Case Report

P vivax Malaria causing Bronchiolitis obliterans with organizing pneumonia (BOOP): A rare complication

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Abstract

India and African countries are said to endemic to malaria. P. Falciparum malaria practically can cause anything as we have read in the articles, but complications with P.vivax are not common. Bronchiolitis obliterans with organizing pneumonia (BOOP) is one of the rare lung diseases. Here we are presenting a case of P.Vivax malaria complicated by BOOP which is a very rare complication.

Key words: Malaria, BOOP, Plasmodium vivax

Introduction

Malaria is an important preventable and treatable endemic disease in tropical countries like India. Pulmonary involvement in malaria is a known to man. It is mainly described in falciparum infections but it seen in other types also. It can vary from bronchiolitis to Acute respiratory distress syndrome. Pregnant women and non immune individuals are more to this[1]. But the association of Malaria with BOOP is less known to man. Here we are presenting a case of P.Vivax malaria complicated by BOOP.

Case Description

A 15 year old boy got admitted to medicine ward with complaints of fever with chills and rigors for 8 days and cough for 3 days which was non-productive in nature. On admission, pulse and blood pressure was normal. But his respiratory rate was 22 and his saturation was low. Systemic examination revealed bilateral crackles on auscultation and moderate splenomegaly which was 5 cm below the left costal margin. Routine blood chemistries were done which was within normal limits. Patient was transferred to ICU. As a routine investigation, we sent for optimal test (card test for malaria) which came out positive. Chest X ray showed hyperlucent patches in both lungs more in the lower zones. To find out the abnormality seen on X ray, we planned to get high resolution CT scan of thorax done. It showed patchy areas of ground glass consolidation, air space consolidation and interlobar septal thickening. It also showed ring of consolidation surrounding ground glass haziness- reversed halo sign in posterior segment of left upper lobar which is quite specific for BOOP. He was started on antimalarials. As the patient improved clinically, he was transferred back to wards. After complete course of antimalarials patient was discharged.

Discussion

Malaria can present with just about anything. The most frequent presentation of malaria is that of a pronounced febrile illness with chills and rigors. Pulmonary complications are seen almost exclusively with falciparum infection. A dry cough may be present in 20% to 50% of patients with malaria [2]. Respiratory distress develops in up to 25% of adults and 40% of children with severe falciparum malaria [3]. Various pulmonary complications have been described in literature. Its diverse features include respiratory compensation of metabolic acidosis, non cardiogenic pulmonary edema, concomitant pneumonia, and severe anemia. These complications are seen when there is high level of parasitemia. ARDS is more common in patients with hemoglobin less than 5 gms/ dl. BOOP is one of the very rare complications of malaria with only a handful number of cases being reported in medical literature.

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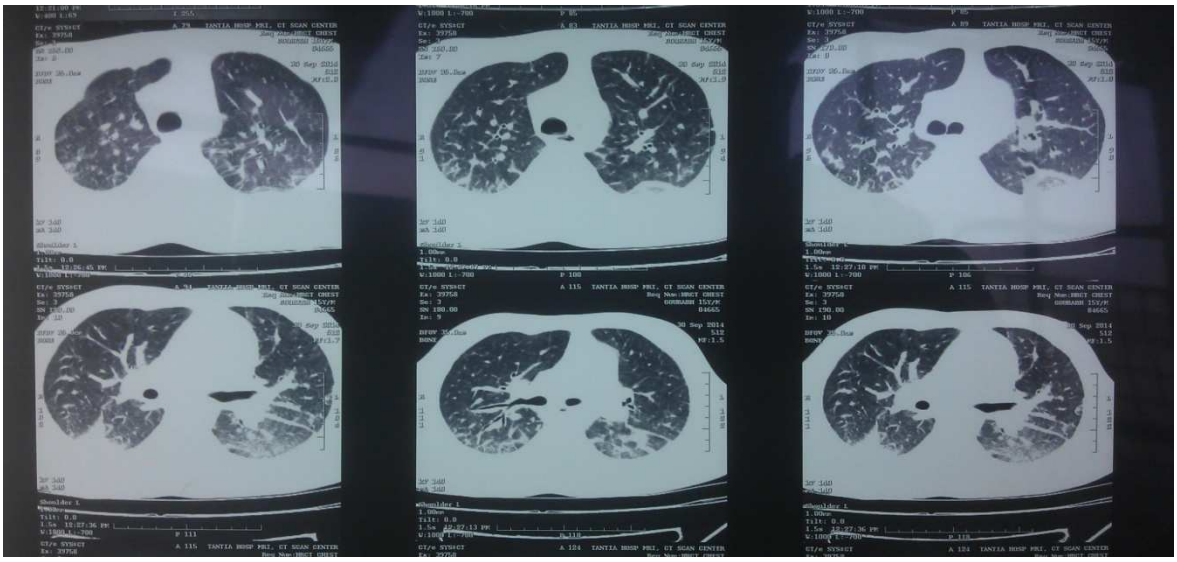

