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RESEARCH ARTICLE

ABPA CLINICAL PRESENTATION AND FOLLOW UP-A CASE SERIES

T. Pritham[1], R. Beaulah[2], M.V.R. Gopinath[3], Y. Pranay[4] and N. Gopichand[5]

1. Assistant Professor, Pulmonary Medicine, Katuri Medical College & Hospital.
2. Junior Resident, Pulmonary Medicine, Katuri Medical College & Hospital.
3. Assistant Professor, Pulmonary Medicine, Katuri Medical College & Hospital.
4. Junior Resident, Pulmonary Medicine, Katuri Medical College & Hospital.
5. H.O.D, Pulmonary Medicine, Katuri Medical College & Hospital.

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Abstract

ABPA (allergic bronchopulmonary aspergillosis) is immunologically mediated lung disease in response to aspergillus fumigatus[1] in patients with asthma or cystic fibrosis[2]. A series of 5case reports of patients diagnosed with ABPA from 2022-2024 at Katuri medical college & hospital. The Clinical history mostly dominated by asthma & its exacerbations,radiological featuresmostly of bronchiectasis and mucus plugs and laboratory investigations were reviewed. This case series highlights the importance of early recognition of symptoms and early initiation of treatment&regular follow-up in order to prevent exacerbations.

Introduction:-

ABPA is hypersensitivity reaction to inhaled aspergillus spores. Classically associated in patients with asthma or cystic fibrosis[3,4]. Associated majorly with asthma and its recurrent exacerbations. Symptoms-cough, dyspnoea, wheeze, brownish mucus plugs and sometimes haemoptysis. Misdiagnosed as pulmonary tuberculosis in 1/3rd of cases. Classified based on serological and radiographical findings into ABPA-CB, ABPA-S and ABPA-HAM.Prevalence of ABPA in asthma clinics may be as high as 13% with a global burden of almost 5 million patients[5]

CASE 1: A 37year old male patient who is A weaver, non-smoker, came with complaints of Breathlessness (MMRC grade III) associated with wheeze for4 weeks, Cough with mucopurulent sputum for4 weeks. History of fever on &off for 1month.Been hospitalized 3 times in the past with similar complaints. Using bronchodilators. No History of ATT usage. On auscultation bilateral diffuse expiratory rhonchi are present. HRCT chest: B/L perihilar bronchiectasis with cystic bronchiectasis and tree-in-bud pattern in lower lobe of left lung. Sputum for CBNAAT-negative. Aspergillus IgE-3.58KUA/L, Total IgE ->3000IU/ml, S. IgG-3.30U/ml (>11u/ml is positive), AEC-1640 cells/cu mm. TREATMENT: patient was started on Tab. Prednisolone 0.5mg/kg/day for 2 weeks followed by 0.5mg/kg/day alternate day for 6 weeks[6]. Tab. Itraconazole 400mg/day for 16 weeks. Patient is following up regularly & continued to do well without further requirement of Oral corticosteroids with improvement in daily activity.

Corresponding Author:- N. Gopichand
Address:- H.O.D, Pulmonary Medicine, Katuri Medical College & Hospital.

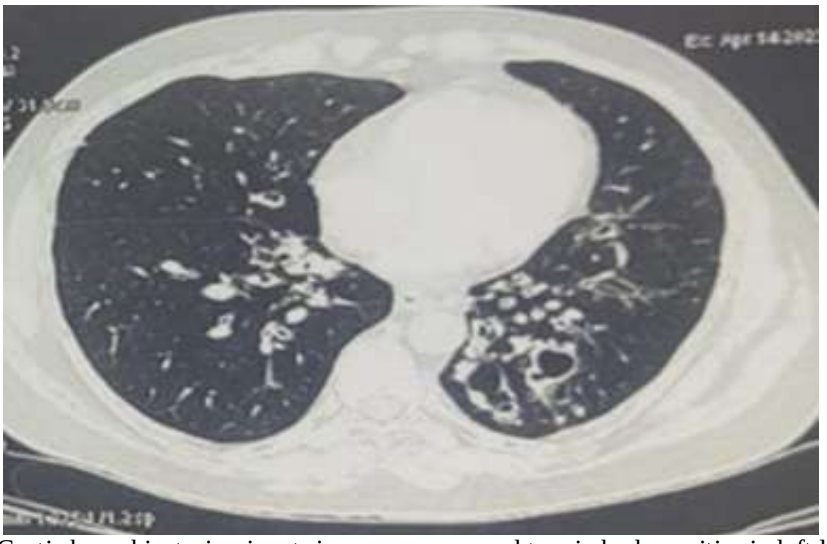

Figure 1:- Cystic bronchiectasis, signet ring appearance and tree in bud opacities in left lower lobe.

