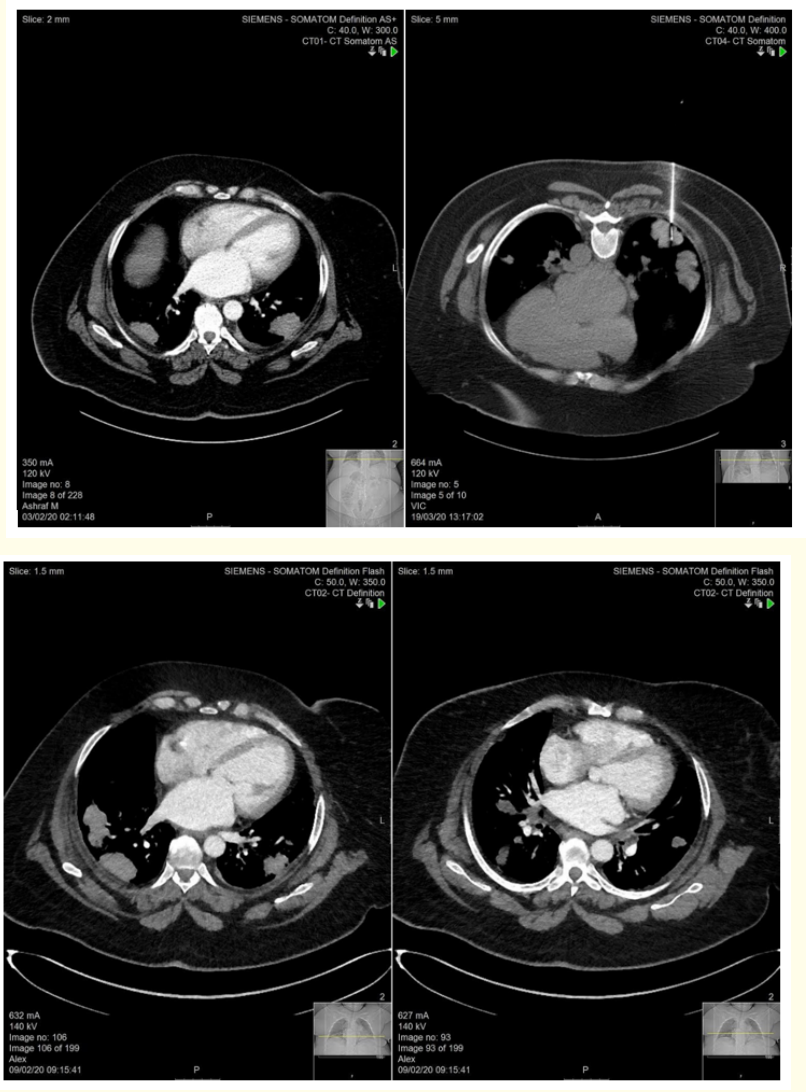
Chest examination: There is decreased air entry in the right lower lobe but no wheezing normal S1 and S2 with no added sounds no murmur.