Fig 1: Showing Ground Glass Consolidation

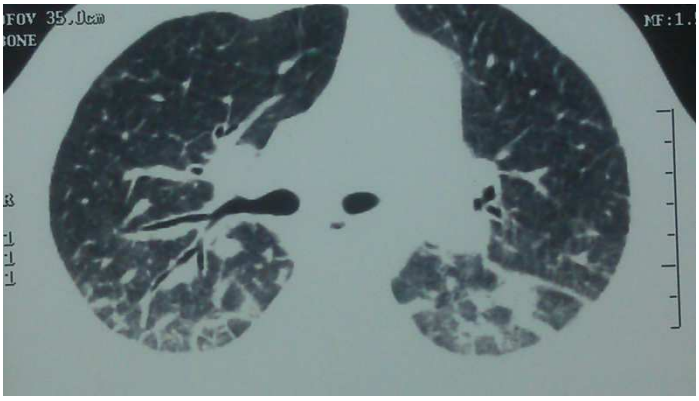

Fig 2: Interlobar septal thickening

The only pulmonary manifestation of P. vivax malaria found in the literature was the findings of reversible lung uptake of technetium-99m sulfur colloid during both the acute and recovery stages of P vivax infections [4]. Cytoadherence of the endothelial cells to parasitized red blood cells may play a central role in causing endothelial cell swelling, septal changes, interstitial edema, and respiratory distress [5]. But the cause of BOOP in malaria is yet to be elucidated for obvious reasons. BOOP can be classified into either a primary or secondary form. Primary disease is either idiopathic or occurs in association with collagen vascular diseases, toxins, or infections. The secondary form of BOOP can he found as a focal lesion adjacent to mass lesions, infarcts, and abscesses, distal to proximal airway obstruction of large airway disease, or as a histologic component of another primary pulmonary disorder (cryptococcal infection, Wegener's granulomatosis, chronic eosinophilic pneumonia[6]. BOOP has been described in a diverse number of pulmonary infections that include bacteria (Streptococcus pneumoniae, Legionella, Nocardia, Coxiella, Mycoplasma), viral (cytomegalovirus, adenovirus, influenza) [7]. On histology the lesion is characterized by intraluminal fibrosis resembling granulation tissue involving the terminal and respiratory bronchioles, alveolar ducts, and peribronchiolar alveolar space. Secondary findings include alveolar type 2 cell hyperplasia and foamy macrophages present in the peribronchiolar alveolar lumen that reflects proximal airway obstruction.

After the diagnosis of BOOP was made, histological confirmation of the lesion was not possible because of resource constraints. Patient improved clinically as well as radiologically with treatment with Artesunate, though some patients with severe disease require administration of short course of corticosteroids.

Conclusion

This case report throws light on the diverse presentations of malaria. This case report tells us the manifold presentation of malaria. Malaria should always be considered a differential diagnosis in a case of BOOP esp.

in endemic countries like India. Awareness of this entity in association with malaria is important since patients with BOOP generally have a favourable prognosis.

References

1. Mohan A, Sharma SK, Bollineni S. Acute lung injury and acute respiratory distress syndrome in malaria. J Vector Borne Dis. 2008 Sep;45(3):179-193.

2. Anstey NM, Jacups SP, Cain T, et al. Pulmonary manifestations of uncomplicated falciparum and vivax malaria: cough, small airways obstruction, impaired gas transfer, and increased pulmonary phagocytic activity. J Infect Dis. 2002;185(9):1326-1334.

3. Walter R. J. Taylor et al. Respiratory Manifestations of Malaria. CHEST Journal. 2012 Aug;142(2):492-505.

4. Lenclerc Y, Verreault J, Bisson C. Diffuse lung uptake of technetium-99 sulfur colloid in malaria. J Nucl Med. 1989 Jan;30(1):117-9.

5. Corbett CEP, Duarte MIS, Lancellotti CLP, Silva MAL, Andrade HF Jr. Cytoadherence in human falciparum malaria as a cause of respiratory distress. J Trop Med Hyg. 1989 Apr;92(2):112-20.

6. Yale SH, Adlakha A et al. Bronchiolitis obliterans organizing pneumonia caused by Plasmodium vivax malaria. Chest. 1993 Oct;104(4):1294-1296.

7. Sato P, Madtes DK, Thorning D, Albert RK. Bronchiolits obliterans caused by Legmonella pneumophilia. Chest. 1985 Jun;87(6):840-2.

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