Cutaneous Lyme Disease in a Child in Urban Bangalore

Dear Editor,

Lyme borreliosis is one among the most common vector-borne diseases reported across the world. The etymology traces back to the name of the town of "Lyme" in Connecticut, USA.[1] The disease expresses an array of both cutaneous and systemic manifestations. The early pickup of the disease by taking hints from the cutaneous manifestations is very crucial to a dermatologist to prevent the severe sequelae of the disease in the form of arthritis, joint deformity, cardiac and neuropsychiatric manifestations.[2] We report a case of cutaneous Lyme's disease in a child in urban Bengaluru area with classical cutaneous features. Our patient was a 6-year-old girl, who presented to the dermatology out patient department (OPD) with complaints of multiple itchy red raised lesions over the face and trunk of 10 days duration [Figure 1]. Parents gave history of contact with a pet cat, infested with tick. Dermatological examination revealed multiple, well defined, discrete to coalescing erythematous plaques with overlying scales with a concentric zone of erythema and intervening area of pallor in between them. Dermoscopic examination of the lesion revealed central white area surrounding by area of peripheral white scales and multiple red dotted vessels [Figure 2]. Based on clinical features, differentials of arthropod bite reaction, tinea corporis, erythema multiforme, erythema chronicum migrans, and erythema annulare centrifugum were considered. On laboratory evaluation, all hematological and biochemical parameters were within normal limits. Potassium hydroxide (KOH) scraping from the lesion was negative. A skin biopsy was not performed for lack of parental consent. In serology for Borrelia, both IgG and IgM were positive. However, based on historical evidence and clinical diagnosis, the child was diagnosed as a case of erythema chronicum migrans and started on tablet azithromycin 500 mg on day 1 followed by 250 mg OD for 04 days. She responded well to the treatment with complete resolution of skin lesions over next 2 weeks.

Lyme's disease is caused by various strains of the spirochete *Borrelia burgdorferi sensu lato (B. burgdorferi)* predominantly by three species of *B. burgdorferi*: *B. burgdorferi sensu stricto*, *afzelii, and garinii*.[3] The age distribution of Lyme disease is bimodal, with the maximum cases occurring in pediatric age groups ranging from 5 to 14 years, and in adults ranging from 55 to 70 years. By feeding on infected hosts, ticks serve as the vector for *B. burgdorferi* transmission. Humans serve as incidental hosts for ticks. The most vulnerable population are farmers, campers, and population residing in forest areas.[4] The risk of transmission of the disease is influenced by factors such as tick bite duration, stay in the endemic zones, and duration of tick attachment over the body. The series of dermatological

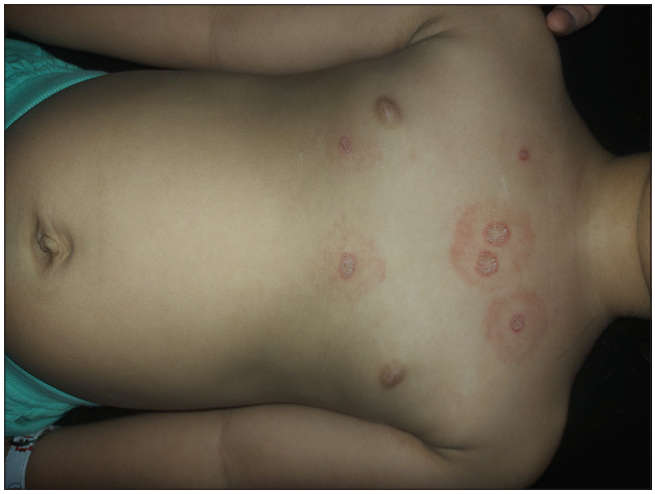

Figure 1: Multiple, well defined, discrete to coalescing erythematous plaques with overlying scales with a concentric zone of erythema and intervening area of pallor in between them

