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Case Reports

Plasmodium vivax malaria presenting with skin rash - a case report

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Malaria is a major disease of public health importance with a high morbidity and mortality. In endemic regions, malaria can present with unusual features due to development of immunity, increasing resistance to antimalarial drugs, and the indiscriminate use of antimalarial drugs[1]. Such unusual presentations of malaria can lead to delayed diagnosis and complications. We herein report a girl with vivax malaria presenting with skin rash.

Case report: A 9-yr old Indian girl presented with skin rash and fever for 2 days. Fever was high grade, continuous and was associated with chills and rigors. There was no history of any cough, cold, drug intake, abdominal pain, vomiting, bleeding manifestations, diarrhoea or urinary complaints. On admission she had a heart rate of 104/min respiratory rate of 24/min and blood pressure of 104/70 mmHg. Throat examination was normal. Pallor was present. Skin examination revealed multiple erythematous and papular skin lesions involving bilateral upper and lower limb (Fig. 1). Lesions were mildly itchy. Oral mucosa was normal. Liver was palpable 2 cm below the right costal margin with a span of 6 cm. Spleen was palpable 1 cm below the left costal margin. Other systemic examination was normal. Investigations done on the day of admission revealed: hemoglobin 8.2 g/dL, total leukocyte count 11,200/mm^3, and platelet count 1.7 lac/mm^3. Peripheral blood smear showed trophozoites of *P. vivax*. OptiMal test was positive for vivax malaria. Dengue NS1 antigen test and dark ground microscopy for leptospira were negative. Her liver function tests, renal function tests, serum electrolytes and urine microscopy were normal. She was treated with chloroquine along with antihistamine. Rash disappeared completely on the third day of admission. The patient was given primaquine for 14 days for radical cure. She is well on follow up after six months.

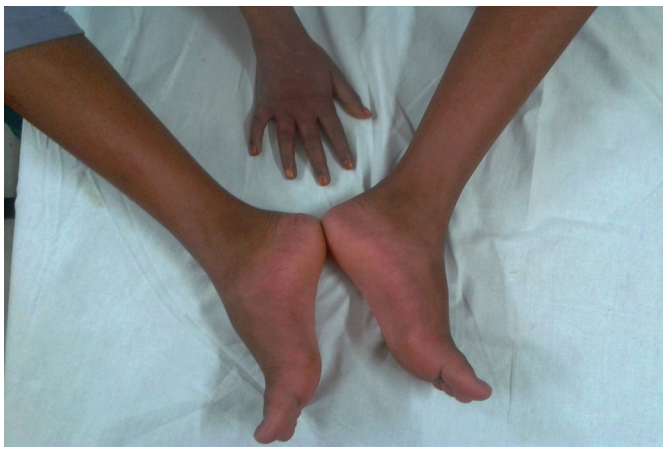

Fig. 1: Clinical photograph showing multiple discrete erythematous and papular skin lesions involving both the lower limb

Cutaneous lesions in malaria are rarely reported and include urticaria, erythema, angioedema, petechiae, purpura, and disseminated intravascular coagulation[2]. Cutaneous lesions have been described with both falciparum and vivax malaria[2]. Although the exact pathogenesis of skin lesions in malaria is not known, these may reflect part of different immunological consequences during malarial infection. Mast cell activation plays a central role in the pathophysiology of malaria[3]. Degranulation of mast cells during various stages of malarial infection releases a constellation of mediators like histamine, serotonin, heparin, proteoglycans, prostaglandins, leukotrienes, platelet activating factor (PAF), cytokines and tumor necrosis factor[2]. These mediators cause increased vascular permeability and vasodilatation. PAF causes aggregation of human platelets, wheal and flare response with late phase erythema. Leukotriene-induced wheal-flare response is long lasting and associated with endothelial activation and up-regulation of adhesion molecules[4,5]. Both IgG and IgE containing immune complexes are elevated in malaria and probably play a role in pathogenesis[6]. IgE containing immune complexes are associated with complicated malarial infection. Deposition of such immune complexes in cuta-

neous vessels may result in local vasculitic damage and skin lesions. Thus, urticaria and erythema are usually due to histamine and/or other mediators like platelet activating factor (PAF) and leukotrienes. Purpura and petechiae may be a result of thrombocytopenia, cytoadherance, local vasculitis and vessel damage from immune complex injury[2]. Maheshwari and Gupta have reported nine cases of malaria presenting with urticaria as the initial feature[7]. The urticaria subsided in all these patients within 12–48 h of starting antimalarial treatment. Urticaria was attributed to direct effect of parasite on mast cells releasing histamine, involvement of complement system, and intense elevation of IgG antibodies.

Although the cutaneous lesions in malaria are not specific, but when associated with systemic features including peripheral smear can help in the diagnosis of malaria. In conclusion, physicians, especially those in endemic areas, should be aware of the varied manifestations so that the diagnosis and treatment are timely and morbidity and mortality minimized.

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