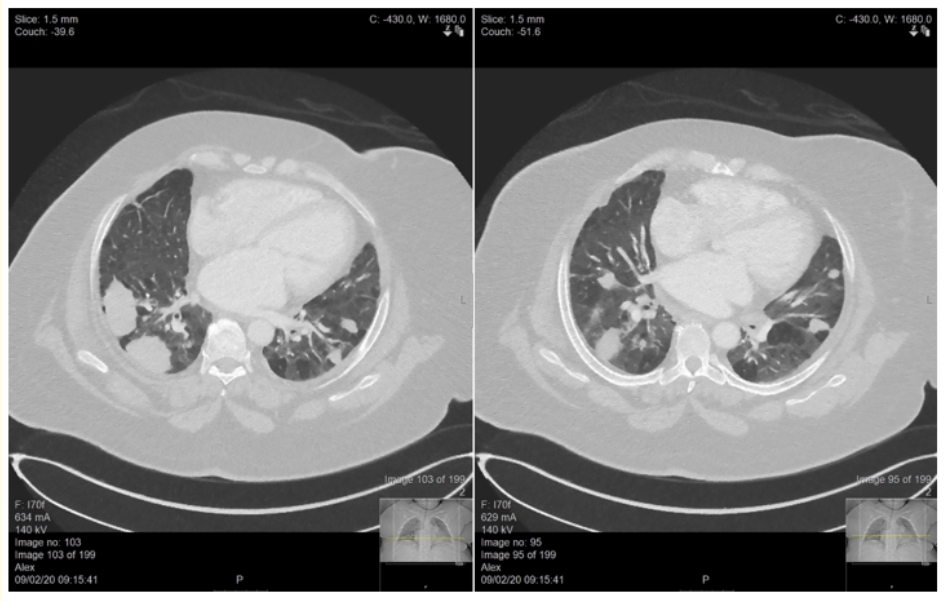
The patient did abdominopelvic CT to rule out strangulated hernia.

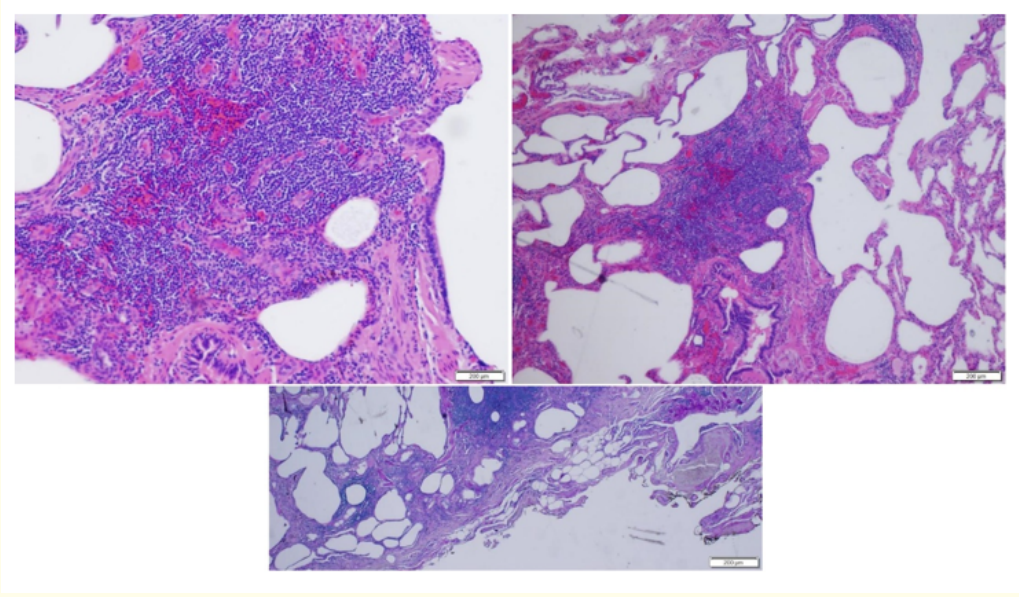
The visualized lower cut of the chest shows bilateral multiple variable in size pulmonary masses and was recommended to do a dedicated Chest CT for further evaluation.

The Chest CT showed well demarcated and lobulated lung nodules and masses most are in peripheral distribution with bilateral hilar and mediastinal lymph nodes enlargement.

She was suspected to have Chest Lymphoma by imaging, lung biopsy of these masses was done, and histopathological report came as Pulmonary Hyalinizing Granuloma.







Discussion

PHG was initially reported in 1977. It is a rare, benign disease that characterizes by having single or sometimes multiple pulmonary nodules [7].

It was initially delineated in literature by Engleman., *et al*. in 1977. PHG has usually been reported in the literature as case reports. It is commonly discovered in patients in their 4th - 5th decade and has an approximately equal ratio of occurrence in both sexes [7,11]. Symptoms that occur are usually cough, shortness of breath, and chest pain [6]. Around one quarter or all patients show no symptoms [9,10].