Case 2:

A 59year old male patient, Non-smoker, farmer presented with complaints of Cough with mucoid expectoration for10 days, Breathlessness (MMRC grade IV) with wheeze for3 days, HRCT chest-bilateral perihilar bronchiectasis, fibrotic opacities in bilateral upper lobes, emphysematous blebs in bilateral upper lobes. Sputum for CBNAAT – negative. Bronchoscopy: oozing mucus secretions from right & left bronchial tree. Serum total IgE-1385 IU/ml, AF specific IgG-34.53 mg/L, AF specific IgE-17.30KUA/L, AEC-2010 cells/mm3.History of hospitalization for similar complaints 3 years back. No history of ATT usage. patient is using bronchodilators from 10years. On auscultation bilateral diffuse expiratory rhonchi present.TREATMENT: patient was started on Tab. Prednisolone 0.5mg/kg/day for 2 weeks followed by 0.5mg/kg/day alternate day for 6 weeks[6]. Tab. Itraconazole 400mg/day for 16 weeks. Patient is following up regularly, patient reported complete symptom control with no further need of oral corticosteroids with improvement in quality of life.

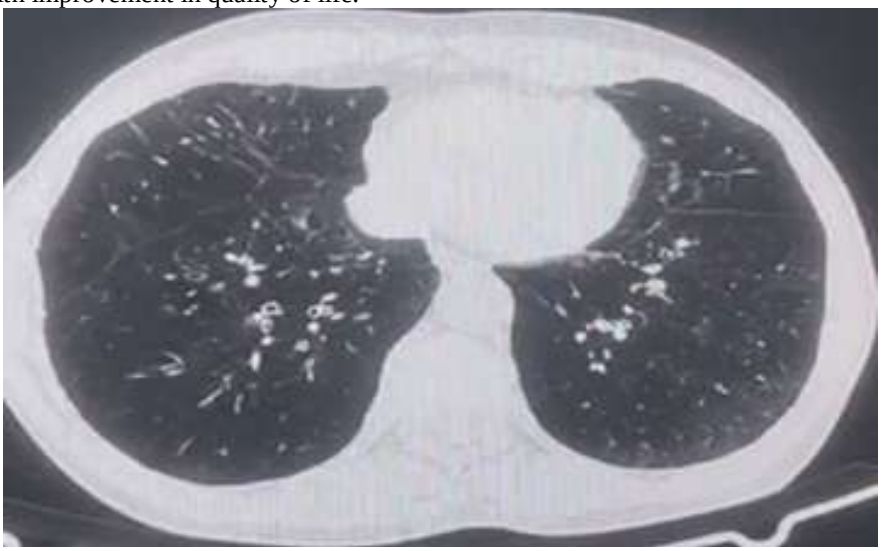

Figure 2:- B/L signet ring appearance.

Case 3:

A 48year old female, non-smoker, house wife Presented with complaints of fever for 5 days, Breathlessness (MMRC Grade IV) since3 days, Cough with mucoid sputum for 2 days, Loss of weight over 20 kgs in the past year. Patient is using bronchodilators since10 years. No history of ATT usage. On Auscultation bilateral diffuse rhonchi present. HRCT CHEST: tree-in-bud pattern, few fibrotic opacities in bilateral lower lobes, B/L perihilar bronchiectasis noted. Bronchoscopy: showing diffuse mucus plugging in right and left bronchial tree. Total IgE

Levels-2500IU/ml, aspergillus specific IgE:1.9KUA/L, AF specific IgG-1.24U/ml. AEC :40 cells/µL. TREATMENT: patient was started on Tab. Prednisolone 0.5mg/kg/day for 2 weeks followed by 0.5mg/kg/day alternate day for 6 weeks[6]. Tab. Itraconazole 400mg/day for 16 weeks. Patient came to casualty 5 months later with similar complaints & similar radiographic presentation. Patient was started on high dose regimen of TAB.PREDNISOLONE 0.75 MG/KG for 6 weeks tapered by 5 mg every 6weeks and continued for another 6 months[6]. Patient was advised for Tab.omalizumab but not initiated due to economic constraints.

