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A Case Study of Abpa Presented in Unusual Manner

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Abstract

Case 1: A 51 year old female K/C/O Bronchial asthma with allergic rhinosinusites on inhale corticosteroids and bronchodilators since 1998 was on oral steroids and antihistaminics during acute exacerbations. She was diagnosed as PTB on radiological bases in 2006 and was put on ATT for 16 months and declared cured. later on in 2011 she was again started on ATT as a case of relapse CT showing mediastinal adenopathy with parenchymal infiltrates. She presented to us in 2012, thorough investigations were performed total IgE and IgE to Aspergillus Fumigatus were elevated which wassuggestive of ABPA. **Case 2**: A 30 yr old non-smoker hood. H/o recurrent LRTI since 3 years and was treated with various antibiotics, Hetrazan, oral/inhaled corticosteroids and bronchodilators. He presented to us with symptoms of Exacerbation investigated Total IgE and IgE to Aspergillus Fumigatus were markedly elevated which s/o ABPA. **Case 3:** A 21 yr old male H/o Breathlessness since childhood. Pt was admitted in GMC Belagaviand was diagnosed with R abscess and treated with IV antibiotics for a period of 10 days and was discharged on oral antibiotics for 20 days .Pt presented to us after 1 month of discharge from GMC with C/o Cough with foul smelling expectoration ,fever , Nausea, vomiting and reduced appetite .After thorough investigation which showed increase in Total IgE and IgE to Aspergillus Fumigatus which s/o ABPA

Keyword: ABPA, Total IgE, AEC, IgE specific for aspergillus

Abbreviation: (ABPA) Allergic bronchopulmonary aspergillosis

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Introduction

ABPA is a condition characterized by an exaggerated immune response (hypersensitivity response) to the fungus Aspergillus (mostly Aspergillus Fumigatus). It generally occurs in patients with Asthma or Cystic Fibrosis. It causes airway inflammation which can ultimately be complicated by sacs of airways (Bronchiectasis).ABPA resembles eosinophilic pneumonia & may cause bronchospasm. Exact criteria for diagnosis of ABPA are not agreed upon but chest x-rays, CECT Chest, Immunological test together with sputum staining & sputum cultures canbe useful.

Signs & Symptoms

- Poorly controlled asthma
- Wheezing
- CoughShortness of breath & Exercise Intolerance.

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- Chronic Sputum Production.
- Fever,Malaise not responding to antibiotics.

Pathophysiology

Patients develop hypersensitivity response both for type I (IgE) & Type III (IgG).

Type I Reaction results in mast cell degranulation with bronchoconstriction & increased capillary permeability.

Type III Reaction leads to immune complexes & inflammatory cell deposition in mucous membrane of airways leading to necrosis & eosinophilic infiltrates.

Type 2 T Helper cells secreting IL-4,IL-5 & attraction of neutrophils by IL-8 seems to play an important role.

Inspite of immune reaction, Fungus is not cleared from airways.Proteolytic enzymes released by immune cells & toxins by fungi results in central bronchiectasis & repeated such episodes leads to fibrosis.

Diagnosis

1) Chest X-ray may show one or more of the following
   - Consolidation,Infiltrates or collapse.
   - Thickened Bronchial wall markings.
   - Peripheral Shadows.
   - Central Bronchiectasis.
2) CECT Chest
3) Aspergillus Specific IgE RAST Test
4) Skin Prick Test
5) Fungal Hyphae may be seen in sputum.

Treatment

The immune reaction is suppressed using corticosteroids.High dose of prednisolone(30-45mg/day)in acute attacks & lower maintenance dose(5-10mg/day).

Mucus Plugs canbe removed by bronchoscopic aspiration.

Antifungal Agent (Itraconazole) used along with steroids helps in reduction of steroid dose.

Anti IgE(Omalizumab) has also been used in treatment of ABPA.

CASE STUDY OF ABPA PRESENTED IN UNUSUAL MANNER

Case Study 1

Name: Chanbee A Naro **Age/Se**x: 51 yrs/Female

Address: Raviwarpeth Gokak.

51 yrs old female K/C/O Bronchial Asthma with Allergic Rhinosinusitis since 1998.She used to take inhaled corticosteroids & bronchodilators on regular basis.She was also treated with oral &parentalsteroids during exacerbations.She used to take need base antihistaminics.Her symptoms used to precipitate during change in weather,exposure to dust,anxiety etc.

Her son is suffering from Bronchial Asthma since the age of 2 years.

She was diagnosed as a case of Pulmonary Tuberculosis radiologically in 2006 .She was treated with anti-tubercular treatment for 16 months & declared cured by treating physician.She was on regular inhaled & oral medication for Bronchial Asthma during this period.