The cause of PHG is not known, but it has been shown to be linked to retroperitoneal and mediastinal fibrosis; infectious, autoimmune and neoplastic diseases; and thromboembolism [8,11,12]. Hypermetabolic activity is found in nodules of 60% of patients in PET-CT scans.

Precise diagnosis may need an excisional biopsy with appropriate samples. Pathologically, is it identified by homogenous hyaline lamellae encircled by a collection of plasma cells, lymphocytes, and histiocytes in a perivascular distribution [8].

The differential diagnosis of PHG includes fungal infections, mycobacterial lung diseases, rheumatoid arthritis, Wegener granulomatosis, sarcoidosis, uveitis, antiphospholipid syndrome, amyloidosis, sclerosing mediastinitis, idiopathic systemic fibrosis, and IgG4-related sclerosing disease [8].

Generally, PHG usually has good prognosis. Solitary lesions that are stable for long periods can surgically be removed, in comparison to multiple regions that carry a worse prognosis.

Impaired pulmonary function may result from progressive enlarging multiple lesions. Symptomatic and radiological improvement have been reported after corticosteroid use. A study reported that laryngeal and subcutaneous involvement responded well to steroid pulse therapy [14].

More than 50% of patients with PHG also have autoimmune phenomena or previous exposures to mycobacterial or fungal antigens [15].

Conclusion/Summary

In conclusion, PHG should be considered in patients who present with multiple pulmonary nodules. Radiological studies and optimal histopathological evaluations should be made for definite diagnosis. Although corticosteroids may improve the natural evolution of PHG in most cases, alternative therapies effective for steroid refractory PHG should be investigated [4].

Article	Year	Age (years)	Sex	Presenting symptoms	Unilateral /bilateral	Single/ Multiple	Initial imaging	Method of diagnosis	Physical Examination	Co-morbidities/smoking	Treatment
Our Article	2020	42	F	Symptoms mostly related to another pathology; vomiting and abdominal pain for 10 days at the hernia site aggravated by coughing.	Bilateral	Multiple	abdominopelvic CT to rule out strangulated hernia. Lung nodules where an incidental finding.	lung biopsy of these masses was done, and histopathological report came as PHG.	Decreased air entry in the right lower lobe but no wheezing.	Asthma, hypertension, and abdominal hernia for four years. Smoking Unknown	N/A

[4]	2017	30	F	SOB on exertion and cough.	Bilateral	Multiple	Chest x-ray revealed multiple ill-defined nodules in both lung fields.	Histopathological examinations revealed homogenous hyaline lamellae, surrounded by a collection of plasma cells, lymphocytes, and histiocytes, compatible with PHG.	Initial examination revealed rhonchi at both lung fields.	Non-smoker. Allergic rhinitis.	The patient received prednisone (30 mg/day) for 1 month and a reduced dose of prednisone (15 mg/day) for 1 consecutive month. Follow-up chest CT after 2 months of treatment revealed no interval change/
[6]	2015	59	F	Chest pain and cough.	Bilateral	Multiple	Bilateral, multiple, and rounded lesions with regular margins suggesting metastatic lung disease.	A transthoracic needle biopsy of the nodule was performed in the left pulmonary anterior segment. Since no diagnosis was made by the biopsy, the patient underwent a video-assisted thoracic surgery. The wedge biopsy reported pulmonary hyalinizing granuloma.	normal	DM type 2. Smoking Unknown	Patient was relieved after initiation of steroid therapy upon diagnosis.

