

Allergic bronchopulmonary aspergillosis: A view from India

Sir,

It was with great interest that I read the article by Dr. Al-Amoudi¹ and the comments by Dr. Al-Mobeireek.² Both pulmonary tuberculosis (TB) and allergic bronchopulmonary aspergillosis (ABPA) can present with a similar clinical and radiological picture.^{3,4} Predominantly a disease of asthmatics, ABPA is characterized by repeated episodes of exacerbations interspersed with periods of remission culminating, if untreated, in fibrotic lung disease which can resemble the chronic fibrocavitary disease of pulmonary tuberculosis.⁵ When we evaluated 23 patients with ABPA to study the computerized tomography (CT) appearances, we found that 83% of these patients, prior to presentation, had received anti-tuberculous therapy for a long duration.⁶ The radiologic appearances in ABPA closely resemble those seen in TB. However, serial roentgenograms may reveal the transient nature of these pulmonary infiltrates, also known as 'fleeting shadows', a feature characteristic of ABPA.⁷ Although cavitation is not common in ABPA,^{6,8} aspergilloma formation in these cavities has been reported.^{4,9,10} This could also lead to diagnostic confusion, as aspergillomas are known to form in tuberculous cavities.¹¹ Dr. Al-Mobeireek also described a patient with concomitant ABPA and TB,² but in our recent analysis of 95 patients with ABPA¹² we were unable to detect any patient with coexisting TB. However, we are in agreement with Dr. Al-Mobeireek that prophylactic therapy for tuberculosis should be considered when commencing systemic steroids in patients with ABPA.² Dr. Al-Amoudi has quoted a 5-15% prevalence of ABPA from Western studies but a majority of the studies quoted are those of patients with cystic fibrosis,¹ while Dr. Al-Mobeireek found a prevalence of 2.7% among their asthmatic subjects.¹³ A recent literature review on the epidemiology of ABPA states that the disease may be present in 0.2-0.8% of all asthmatic patients in the United States of America.¹⁴ We recently determined the sensitization to *Aspergillus* antigens in 105 patients with bronchial asthma.¹⁵ We found that 30 (28.5%) patients were sensitized to *Aspergillus* antigens while 8 (7.6%) fulfilled all the 8 major criteria for the diagnosis of ABPA. Although ABPA is a disease with a worldwide distribution,¹⁶ the variable prevalence rates probably reflect the lack of a single diagnostic criterion with a standardized test. Central bronchiectasis with normal tapering peripheral bronchi still remains a prerequisite for the diagnosis of ABPA.^{17,18} To add to the discussion, we would like to stress that allergic *Aspergillus* sinusitis (AAS),¹⁹ a more recently recognized form of

Aspergillus-related hypersensitivity respiratory disorders, should also be looked for in patients with ABPA.²⁰⁻²² In our analysis of 95 patients with ABPA, we were able to confirm the presence of concomitant AAS in 7 of the 9 patients who underwent the invasive procedure required for diagnosis.¹² However, the frequency of AAS among our patients with ABPA could be higher since 13 others with radiologic evidence of sinusitis refused to undergo the surgical procedure. This review suggests that the co-occurrence of ABPA and AAS may not be as rare as it appears and it is imperative that the occurrence of AAS in ABPA and ABPA in AAS should be looked for.^{12,23}

In conclusion, ABPA must be excluded in all asthmatic subjects with a positive skin prick test to *Aspergillus* antigens. Furthermore, the remarkable radiologic similarity to pulmonary tuberculosis has important clinical implications in high tuberculosis prevalent areas as patients with ABPA often receive antituberculous therapy for a long time while lung damage continues to progress relentlessly.^{7,24} Early diagnosis and appropriate therapy could alter the natural history of the disease and prevent the development of end-stage lung fibrosis.

Ashok Shah

Department of Respiratory Medicine
Vallabhbhai Patel Chest Institute
University of Delhi
Delhi - 110 007
India

Reply from the authors

I read with great interest the valuable remarks of Prof. Shah regarding my paper.¹ I agree that allergic bronchopulmonary aspergillosis (ABPA) and pulmonary TB may mimic each other clinically and radiologically. Consequently, this may lead to the wrong use of anti-TB therapy for many years in patients with ABPA.^{1,6} However, the presence of elevated immunoglobulin E (IgE) level, positive skin prick test, positive specific serum IgE to aspergillosis species, and central bronchiectasis would point to the diagnosis of ABPA rather than of TB.¹ Therefore, high index of clinical suspicion is required for differentiating ABPA from pulmonary TB. Recently, high resolution computerized tomography scan has also been found to be helpful in differentiating ABPA from TB.^{6,25} Although, Dr. Al-Mobeireek in his series found an association between ABPA and TB in one of his patients,^{13,26} I agree with Prof. Shah that the association of TB with ABPA is extremely rare.²⁷ Therefore, I would still recommend prophylactic TB therapy for high-risk patients with

