Case Studies

ABPA with unusual presentation

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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 was suggestive of ABPA. **Case 2:** A 31 year old male non smoker H/o allergic rhinitis and shortness of breath since child 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 of bronchial asthma. He was thoroughly investigated Total IgE and IgE to Aspergillus Fumigatus were markedly elevated which s/o ABPA. **Case 3:** A 13 year old male H/o Breathlessness since childhood .Pt was admitted in GMC Aurangabad and was diagnosed with Rt lung 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.

Key Word: Aspergillus Fumigatus.

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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 and 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 and sputum cultures can be useful.

Signs and Symptoms

- Poorly controlled asthma
- Wheezing
- Cough Shortness of breath and Exercise Intolerance.
- Chronic Sputum Production.
- Fever, Malaise not responding to antibiotics.

Pathophysiology

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

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

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

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

In spite of immune reaction, Fungus is not cleared from airways. Proteolytic enzymes released by immune cells

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and toxins by fungi results in central bronchiectasis and 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 and lower maintenance dose(5-10mg/day).

Mucus Plugs can be 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 1

51 yrs old female K/C/O Bronchial Asthma with Allergic Rhinosinusitis since 1998.She was treated with inhaled corticosteroids and bronchodilators on regular basis. She was also treated with oral and parental steroids and antihistaminics during exacerbations .Her symptoms precipitated when exposed to cold weather, dust and anxiety etc. Her son has been suffering from Bronchial Asthma since the age of 2 years. She was diagnosed as a case of Pulmonary Tuberculosis radiologically in 2006 .She was on anti-tubercular treatment for a period 16 months and declared cured by the treating physician. She was on regular inhaled and oral medication for Bronchial Asthma during this period. In 2011, She was again given antitubercular treatment(Relapse).Her CT Chest showed mediastinal adenopathy with parenchymal infiltrates. She presented to us in 2012 with symptoms of exacerbation of Bronchial Asthma.

- Haemogram (29/09/2012): WBC-7300/cumm,Eosinophil-21%
- Serial Chest X-ray P/A view: Shows Fleeting shadows, Tramline opacities, Glove appearance. (Fig 1.0)
- Spirometry: Mild Obstruction predominantly in small airways with good post. bronchodilator reversibility.
- CT Chest Plain and HRCT : Mediastinal Adenopathy with proximal bronchiectasis. (Fig 1.1)
- Sputum For AFB 2 Samples: Negative.

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

- Total IgE : 7499.1 IU/ml Normal Range : < 1.5 - 378
- IgE to Aspergillus Fumigatus : 16.30 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 mediastinal adenopathy. As she was already on ATT and completed 5 months of intensive phase,3 drug ATT was given in the continuation phase. At the same time systemic corticosteroids were given over a period of 3 months in tapering doses. She was also treated with oral itraconazole for a period of 2 months. A regular followed up was done. She showed excellent symptomatic relief after completing 3 months of oral steroids and 1 year of ATT. She was again evaluated with haemogram, Chest X-ray and CT Chest.

- Haemogram (10/11/12): WBC 5700/cumm,Eosinophils-2%
- Chest X-rays (23/3/2013) : Complete resolution as compared to previous x-rays.
- CT Chest Plain and HRCT: Complete resolution of mediastinal adenopathy. Presence of proximal bronchiectasis bilaterally.

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

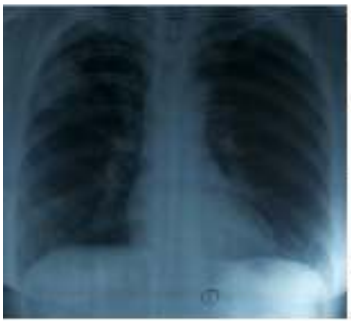

Figure 1.0: Chest X-ray PA view

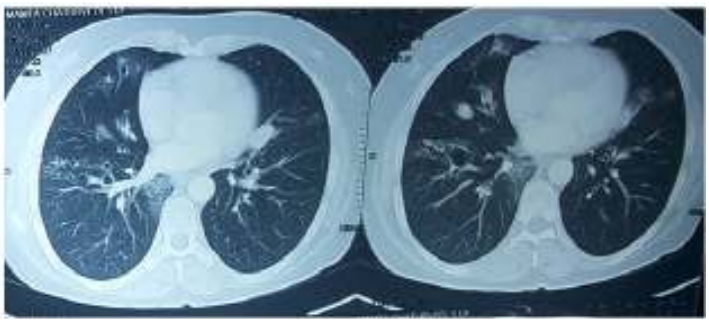

Figure 1.1: HRCT Chest

CASE STUDY 2

A 30 year old male non smoker presented with H/o allergic rhinitis ,shortness of breath since child hood which was episodic in nature and sudden in onset ,mostly on exposure to cold climate and house hold dust, each episode lasting for 3-5 days, 8-10 episodes per year. Pt had h/o recurrent LRTI since 3 years for which he was treated with various antibiotics, hetrazan, Oral and inhaled Corticosteroids and Bronchodilators.