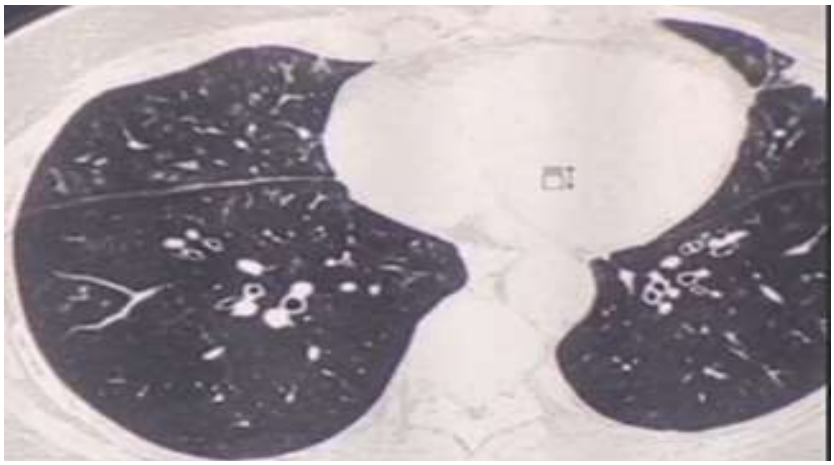

Figure 3:- B/L tree-in-bud & perihilar bronchiectasis in lower lobes.

Case 4:

A 65year old male patient, ex-smoker, shop keeper, Presented with complaints of breathlessness grade IV MMRC for 3 days, cough with mucoid sputum for 3days.History of hospitalization for similar complaints 14 years back. Diabetic. No history of ATT usage. Using bronchodilators for 12 years. With spo2-88% at room air. On auscultation bilateral diffuse expiratory rhonchi present. HRCT chest –B/L perihilar cystic bronchiectasis with mucus plugs in lower lobes. Spirometry –obstructive pattern with bronchodilator reversibility. Sputum for CBNAAT: negative total IgE-1955 IU/ml, aspergillus specific IgE-0.59KUA/ml, Aspergillus specific IgG-2.87U/ml[7], AEC- 420 cells/cu.mm. TREATMENT: patient was started on Tab.Prednisolone 0.5mg/kg/day for 2 weeks followed by 0.5mg/kg/day alternate day for 6 weeks[6]. Tab. Itraconazole 400mg/day for 16 weeks. Patient came to casualty 1 month later with similar complaints & similar radiographic presentation. Patient was started on high dose regimen of TAB.PREDNISOLONE 0.75 MG/KG for 6 weeks tapered by 5 mg every 6weeks and continued for another 6 months[6]. Patient is following up regularly & was advised Tab.omalizumab but did not initiate due to economic constraints.

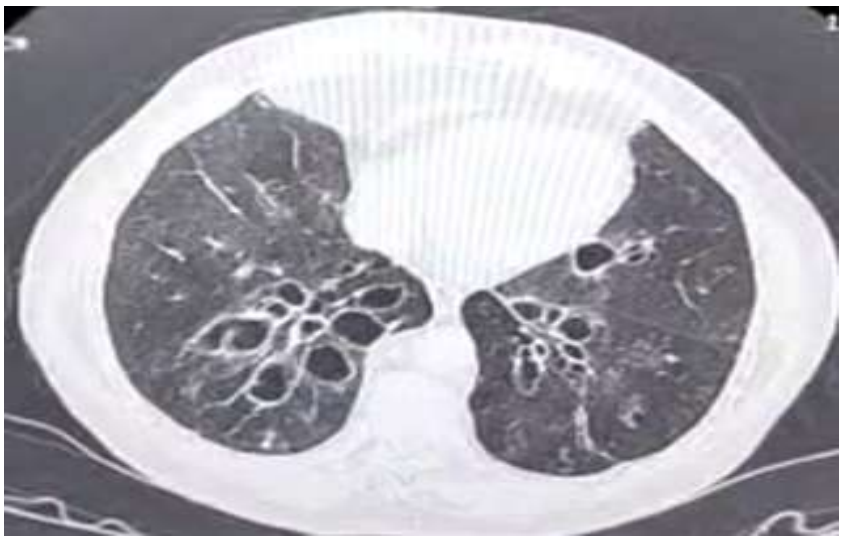

Figure 4:- Bilateral cystic bronchiectasis in lower lobes.