In 2011,She was again put on antitubercular treatment(Relapse).Her CT Chest showed mediastenal adenopathy with parenchymal infiltrates.

She presented to us in 2012 with symptoms of exacerbation of Bronchial Asthma.

- Haemogram(29/09/2019): WBC-8300/cumm,Eosinophil-28%

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- Serial Chest X-ray P/A view: Shows Fleeting shadows,Tramline opacities,Glove appearance.
- Spirometry: Mild Obstruction predominantly in small airways with good post.bronchodilator reversibility.
- CT Chest Plain & Contrast with HRCT: Mediastenal Adenopathy with proximal bronchiectasis.
- Sputum For AFB 2 Samples: Negative.

In view of above findings,She was investigated for possibility of ABPA(Allergic Bronchopulmonary Aspergillosis)

- Total IgE : 8499.1 IU/ml Normal Range : < 1.5 -378
- IgE to Aspergillus Fumigatus: 17.30 KUA/l Normal Range >0.1- positive.
- Sputum For KOH Mount: No growth.

It was concluded from above investigations that she was a case of ABPA with mediastenal adenopathy.As she was already on AKT & completed 5 months of intensive phase,3 drug AKT was given as a continuation phase.At the same time systemic corticosteroids was given over a period of 3 months in tapering doses.She was also been treated with oral itraconazole for period of 2 months.

She was followed up regularly.She showed excellent symptomatic relief after completing 3 months of oral steroids and 1 year of AKT.She was again evaluated with haemogram,Chest X-ray& CT Chest.

- Haemogram (10/11/19): WBC 5700/cumm,Eosinophils-2%
- Chest X-rays (23/3/2019) : Complete resolution as compared to previous x-rays.
- CT Chest: Complete resolution of mediastenal adenopathy.Presence of proximal bronchiectasis bilaterally.

At present patient is having remission of ABPA.She is on inhaled medications(ICS+LABA) & Oral Doxyphylline.

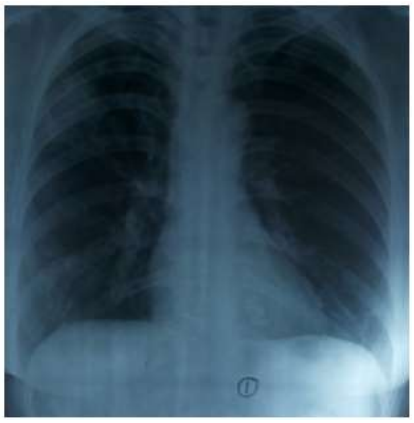

Figure 1

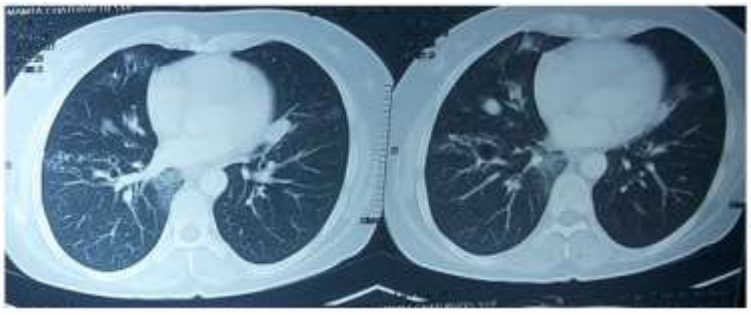

Figure 2

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Case Study 2:
Name: Yuvaraj Madar **Age/Se**x : 30yrs/Male
Address: Khanapur

A 30 year old male non smoker presented with H/o allergic rhinitis ,shortness of breath since child hood which is episodic in nature and sudden in onset ,mostely when exposed to cold climate and house hold dust, each episode lasting for 3-5 days .Pt also give h/o recurrent LRTI since 3 years.
Pt was treated with hetrazan oral corticosteroids inhaled corticosteroids
He presented to us in 2019 with symptoms of exacerbation of Bronchial Asthma
He was thoroughly investigated-

- Haemogram(date): WBC-9200/cumm,Eosinophil-12%
- CXR Chest –
- Spirometry: Moderate obstruction with good post bronchodilator reversibility
- CT Chest Plain & Contrast with HRCT- Patchy consolidation in medial segment of RT middle lobe.Bronchiectactic changes in middle segment if Rt middle lobe,few of the dilated Bronchi showing inspisated secretion within S/O bronchoceieformation.There Multiple surrounding nodules are also noted
- F/S/O Infective Etiology.
- Total IgE :>14000.1 IU/ml Normal Range: < 1.5 -378
- IgE to Aspergillus Fumigatus: 33.20 KUA/l Normal Range >0.1- positive.
- ZN Stain –Negative for AFB
- Gram Stain-No Organism seen.
- Sputum For KOH Mount: No growth.

