Open Respiratory Archives 6 (2024) 100370

Sociedad Española de Neumología y Cirugía Torácica SEPAR

Open Respiratory Archives

www.elsevier.es/ora

Letter to the Editor

Allergic Bronchopulmonary Candidiasis: An Uncommon Case of Hypereosinophilia

Micosis broncopulmonar alérgica por Candida: un caso poco común de hipereosinofilia

Dear Editor,

We present the case of a 42-year-old woman, never-smoker, immunocompetent, with no recent travel or relevant treatment, history of nasal polyposis, employed in cleaning. She was referred for suspected bronchial asthma with mucopurulent sputum, intermittent cough and wheezing, predominantly at night. Pulmonary function tests showed no obstruction and a bronchodilator test was negative. Blood tests revealed peripheral eosinophilia of 940 cells/μL and total immunoglobulin E (IgE) of 400 IU/mL. High-resolution computed tomography of the chest revealed cylindrical bronchiectasis in the middle lobe and right and left lower lobes, filled with mucous material (Fig. 1).

We performed a differential diagnosis for hypereosinophilia. IgE and IgG against *Aspergillus*, prick tests and recombinants were negative, ruling out allergic bronchopulmonary aspergillosis (ABPA). Eosinophilic granulomatosis with polyangiitis was excluded with ANCA antibodies and negative nasal biopsy. A parasitic origin and primary hypereosinophilic syndromes were also ruled out by the haematology unit. Genetic studies for primary ciliary dyskinesia and cystic fibrosis were negative.

A bronchoscopy was performed for bronchoalveolar lavage (BAL) and bronchial aspiration (BAS), showing 48% eosinophilia and isolation of *Candida albicans* which was considered non-relevant. Given the peripheral blood eosinophilia and BAL eosinophils > 25%, chronic eosinophilic pneumonia was considered a diagnosis of exclusion. Prednisone 0.5 mg/kg per day was started with clinical improvement, but it could not be reduced below 10 mg daily. After several lung function tests, airflow variability was observed [FVC, 2.25 (63%); FEV_1, 1.57 (54%); FEV_1/FVC, 69.93%; bronchodilator test negative; and FeNO, 18 ppb], confirming the diagnosis of bronchial asthma. A repeat bronchoscopy with similar BAL and BAS showed eosinophilia 1000 cells/μL and IgE 1300 IU/L.

After a diagnostic process for hypereosinophilia with specific IgE for *C. albicans*, the patient met the criteria for allergic bronchopulmonary mycosis (ABPM) caused by *C. albicans*. In view of her young, corticosteroid-dependent patient profile, biological treatment with mepolizumab 100 mg subcutaneous every 28 days was prescribed, resulting in clinical and radiological improvement, reduced airflow obstruction [FVC, 2.56 (71%); FEV_1, 2.04 (70%); FEV_1/FVC, 79.01], and decreased peripheral eosinophilia (eosinophilia before treatment: 1500 cells/μL; after treatment: 100 cells/μL). Prednisone could be reduced to 5 mg per day with the aim of discontinuing it definitively (Fig. 1).

Now that we have the opportunity to implement new therapies,[1] an exhaustive diagnostic approach to hypereosinophilia has become vital. In our case, we identified *C. albicans* ABPM, a rare manifestation second in prevalence to *Aspergillus fumigatus* which is the most typical presentation.[2] Traditionally, diagnostic criteria followed the model of ABPA, but this changed when the latest ISHAM revision was published.[3] These guidelines distinguish between ABPA and ABPM, and for ABPM recommend the following criteria: Predisposing conditions (history of bronchial asthma, cystic fibrosis or bronchiectasis) or compatible clinical-radiological presentation; Major criteria: total IgE > 500 IU/mL and elevated fungal IgE; At least 2 minor criteria: positive fungal IgG; 2 sputum samples (or one BAL) with fungal species growth; eosinophilia > 500 cells/μL; radiographic abnormalities (bronchiectasis, mucous plugs, or increased attenuation).