Correspondence

ABPA when they received systemic steroid. However, anti-TB therapy should only be given to ABPA patients if AFB has been isolated.¹⁴ The prevalence of ABPA is variable from one region to another,^{12,13,26,28} and depends on the types of patients studied. The prevalence of ABPA in cystic fibrosis seems to be higher than in patients with bronchial asthma. This could be related to the severity, duration of the underlying disease, and as well as to the diagnostic criteria used for ABPA in their studies. So, the wide range of prevalence variation in ABPA could be multifactorial and related to the type of underlying disease, type of patients studied, and to the diagnostic tests and criteria used for diagnosis of ABPA.

In conclusion, ABPA may still mimic pulmonary TB clinically and radiologically especially for inexperienced physicians.^{1,26} This may subject the patient to the wrong use of anti-TB therapy for many years while the original disease will progress into irreversible pulmonary damage. Therefore, high clinical suspicion with appropriate radiological and laboratory tests should always be kept in mind to protect the patients from developing end stage pulmonary fibrosis and respiratory failure.

Omer Alamoudi

Department of Medicine
King Abdul-Aziz University Hospital
Jeddah
Kingdom of Saudi Arabia

Sir,

I thank Dr. Shah for his interest in the topic and sharing his experience regarding allergic bronchopulmonary aspergillosis in India with us.

Abdullah F. Al-Mobeireek

Department of Medicine
King Saud University
Riyadh
Kingdom of Saudi Arabia

References

1. Al-Amoudi OS. Allergic bronchopulmonary aspergillosis mimicking pulmonary tuberculosis. *Saudi Med J* 2001; 22: 708-713.
2. Al-Mobeireek A. Allergic bronchopulmonary aspergillosis mimicking pulmonary tuberculosis. *Saudi Med J* 2002; 23: 476.
3. Shah A, Bhagat R, Panchal N. Childhood allergic bronchopulmonary aspergillosis with clubbing and cavitation. *Indian Pediatr* 1993; 30: 248-251.
4. Agarwal AK, Bhagat R, Panchal N, Shah A. Allergic bronchopulmonary aspergillosis with aspergilloma mimicking fibrocavitary pulmonary tuberculosis. *Asian Pac J Allergy Immunol* 1996; 14: 5-8.
5. Shah A. Allergic bronchopulmonary aspergillosis. *Indian J Chest Dis Allied Sci* 1998; 40: 41-54.
6. Panchal N, Bhagat R, Pant C, Shah A. Allergic bronchopulmonary aspergillosis: The spectrum of computed tomography appearances. *Respir Med* 1997; 91: 213-219.
7. Shah A, Panchal N, Agarwal AK. Allergic bronchopulmonary aspergillosis: The spectrum of roentgenologic appearances. *Indian Journal of Radiology and Imaging* 1999; 9: 107-112.
8. Phelan MS, Kerr IH. Allergic bronchopulmonary aspergillosis: The radiological appearances during long-term follow up. *Clin Radiol* 1984; 35: 385-392.
9. Shah A, Khan ZU, Chaturvedi S, Ramchandran S, Randhawa HS, Jaggi OP. Allergic bronchopulmonary aspergillosis with co-existent aspergilloma: A long term follow up. *J Asthma* 1989; 26: 109-115.
10. Sharma P, Agarwal AK, Shah A. Formation of an aspergilloma in a patient with allergic bronchopulmonary aspergillosis on corticosteroid therapy. *Indian J Chest Dis Allied Sci* 1998; 40: 269-273.
11. British Thoracic and Tuberculosis Association. Aspergilloma and residual tuberculosis cavities: the results of a resurvey. *Tubercle* 1970; 51: 227-245.
12. Shah A, Panchal N, Agarwal AK. Concomitant allergic bronchopulmonary aspergillosis and allergic *Aspergillus* sinusitis: A review of an uncommon association. *Clin Exp Allergy* 2001; 31: 1896-1905.
13. Al-Mobeireek A, Gad El-Rab MO, Al-Hedaithy SSA, Alasali K, Al-Majed S, Joharjy I. Allergic bronchopulmonary mycosis in patients with asthma: period prevalence at a University hospital in Saudi Arabia. *Respir Med* 2001; 95: 341-347.
14. Novey HS. Epidemiology of allergic bronchopulmonary aspergillosis. *Immunology Allergy Clinical North America* 1998; 18: 641-653.
15. Maurya V. Sensitization to *Aspergillus* antigens in patients with asthma [dissertation]. Delhi: Vallabhbai Patel Chest Institute; 2002.
16. Shah A, Panjabi C. Allergic bronchopulmonary aspergillosis: a review of a disease with a worldwide distribution. *J Asthma* 2002; 39: 273-289.
17. Shah A, Pant CS, Bhagat R, Panchal N. CT in childhood allergic bronchopulmonary aspergillosis. *Pediatr Radiol* 1992; 22: 227-228.
18. Panchal N, Pant CS, Bhagat R, Shah A. Central bronchiectasis in allergic bronchopulmonary aspergillosis: comparative evaluation of computed tomography of the thorax with bronchography. *Eur Respir J* 1994; 7: 1290-1293.
19. Shah A, Khan ZU, Sircar M, Chaturvedi S, Bazaz Malik G, Randhawa HS. Allergic *Aspergillus* sinusitis: an Indian report. *Respir Med* 1990; 84: 249-251.
20. Shah A, Khan ZU, Chaturvedi S, Bazaz Malik G, Randhawa HS. Concomitant allergic *Aspergillus* sinusitis and allergic bronchopulmonary aspergillosis associated with familial occurrence of allergic bronchopulmonary aspergillosis. *Ann Allergy* 1990; 64: 507-512.
21. Shah A, Bhagat R, Panchal N, Jaggi OP, Khan ZU. Allergic bronchopulmonary aspergillosis with middle lobe syndrome and allergic *Aspergillus* sinusitis. *Eur Respir J* 1993; 6: 917-918.
22. Bhagat R, Shah A, Jaggi OP, Khan ZU. Concomitant allergic bronchopulmonary aspergillosis and allergic *Aspergillus* sinusitis with an operated aspergilloma. *J Allergy Clin Immunol* 1993; 91: 1094-1096.
23. Shah A. Editorial – Allergic bronchopulmonary and sinus aspergillosis: the co-occurrence. *Chest (India)* 2001; 2: 234-235.