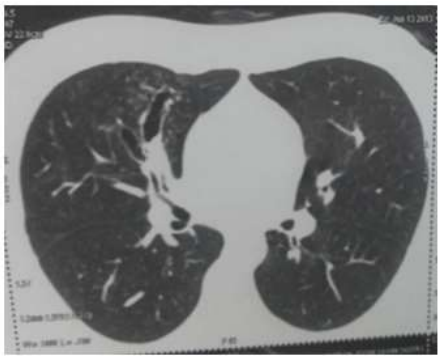

Figure 3

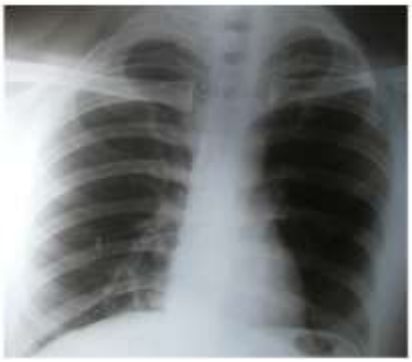

Figure 4

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It was concluded that he was a case of ABPA.

Case Study 3:
Name: Ramesh Sampagaon **Age/Se**x: 21yrs/Male
Address: Belagavi
A 21 years male patient presented with H/o Breathlessness at rest since child hood which is sudden in onset episodic in nature ,2-3 episodes /year lasting for 8-10 days, associated with wheeze
Past history- Pt was admitted in govt medical college and diagnosed as Rt lung abscess,Pt was treated with IV Antibioticts for a period of 10 days and discharged on orla medications for 20 days .
Pt Presented to us with
C/o cough with expectoration foul smelling yellowish since 1 month
C/o Fever on/off since 5 days
C/o Reduced appetite since 1 month
C/o Nausea and vomiting since 2 days
He was thoroughly investigated-

- Haemogram(2/02/2020): WBC-5670/cumm,Eosinophil-4%
- CXR Chest – Nodular shadows in Rt Mid zone and lower zone With surrounding cavitations.
- Spirometry: severe restriction however good post bronchodilator reversibility seen in FEV1
- CT Chest Plain & Contrast with HRCT- Multiloculated fluid filled cavity with air fluid level seen in Rt Middle lobe and Posterior segment of Rt upper with surrounding consolidation.
  F/S/O-Lung Abscesses in Rt middle lobe and posterior segment of Rt Upper lobe .
- Total IgE :\ IU/ml Normal Range : < 1.5 -378
- IgE to Aspergillus Fumigatus: KUA/l Normal Range >0.1- positive.
- ZN Stain –Negative for AFB
- Gram Stain-No Organism seen.
- Sputum For KOH Mount: No growth.

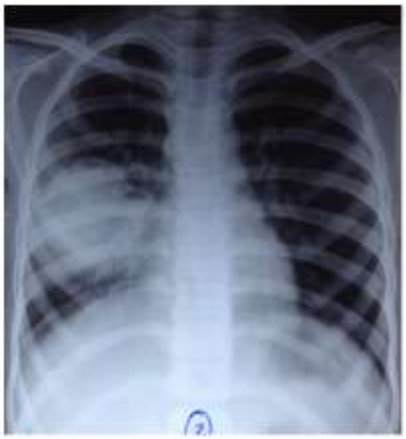

Figure 5

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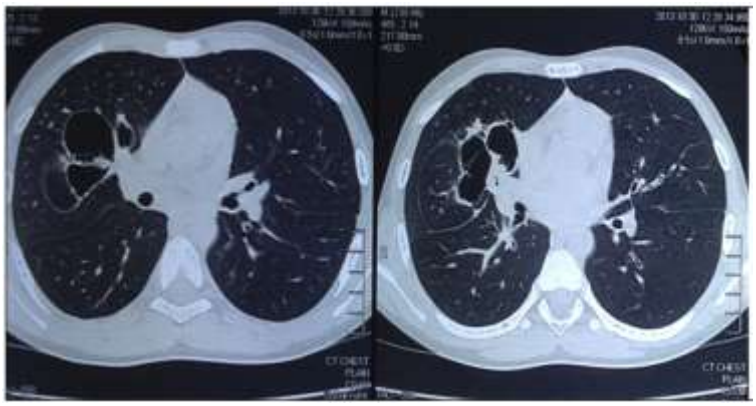