According to the ISHAM group, corticosteroids or itraconazole may be used as first-line treatments. However, the combination of both is not fully recommended in the latest review due to an increased risk of adverse effects. If itraconazole is chosen as the initial therapy, a 2-week course of corticosteroids may be used

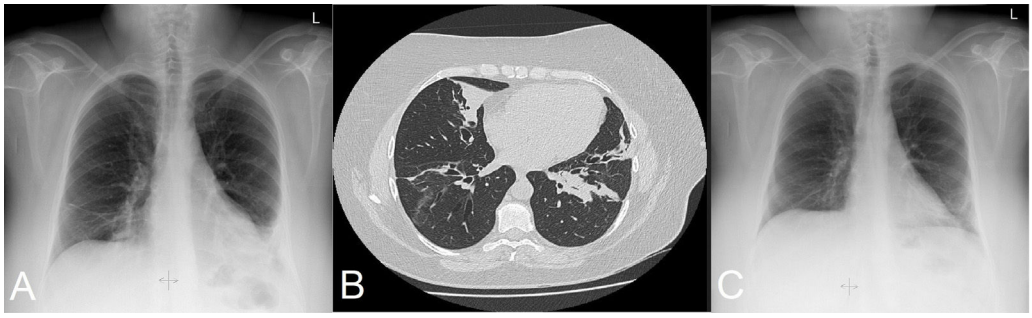

Fig. 1. (A) Chest radiography: Alveolar infiltrates in RLL, ML, and LLL. (B) High resolution computed tomography of the chest: Localized bronchiectasis in the ML, RLL, and LLL, with secretions and mucous plugs. Persistence of alveolar involvement in the LLL. (C) Chest radiography: Improvement of infiltrates in the RLL, ML, and LLL. RLL: Right lower lobe; ML: Medial Lobe; LLL: Left Lower Lobe.

https://doi.org/10.1016/j.opresp.2024.100370

to mitigate adverse effects.[3] We used prednisone as the first-line therapy, which initially resulted in a favourable clinical response but led to disease exacerbations upon dose tapering. In accordance with the guidelines, which suggest the use of itraconazole or biological therapy in such cases, we opted for the latter. We administered mepolizumab (an anti-IL-5 agent), which has shown potential superiority over other biologics in terms of improving function and reducing corticosteroid doses.[4] Scientific evidence also supports the use of omalizumab (the biologic with the most historical experience), dupilumab, and benralizumab.[2,4,5]

We would like to emphasize the importance of an adequate diagnostic approach to pulmonary-origin hypereosinophilia and share our experience with ABPM. This is an underdiagnosed condition, with case reports in the last 2 decades being almost non-existent outside of Asia.

Informed consent

We have the patient's informed consent to publish her case.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

All authors have contributed to the preparation, writing and review of the article.

Conflicts of interest

The authors declare not to have any conflicts of interest that may be considered to influence directly or indirectly the content of the manuscript.

References

1. Rosenberg CE, Khoury P. Approach to eosinophilia presenting with pulmonary symptoms. Chest. 2021;159:507–16, http://dx.doi.org/10.1016/j.chest.2020.09.247.
2. Chowdhary A, Agarwal K, Kathuria S, Gaur SN, Randhawa HS, Meis JF. Allergic bronchopulmonary mycosis due to fungi other than *Aspergillus*: a global overview. Crit Rev Microbiol. 2014;40:30–48, http://dx.doi.org/10.3109/1040841X.2012.754401.
3. Agarwal R, Sehgal IS, Muthu V, Denning DW, Chakrabarti A, Soundappan K, et al. Revised ISHAM-ABPA working group clinical practice guidelines for diagnosing, classifying and treating allergic bronchopulmonary aspergillosis/mycoses. Eur Respir J. 2024;63:2400061, http://dx.doi.org/10.1183/13993003.00061-2024.
4. Albogami S. Use of biologic drugs for treatment of allergic bronchopulmonary aspergillosis. IJOPRS. 2021;5:1–8, http://dx.doi.org/10.19080/IJOPRS.202105555663.
5. Asano K, Kamei K, Hebisawa A. Allergic bronchopulmonary mycosis – pathophysiology, histology, diagnosis, and treatment. Asia Pac Allergy. 2018;8:e24, http://dx.doi.org/10.5415/apallergy.2018.8.e24.

Jorge Mora Pinilla[a,*], Alejandro García García[a], Cristina Matesanz López[b], Beatriz Raboso Moreno[a,c]

[a] *Servicio de Neumología, Hospital Universitario de Getafe, Madrid, Spain*
[b] *Servicio de Neumología, Hospital Universitario Clínico San Carlos, Madrid, Spain*
[c] *Universidad Europea de Madrid, Faculty of Biomedical and Health Sciences, Spain*

[*] Corresponding author.
E-mail address: Jorge.mora@salud.madrid.org (J. Mora Pinilla).