Case 5:
A 55year old male who is a farmer, non-smoker, presented with complaints of Cough with mucoid expectoration for 1 month. History of bronchodilator usage present. No history of ATT usage. Vitals are within normal limits. On auscultation bilateral inter and infra scapular Rhonchi. HRCT CHEST-cystic bronchiectasis with few air space opacities and tree in bud opacities noted in right middle lobe and bilateral lower lobes.AEC-380 cells/µl. Total IgE-447IU/ml (biological ref. range 140) AF specific IgG-36.99 mg/L, specific IgE-54.90KUA/ml. TREATMENT: patient was started on Tab. Prednisolone 0.5mg/kg/day for2 weeks followed by 0.5mg/kg/day alternate day for 6 weeks[6]. Tab. Itraconazole 400mg/day for 16 weeks. Patient is following up regularly with improvement in symptoms, quality of life and reduction in daily inhalational steroid dosage.

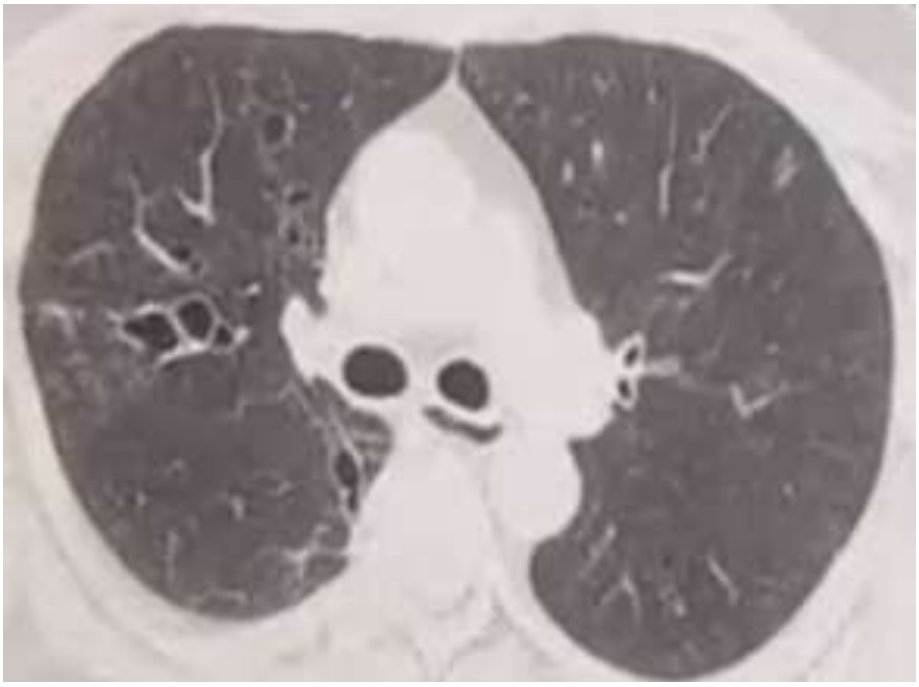

Figure 5:- Air space opacites & signet ring appearance.

Table 1:-

REVISED CRITERIA FOR ABPA(ISHAM)

Predisposing conditions (one must be present)	
Bronchial asthma	COPD
Cystic fibrosis	Post TB fibrocavitary disease
Obligatory Criteria (both should be present)	**Other criteria (at least two of three)**
Elevated A.fumigatus specific Ig E (> 0.35kUA/L)	Ig G antibodies in serum (> 27 mgA/L)
Elevated total Ig E levels (> 1000 IU/ml)	Radiographic pulmonary opacities consistent with ABPA
	Eosinophil count > 500 cells /ul (may be historical)

Results:-

A total of 5 patients were identified. Mean age -52.8 years. There are 4 males and 1 female in the study.4 patients have previous history of asthma. Mean total IgE at presentation was 1857.4IU/ml. Mean aspergillus specific IgG 18.756mgA/ml and IgE were 15.654KUA/L. AEC was 898cells/cu.mm. CT chest findings-Perihilar bronchiectasis, tree-in-bud opacities and fibrotic opacities. Out of 5 patients 2 presented with exacerbation.

Conclusion:-

Early diagnosis is effective in management of ABPA. Chronic ABPA patients can present with respiratory failure with carbon dioxide narcosis[9]. Corticosteroids & anti-fungals are the primary therapy for ABPA and patient symptoms improved with the therapy. patients with exacerbations were advised for biologics like omalizumab but could not be initiated due to patients' economic constraints.

