Emeryk-Maksymiuk Justyna, Grzywa-Celińska Anna, Makuch Marcelina. A case report of allergic bronchopulmonary aspergillosis - disease well known but rarely diagnosed. Journal of Education, Health and Sport. 2018;8(5):46-50. eISNN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.1237626
http://ojs.ukw.edu.pl/index.php/johs/article/view/5451

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part b item 1223 (26/01/2017).
1223 Journal of Education, Health and Sport eissn 2391-8306 7

The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 05.04.2018. Revised: 10.04.2018. Accepted: 30.04.2018.

A case report of allergic bronchopulmonary aspergillosis - disease well known but rarely diagnosed

Justyna Emeryk-Maksymiuk[1], Anna Grzywa-Celińska[2], Marcelina Makuch[2]

[1]Chair of Internal Medicine and Department of Internal Medicine in Nursing, Medical University of Lublin, ul. Jaczewskiego 8, 20-954 Lublin, Poland

[2]Chair and Department of Pneumonology, Oncology and Allergology, Medical University of Lublin, ul. Jaczewskiego 8, 20-954 Lublin, Poland

Corresponding author: Justyna Emeryk-Maksymiuk, MD, PhD, Katedra Interny z Zakładem Pielęgniarstwa Internistycznego, ul. Jaczewskiego 8, 20-954 Lublin, tel: (81) 448 77 20, justynaemeryk@poczta.onet.pl

Abstract

Allergic bronchopulmonary aspergillosis (ABPA) is a consequence of hypersensitivity reaction to Aspergillus fumigatus that can chronically colonize the airwaysof patients with abnormalities in their airway mucosal defenses, including mucociliary clearance and epithelial cell function, such as patients with bronchial asthma and cystic fibrosis. We present an interesting case of a 62-year-old woman who presented with purulent cough, subfebrile temperature and chest pain. She was ineffectively treated for a month with standard antibiotics and was finally diagnosed with ABPA.

Keywords: allergic aspergillosis; finger-in-glove sign; tubular opacities

A 62-year-old woman presented with purulent cough, subfebrile temperature and chest pain in the right side of thorax that all began a month earlier and did not respond to standard antibiotics. She had a history of nasal polypectomy, five operations of chronic sinusitis and right lung segmentectomy due to lung tumor (non-specific inflammatory changes in histopathologic examination) - all procedures were performed over ten years earlier. She also had a five-year history of allergic rhinitis and bronchial asthma with moderate obturation in spirometry.

Pulmonary auscultation revealed decreased breath sounds and single rhonchi over the right lower lung field. Vital signs were normal. Laboratory tests showed normal blood morphology with eosinophilia1023/µl (13.8%) and total serum IgE level of 923 IU/mL. C-reactive protein level was elevated 7 times over normal range. Other laboratory parameters (creatinine, electrolytes, transaminases, urine analysis) were normal. Chest X-ray showed opacities over the middle and lower right lung field (Fig. 1 panel A), which was confirmed in computed tomography (panel B). CT additionally showed tubular opacities in the aboved-mentioned lung areas, described as the „finger in glove" sign (panel C, arrows). Sputum culture result was positive for *Aspergillus fumigatus.* Serum IgE antibodies specific for *Aspergillus* were positive (3rd class) and the patient had a positive result of skin prick test with *Aspergillus fumigatus* allergens, as well as positive test for precipitating antibody to *Aspergillus* antigen.

This clinical-radiological picture is consistent with allergic bronchopulmonary aspergillosis (ABPA). ABPA is a consequence of hypersensitivity reaction to *Aspergillus fumigatus*, an airborne saprophytic fungi species which is ubiquitous in the environment. *Aspergillus fumigatus* can chronically colonize the airways of patients with abnormalities in their airway mucosal defenses, including mucociliary clearance and epithelial cell function, such as patients with bronchial asthma and cystic fibrosis [1]. There are no epidemiological data concerning the prevalence of ABPA in Polish population but, taking into consideration its global prevalence, which is 2.5% of adult asthmatics, it seems that disease in underdiagnosed [2, 3]. The criteria for a diagnosis of ABPA are the following (there should be fulfilled at least six out of seven): (a) atopic bronchial asthma or cystic fibrosis, (b) peripheral blood eosinophia > 1000 µl, (c) immediate *Aspergillus* species skin test reactivity, (d) positive test for precipitating antibody to *Aspergillus* antigen , (e) increased total serum IgE level or *Aspergillus* species-specific IgE antibodies , (f) chest radiographic infiltrates and (g) central bronchiectases [3].

Although our patient did not present central bronchiectases, she had mucoid impaction of the large airways that often manifests as tubular opacities known as the „finger-in-glove sign", which might be observed in radiological examinations of patients with allergic bronchopulmonary aspergillosis [4].

Oral corticosteroids are the mainstay in treatment of ABPA. Their role is to reduce the inflammatory response trigerred by *Aspergillus fumigatus.* Antifungals (itraconazole) are also administered in order to decrease the burden of fungal colonization [5].

After 6 months of antifungal treatment, the patient was asymptomatic, and chest radiography showed complete regression of previously described opacities (Fig. 1 panel D).