[9]	2010	34	M	Asymptomatic.	Left lung	single	Chest radiography revealed a well-circumscribed mass in the left lung.	The histopathological findings mainly consisted of deposition of hyaline tissue masses accompanied by sparse lymphocytic infiltrate	Pulmonary function tests revealed a mild obstructive ventilatory disturbance.	Treated two years prior for tuberculosis after presenting with mild fever, non-productive cough, and a five-pound weight loss.	The patient received no subsequent specific treatment and he remained asymptomatic. There was no increase in the size of the mass as of the last outpatient followup, which was performed two years after diagnosis.
[2]	2018	62	F	dyspnea, cough, and sputum.	Bilateral	Multiple	Chest X ray showed homogeneous densities in the right middle zone.	On microscopic examination; thick lamellar structure around small vessels, hyaline collagen fibers and a small number of kappa and lambda positive polyclonal lymphocytic inflammation was observed.	N/A	In her history, she had cholecystectomy, hypertension and biomass exposure.	N/A

Bibliography

1. Christopher Coleman., *et al.* "Pulmonary Hyalinizing Granuloma Associated with Idiopathic Thrombocytopenic Purpura". *Journal of Clinical Imaging Science* 4.4 (2014): 8.

2. Uzer F., *et al.* "Pulmonary Hyalinizing Granuloma in the Differential Diagnosis of Pulmonary Carcinoma". *Clinical Medical Reviews and Case Reports* 5 (2018): 209.

3. D Agrawal., *et al.* "Pulmonary hyalinizing granuloma with ureteric fibrosis: a case report and review of relevant literature". *The Indian Journal of Chest Diseases and Allied Sciences* 48.4 (2006): 283-285.

4. Ahn June Hong MD., *et al.* "A first case report of pulmonary hyalinizing granuloma associated with immunoglobulin A nephropathy". *Medicine* 96.49 (2017): e9088.

5. Samuel A Yousem and Liselotte Hochholzer. "Pulmonary Hyalinizing Granuloma". *American Journal of Clinical Pathology* 87.1 (1987): 1-6.

6. Düzgün Nuri., *et al.* "Pulmonary Hyalinizing Granuloma Mimicking Metastatic Lung Cancer". *Case Reports in Pulmonology* (2015): 610417.

7. Engleman P., *et al.* "Pulmonary hyalinizing granuloma". *The American Review of Respiratory Disease* 115.6 (1977): 997-1008.

8. Lhote Raphael., *et al.* "Pulmonary hyalinizing granuloma: a multicenter study of 5 new cases and review of the 135 cases of the literature". *Immunologic Research* 65.1 (2017): 375-385.

9. Brandão Viviane., *et al.* "Hyalinizing granuloma: an unusual case of a pulmonary mass". *Case Reports in Medicine* (2010): 984765.

10. Na Kook Joo., *et al.* "Subpleural pulmonary hyalinizing granuloma presenting as a solitary pulmonary nodule". *Journal of Thoracic Oncology: Official Publication of the International Association for the Study of Lung Cancer* 2.8 (2007): 777-779.

11. Ren Y., *et al.* "Pulmonary small lymphocytic lymphoma (mucosa-associated lymphoid tissue type) associated with pulmonary hyalinizing granuloma". *Chest* 120.3 (2001): 1027-1030.

12. Drasin H., *et al.* "Pulmonary hyalinizing granulomas in a patient with malignant lymphoma, with development nine years later of multiple myeloma and systemic amyloidosis". *Cancer* 44.1 (1979): 215-220.

13. Kaneta Toshikado., *et al.* Nihon Kokyuki Gakkai zasshi = the journal of the Japanese Respiratory Society 47.10 (2009): 953-959.

14. Shinohara Takeshi., *et al.* "Pulmonary hyalinizing granuloma with laryngeal and subcutaneous involvement: report of a case successfully treated with glucocorticoids". *Internal Medicine* 43.1 (2004): 69-73.

15. Esme Hidir., *et al.* "A case of pulmonary hyalinizing granuloma associated with posterior uveitis". *The Tohoku Journal of Experimental Medicine* 204.1 (2004): 93-97.

Volume 3 Issue 11 November 2020