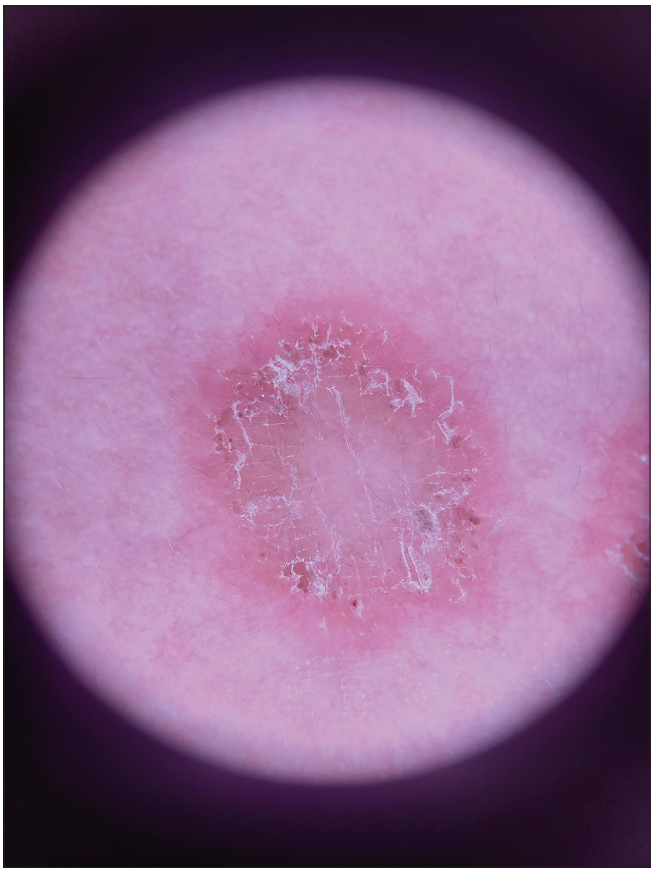

Figure 2: Dermoscopic examination—central white area surrounding by area of peripheral white scales and multiple red dotted vessels (Dermalite ,Polarised, 10x)

lesions found in cutaneous Lyme's disease are erythema chronicum migrans, borrelial lymphocytoma, acrodermatitis chronica atrophicans, morphea, lichen sclerosus, and B cell lymphoma.[5] Approximately 10% to 15% of patients develop neurologic symptoms such as meningitis and cranial or peripheral neuropathies. The most common cranial nerve neuropathy is facial nerve palsy (Bell palsy). Borrelial meningoradiculitis, also known as Bannwarth syndrome, is a rare manifestation characterized by painful myeloradiculitis, lymphocytic meningitis, and cranial nerve palsies, as well as motor weakness, headache, sleep disturbances, and occasionally gastrointestinal symptoms. In India, cases have been reported from north eastern parts, Haryana and Shimla. According to CDC guidelines, a case is confirmed as Lyme disease if following criteria are met: (a) Erythema migrans with known history of tick exposure or laboratory evidence of infection and (b) late manifestations of the disease with laboratory evidence of infection, even without history of exposure. Laboratory evidence of infection is obtained by demonstrating specific antibodies with a two-test approach, involving initial screening with enzyme-linked immunosorbent assay (ELISA) or indirect immunofluorescence assay (IFA), and subsequent confirmation of positive and equivocal results with Western blot.

The cornerstone of management is oral antibiotics in the form of doxycycline 100 mg orally twice daily for 14 to 21 days or azithromycin 500 mg twice daily on the first day, followed by 500 mg once daily for the next four days. In children below 8 years of age, doxycycline is contraindicated and azithromycin (20 mg/kg for day 1 with 10 mg/kg for the remaining days) is preferred.[6]

Our case report emphasizes on keeping in mind the diagnosis of erythema chronicum migrans due to cutaneous Lyme's disease while treating patients in the endemic zone of Karnataka even in urban settings, so that early diagnosis of the disease and mitigation of severe complications can be ensured. We have also described the dermoscopic features of the primary lesion in cutaneous Lyme's, which has not been explained in the literature so far.

Acknowledgement

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

Anuj Bhatnagar, Debdeep Mitra, Chetan C. Patil, Karthi Kishore, Manish Kumar, Arun Ittamala

Department of Dermatology, Command Hospital Air Force Bangalore, Bengaluru, Karnataka, India

Address for correspondence:
Dr. Chetan C. Patil,
Department of Dermatology, Command Hospital Air Force Bangalore, Bengaluru, Karnataka, India.
E-mail: chetan28870@gmail.com

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