

LYME DISEASE, AN EMERGING INFECTION IN NEPAL: A CASE REPORT

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ABSTRACT

Lyme disease, an infectious multi-systemic disease is caused by "*Borrelia burgdorferi*". It is a spirochete transmitted by the *Ixodes* tick. Until today, only one case has been reported from Nepal. Here we report case of a 50-year old female from Gulmi, who presented with a history of fever, multiple joint pain, tiredness, tingling sensation, and a painful brownish raised lesion over the neck and anterior chest. The clinical diagnosis was confirmed by histological findings typical of erythema chronicum migrans and by serology. The patient was treated successfully with doxycycline. This is the second case report of Lyme disease from Nepal and the first documented case who presented with typical erythema chronicum migrans. We suspect that Lyme disease might not have been considered in the differential diagnosis of fever with rash and joint pain in Nepal and suggest that it is to be kept as a differential in the given scenario.

KEYWORDS Erythema chronicum migrans, Lyme disease, Nepal.

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INTRODUCTION

Lyme disease, an infectious multi-systemic disease, is caused by "*Borrelia burgdorferi*". It is the spirochete transmitted by tick, the Ixodes (deer tick).¹ This disease was first reported in the town of Old Lyme, USA in 1977. Then after it has been reported in the USA, Central Europe, and Latin America.² The typical erythema chronicum migrans and flu-like symptoms are early common manifestations of this disease. Later on, it may involve heart, joints and nervous system.³ Until today, only one case has been reported from Nepal. Around ten cases have been documented from neighboring country India. Here we report a case of Lyme disease found in Nepal which was diagnosed on the basis of clinical findings and histological findings as well as by serology.

CASE REPORT

A 50 years-old female, resident of Gulmi, hilly region of Nepal, presented on July 2018 with a history of fever, joint pain (multiple large and small), tiredness, and a painful brownish raised skin lesion over the neck and anterior chest. Before presenting to our out-patient department, she visited numerous centers with similar complaints. She did not remember any history of tick bite. On examination, her vitals were stable and systemic examination was unremarkable. There was a painful brownish ring-like raised lesion over the neck and anterior chest. Clinical diagnosis of erythema chronicum migrans was suspected. The patient undergone baseline investigations including complete blood count, peripheral blood smear, renal, and liver function tests; these were within normal limits. Antibody tests for brucellosis and thick and thin film for malaria were also negative. Electrocardiogram and echocardiograph were unremarkable. She tested negative for various auto-antibodies including ANA, RA factor, Anti-CCP antibody, and Anti-ribonucleoprotein antibody. The patient undergone biopsy from the skin lesion which showed findings consistent with erythema chronicum migrans (Figure 1).

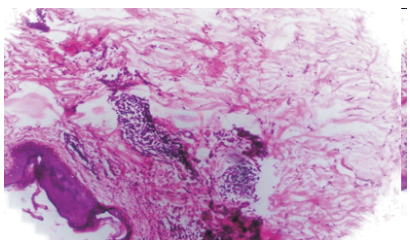


Figure 1. Erythema chronicum migrans: Epidermis revealing acanthosis and follicular plugging, and the underlying dermis is fibrocollagenous with collections of inflammatory cells (20X)

Then she was suspected of having tick-borne disease and was tested for *Borrelia burgdorferi* using ELISA test. IgM was increased at 2.0 U/ml (normal < 0.90) and IgG was raised at 1.5 U/ml (normal < 0.90), indicative of a persisting acute infection requiring therapy. Western-blot could not be done due to financial issues. The final diagnosis of Lyme disease was made. She was treated well with doxycycline 100 mg tablets twice a day for a period of three weeks along with supportive therapy.

DISCUSSION

Lyme disease, an infectious multi-systemic disease caused by the spirochete "*Borrelia burgdorferi*" and transmitted by tick, the Ixodes (deer tick).¹ The first case was reported in 1977 from USA, subsequently it has been reported in the USA, Central Europe and Latin America.² However, few cases are reported from Asia and a handful of cases from neighboring country India.

The typical erythema chronicum migrans and flu-like symptoms are early manifestation of this disease. Later on, it disseminates and involve joints, muscles, heart, and nervous system.³ Due to multi-systemic involvement, this patient visited various specialists and diagnosed to have dermatologic, rheumatologic, cardio-vascular, or neurological problems. Thus, the patients like this might be missed in Nepal mainly in the early stage as seen in this case.

Erythema chronicum migrans is diagnosed clinically as well as by histopathological findings. The presence of a perivascular dermal lympho-histiocytic infiltrate with few interspersed plasma cells is the typical histological findings,⁴ as seen in this case.

The laboratory test to confirm "*Borrelia burgdorferi*" consists of ELISA followed by Western blot test.⁵ Due to unavailability of lab tests and lack of skilled human resource in developing countries like Nepal, the cases of Lyme disease are difficult to diagnose and report. Here in our case we diagnosed on the basis of clinical and histopathological findings and confirmed by ELISA.

Although various antimicrobials have been proposed for the treatment, doxycycline (4 mg/kg/day in divided doses; maximum 200 mg/day for 2-3 weeks) is the drug of choice. Alternatively, amoxicillin and cefuroxime axetil can be used. However, for disseminated diseases, intravenous antimicrobials like cefotaxime, ceftriaxone, or benzylpenicillin can be used.⁶ Our patient was treated successfully with doxycycline.

CONCLUSION

This is the second case of Lyme disease reported from Nepal and the first documented case who presented with typical erythema chronicum migrans. We suspect that Lyme disease might not have been considered in the differential diagnosis of fever with rash and joint pain in Nepal and suggest that it is to be kept as a differential in the given scenario. It is treatable disease, so early diagnosis and treatment may prevent the patient from long-term complications.

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