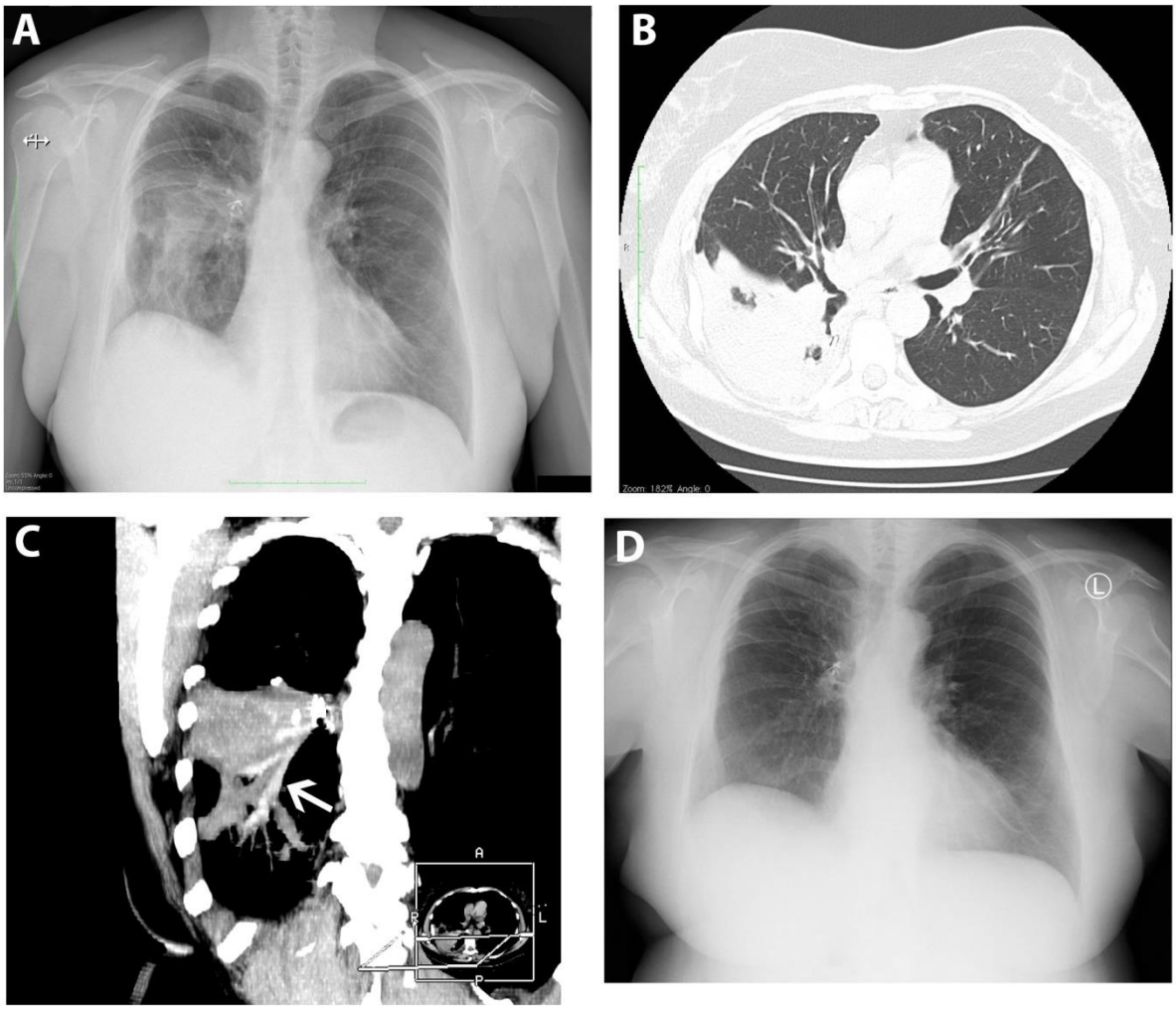

Fig. 1 Imaging findings revealed by chest x-ray and computed tomography: opacities over middle and lower right lung field (Fig. 1 panel A and B), tubular opacities - „finger in glove" sign (panel C, arrows) and complete regression of pathological changes after treatment (panel D).

References

1. Tracy MC, Okorie CUA, Foley EA, et al. Allergic bronchopulmonary aspergillosis. J. Fungi (Basel). 2016; 2: 2.

2. Denning DW, Pleuvy A, Cole DC. Global burden of allergic bronchopulmonary aspergillosis with asthma and its complication chronic pulmonary aspergillosis in adults. Med Mycol. 2013; 51: 361-370.

3. Rowińska-Zakrzewska E, Bestry I, Radzikowska E, Szturmowicz M. [Interstitial lung diseases]. In: Gajewski P. Interna Szczeklika, Medycyna Praktyczna, Kraków; 2017: 744-770 „Polish".

4. Martinez S, Heyeneman LE, McAdams HP, et al. Mucoid impactions: finger-in-glove sign and other CT and radiographic features. Radiographics 2008; 28: 1369-1382.

5. Greenberger PA , Bush RK , Demain JG, et al . Allergic bronchopulmonary aspergillosis. J. Allergy Clin. Immunol. Pract. 2014; 2: 703-708.