Table 2:-

Diagnostic criteria for ABPA proposed by the ISHAM working group					
	Obligatory criteria		Minor criteria		
	Elevated *Aspergillus*-specific IgE level (> 0.35 kUA/L)	Elevated serum total IgE level (> 1000 IU/mL or simply elevated if all other criteria are met)	Precipitating antibodies or IgG antibodies against *Aspergillus(27mgA/l)*	Radiographic findings consistent with ABPA	Peripheral blood eosinophilia (≥ 500 cells/mm^3)
Case 1 37 year old male	3.58KuA/L(yes)	3000(yes)	3.309(No)	Bronchiectasis with tree in bud pattern	1640(yes)
Case 2 59 year old male	17.30KuA/L(yes)	1385(yes)	34.53(yes)	Bronchiectasisfibrotic opacites,blebs	2010(yes)
Case 3 48 year old female	1.9KuA/L(yes)	2500(yes)	1.24(No)	Bronchiectasis& fibrosis	40(No)*
Case 4 65 year old male	0.59KuA/L(yes)	1955(yes)	2.87(No)	bronchiectasis	420(No)*
Case 5 55 year old male	54.90KuA/L(yes)	447(ref.range 140)yes	36.99(yes)	Bronchiectasis &tree in bud opacities.	380(No)*

*The only eosinophil count available was obtained while the patient was already treated with corticosteroids[8]

References:-

1.Jindal, Anshika; Rathore, Yogendra Singh; Jain, Shubhra; Jain, V. K.1; Joshi, Vinod. Clinical, radiological, and immunological assessment of allergic bronchopulmonary aspergillosis. Indian Journal of Allergy, Asthma and Immunology 34(1):p 34-38, Jan–Jun 2020. | DOI: 10.4103/ijaai.ijaai_28_19.

2Hassanzad M, Mortezaee V, Bongomin F, Poorabdollah M, Sharifynia S, Maleki M, Hedayati N, Velayati AA, Hedayati MT. Successful control of exacerbation of Allergic Bronchopulmonary Aspergillosis due to Aspergillus terreus in a cystic fibrosis patient with short-term adjunctive therapy with voriconazole: A case report. J Mycol Med. 2019 Jun;29(2):189-192. doi: 10.1016/j.mycmed.2019.02.001. Epub 2019 Feb 16. PMID: 30782501

3.Rai D, Kumar S, Kumar S. A Case series of ABPA with rare radiological presentation. Indian J Allergy Asthma Immunol [Internet]. 2020;34(2):117. Available from: http://dx.doi.org/10.4103/ijaai.ijaai_19_20

4.Yutong Dong, Allison Greco, Bhaskara VGarimella, Britta kumley,case report of allergic bronchopulmonary aspergillosis in a patient without asthma or bronchiectasis,chest, volume 162, issue 4, supplement,2022, page a18, issn 0012-3692.

5.Agarwal R, Chakrabarti A. Allergic bronchopulmonary aspergillosis in asthma: epidemiological, clinical and therapeutic issues. Future Microbiol. 2013 Nov;8(11):1463-74. doi: 10.2217/fmb.13.116. PMID: 24199804.

6. Agarwal R, Muthu V, Sehgal IS. Clinical Manifestation and Treatment of Allergic Bronchopulmonary Aspergillosis. Semin Respir Crit Care Med. 2024 Feb;45(1):114-127. doi: 10.1055/s-0043-1776912. Epub 2023 Dec 28. PMID: 38154470.

7.Hedayati N, Mortezaee V, Mahdaviani SA, Mirenayat MS, Hassanzad M, Pourabdollah M, Heshmatnia J, Fakharian A, Pourdolat G, Sharifynia S, Vakili M, Abastabar M, Haghani I, Aliyali M, Asgarian-Omran H, Hedayati MT. Prevalence of specific immunoglobulin E and G against *Aspergillus fumigatus* in patients with asthma. Curr Med Mycol. 2018 Dec;4(4):7-11.doi: 10.18502/cmm.4.4.380. PMID: 30815611; PMCID: PMC6386509.

8.Benkalfate N, Dirou S, Germaud P, Defrance C, Cavailles A, Pigeanne T, Robert M, Madjer T, Corne F, Cellerin L, Sagan C, Blanc FX. Total unilateral pulmonary collapse secondary to allergic bronchopulmonary aspergillosis: acase series of an unusual cause of complete atelectasis. BMC Pulm Med. 2021 Dec 24;21(1):425. doi: 10.1186/s12890-021-01789-9. PMID: 34952578; PMCID: PMC8709957.

9.Nagar, A., Roy, S., Bajpai, J., Verma, A. K., & Kant, S. (2023). An Interesting Case of Allergic Bronchopulmonary Aspergillosis Resulting in Type II Respiratory Failure. **Journal of Respiration**, **3**(1), 1-5. https://doi.org/10.3390/jor3010001**.**