Figure 6

References

1. Malde B, Greenberger PA: Allergic bronchopulmonary aspergillosis. Allergy Asthma Proc 25:S38–39, 2004
2. Marchand E, et al.: Frequency of cystic fibrosis transmembrane conductance regulator genemutations and 5T allele in patients with allergic bronchopulmonary aspergillosis. Chest 119:762–767, 2001.
3. Moss RB: Pathophysiology and immunology of allergic bronchopulmonary aspergillosis. Med Mycol43:S203– 206, 2005.
4. NeeldDA, et al.:Computerized tomography in the evaluation of allergic bronchopulmonary aspergillosis. AmRev Respir Dis 142:1200–1205, 1990.
5. Ogawa H, Fujimura M, Tofuku Y: Allergic bronchopulmonary fungal disease caused by Saccharomyces cerevisiae. J Asthma 41:223–228, 2004.
6. Patterson R, et al.: Allergic bronchopulmonary aspergillosis: Staging as an aid to management. Ann InternMed, 96:286–291, 1982.
7. Patterson R, et al.: Prolonged evaluation of patients with corticosteroid-dependent asthma stage of allergic bronchopulmonary aspergillosis. J Allergy Clin Immunol 80:663–668, 1987
8. Richeson RB 3rd, Stander PE: Allergic bronchopulmonary aspergillosis. An increasingly common disorder among asthmatic patients. Postgrad Med 88:217–219, 222, 224, 1990.
9. Ricketti AJ, Greenberger PA, Patterson R: Serum IgE as an important aid in management of allergic bronchopulmonary aspergillosis. J Allergy Clin Immunol 74:68–71, 1984.
10. Rosenberg M, et al.: Clinical and immunologic criteria for the diagnosis of allergic bronchopulmonary aspergillosis. Ann InternMed 86:405–414, 1977.
11. Safirstein BH, et al.: Five-year follow-up of allergic bronchopulmonary aspergillosis. Am Rev Respir Dis 108:450–459, 1973
12. SkovM,et al.: [Adrenal cortex insufficiency after combination therapy with itraconazole and budesonide]. UgeskrLaeger 165:2198–2201, 2003.
13. Skov M, Hoiby N, Koch C: Itraconazole treatment of allergic bronchopulmonary aspergillosis in patientswith cystic fibrosis. Allergy 57:723–728, 2002.
14. Stevens DA, et al.: A randomized trial of itraconazole in allergic bronchopulmonary aspergillosis. N Engl J Med 342:756–762, 2000.
15. Stevens DA, et al.: Allergic bronchopulmonary aspergillosis in cystic fibrosis: State of the art. Cystic Fibrosis Foundation Consensus Conference. Clin Infect Dis 37:S225–264, 2003.
16. Vlahakis NE, Aksamit TR: Diagnosis and treatment of allergic bronchopulmonary aspergillosis. Mayo Clin Proc 76:930–938, 2001.

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17. Wark PA, et al.: Anti-inflammatory effect of itraconazole in stable allergic bronchopulmonary aspergillosis: A randomized controlled trial. J Allergy Clin Immunol 111:952–957, 2003.
18. Weller PF: The immunobiology of eosinophils. N Engl J Med 324:1110–1118, 1991.
19. Williams J, et al.: Diagnosis of pulmonary strongyloidiasis by bronchoalveolar lavage. Chest 94:643–644, 1988.
20. Winn RE,KollefMH,MeyerJI:Pulmonaryinvolvementin the hypereosinophilic syndrome. Chest 105:656–660, 1994.
21. Zielinski RM, Lawrence WD: Interferon-alpha for the hypereosinophilic syndrome. Ann Intern Med 113:716– 718, 1990.
22. Allen JN, Davis WB: Eosinophilic lung diseases. Am J Respir Crit Care Med 150:1423–1438, 1994.
23. Allen JN, Davis WB, Pacht ER: Diagnostic significance of increased bronchoalveolar lavage fluid eosinophils. Am Rev Respir Dis 142:642–647, 1990.
24. Allen JN, et al.: Acute eosinophilic pneumonia as a reversible cause of noninfectious respiratory failure. N Engl J Med 321:569–574, 1989.
25. Banerjee B, et al.: C-terminal cysteine residues determine the IgE binding of Aspergillus fumigatus allergen Asp f 2. J Immunol 169:5137–5144, 2002.
26. Bosken CH, et al.: Pathologic features of allergic bronchopulmonary aspergillosis. Am J SurgPathol 12:216–222, 1988.
27. Greenberger PA: Allergic bronchopulmonary aspergillosis. J Allergy Clin Immunol 110:685–692, 2002.
28. Greenberger PA, Patterson R: Diagnosis and management of allergic bronchopulmonary aspergillosis. Ann Allergy 56:444–448, 1986.
29. Greenberger PA, Patterson R: Allergic bronchopulmonary aspergillosis. Model of bronchopulmonary disease with defined serologic, radiologic, pathologic and clinical findings from asthma to fatal destructive lung disease. Chest 91:165S–171S, 1987.