Correspondence

24. Shah A. Editorial - Allergic bronchopulmonary aspergillosis: an emerging disease in India. *Indian J Chest Dis Allied Sci* 1994; 36: 169-172.
25. Ward S, Heyneman L, Lee MJ, Leung AN, Hansel DM, Muller NL. Accuracy of CT in the diagnosis of allergic bronchopulmonary aspergillosis in asthmatic patients. *Am J Radiol* 1999; 173: 937-942.
26. Al-Moeireek A, Gad El-Rab MO, Joharjy E, Al-Shoibani M, Ashour M. Allergic bronchopulmonary aspergillosis: Disease pattern in central Arabia. *Trop Med Int Health* 1998; 3: 34-40.
27. American Thoracic Society. Targeted tuberculin testing and treatment of latent tuberculosis infection. *Am J Respir Crit Care Med* 2000; 161: 5221-5247.
28. Geller DE, Kaplowitz H, Light MJ, Colin AA. Allergic bronchopulmonary aspergillosis in cystic fibrosis. Reported prevalence, regional distribution, and patient characteristics. Scientific Advisory Group, Investigation and coordinations of the Epidemiological Study of Systick Fibrosis. *Chest* 1999; 116: 639-646.

Erratum

In manuscript "Sternalis. *An anatomic variant of chest wall musculature*" Saudi Med J 2002; Vol. 23 (10): 1214-1221, the references did not appear in numerical order in the text and Tables, however they do match the appropriate references in the reference section; and Figures 2b & 4a should have appeared as follows:

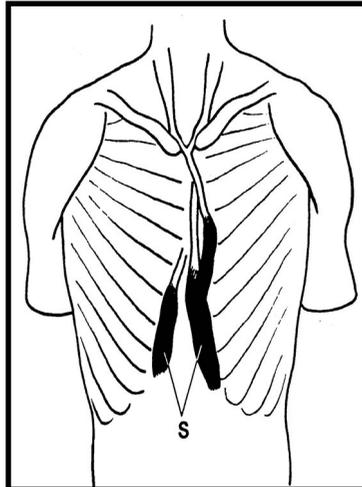


Figure 2b - The schematic drawing of the bilateral sternalis muscle.

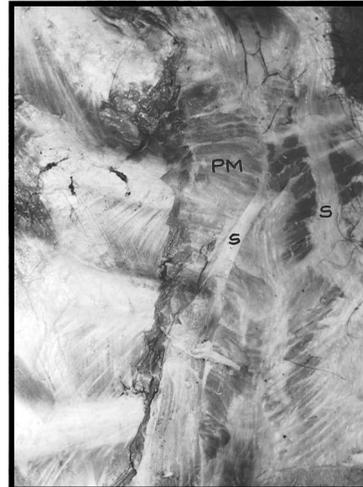


Figure 4a - Photograph of illustrative case 3 showing the bilateral sternalis muscle.