He presented to us at MGM in 2013 with symptoms of exacerbation of Bronchial Asthma, Fever and Cough with expectoration since 2 weeks

He was thoroughly investigated-

- Haemogram : WBC-8200/cumm,Eosinophil-12%
- CT Chest Plain and HRCT – Fig 2.0 Normal
- Spirometry: Moderate obstruction with good post bronchodilator reversibility
- CT Chest Plain and Contrast with HRCT (Fig 2.1)- Patchy consolidation in medial segment of RT middle lobe. Bronchiectactic changes in middle segment of Rt middle lobe, few dilated Bronchi showing inspisated secretion which was S/O bronchiectactic formation, Multiple surrounding nodules were noted - F/S/O Infective Etiology.
- Total IgE : >15000.1 IU/ml Normal Range : < 1.5 -378
- IgE to Aspergillus Fumigatus : 31.20 KUA/l Normal Range >0.1- positive.
- ZN Stain –Negative for AFB
- Gram Stain-No Organism seen.
- Sputum For KOH Mount : No growth.

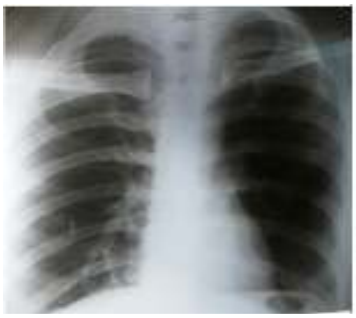

Figure 2.0: Chest X-ray PA view

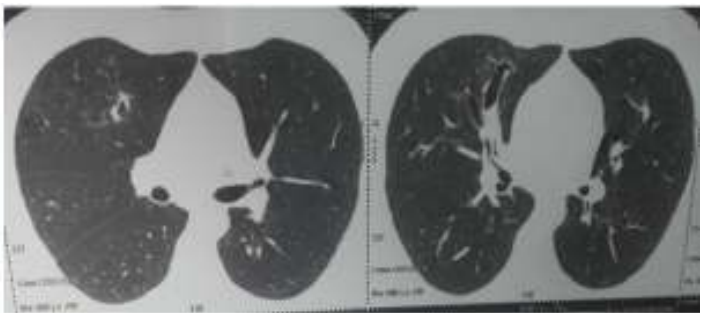

Figure 2.1: HRCT Chest

It was concluded that he was a case of ABPA and was treated with IV/oral Corticosteroids, Antifungal, bronchodilators, antihistaminic and nebulizations with ICS+LABA for a period of 2 weeks and discharged on oral Antifungal, oral Bronchodilators and Inhaled ICS+LABA and asked to follow up after 3 weeks.

CASE STUDY 3

A 13 years male patient presented with H/o Breathlessness at rest since child hood which was sudden in onset episodic in nature ,2-3 episodes /year lasting for 8-10 days ,associated with wheeze, 6-10 episodes per year.

Past history- Pt was admitted in GMC and diagnosed as Rt lung abscess, He was treated with IV Antibiotics for a period of 10 days and discharged on oral Antibiotics for 20 days.

Patient Presented to us with at MGM in 2014 giving

C/o cough with yellowish foul smelling expectoration 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 (date): WBC-5670/cumm,Eosinophil-14%
- Chest X-ray (Fig 3.0) – 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 with HRCT (Fig 3.1)- Multiloculated fluid filled cavity with air fluid level seen in Right Middle lobe and Posterior segment of Right upper with surrounding consolidation.
  F/S/O-Lung Abscesses in Right middle lobe and posterior segment of Right Upper lobe .
- Total IgE : 11000\ IU/ml Normal Range : < 1.5 -378
- IgE to Aspergillus Fumigatus : 24.10 KUA/l Normal Range >0.1- positive.
- ZN Stain –Negative for AFB
- Gram Stain-No Organism seen.
- Sputum For KOH Mount : No growth.

Pt was admitted under us and his investigations showed increase in Total IgE and IgE to Aspergillus Fumigatus levels .He was treated as a case of ABPA with IV/oral Corticosteroids, Antifungal, bronchodilators, antihistaminic and nebulizations with ICS+LABA for a period of 2 weeks and discharged on oral Antifungal, oral Bronchodilators and Inhaled ICS+LABA and asked to follow up after 3 weeks. Pt showed good improvement and was symptomatically better. Repeat Chest Xray PA view after 5 weeks of Treatment showed Radiological improvement.

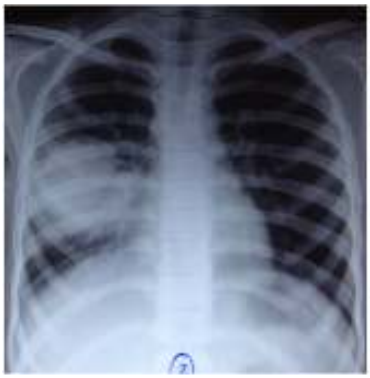

Figure 3.0: Chest X-ray PA view

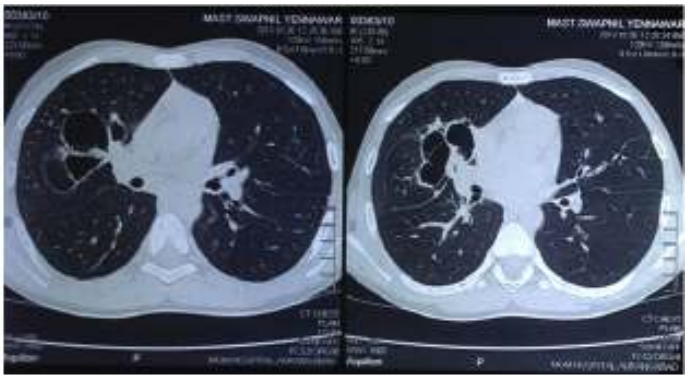

Figure 3.1: HRCT Chest-

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