

Lyme arthritis: A prospective study from India

Dear Editor,

Primary care physicians are often the first point of contact for patients presenting with oligoarthritis. Lyme disease, a tick borne multisystem inflammatory zoonosis has emerged as an important cause of oligoarthritis (inflammation of 1–4 joints) in recent times but it is largely unexplored in India. Presence of Ixodes tick and reports of about 20 cases in the published literature indicates that lyme disease has crossed the geographical barrier and has established itself as a rare pathogen of interest in the Indian subcontinent.^[1]

A prospective observational study was planned whereby 100 patients of age 18–60 years with inflammatory oligoarthritis were recruited. Serum samples were subjected to *Borrelia burgdorferi* IgM- and IgG enzyme-linked immunosorbent assay (ELISA) (NovaTec Immunodiagnostica GmbH, Germany). Those patients with borderline or positive result on IgG ELISA were further subjected to IgG Western blot (BLOT-LINE *Borrelia*/HGA IgG, Testline Clinical Diagnostics limited, Czech Republic). IgG lyme ELISA was positive in two patients while three patients had borderline IgG results. Out of the five patients with borderline or positive IgG results, three were positive (three or more specific bands) by IgG Western blot also and were diagnosed as lyme arthritis [Table 1]. The other two patients who were negative by Western blot were eventually diagnosed with tubercular arthritis.

Cases of lyme disease reported from the Indian subcontinent describes its dermatological, neurological, and cardiological manifestations but lyme arthritis (IgG ELISA borderline) was reported in only patient without immunoblot confirmation.^[1,2] Serology has been traditionally the main stay in diagnosis of lyme disease (ELISA followed by Western blot analysis according to center for disease control).^[3] Most common presentation of lyme arthritis is oligoarticular involvement of large joints of lower limbs but other large or small joints can also be involved. Lyme arthritis is a result of immune-mediated intense inflammatory response to *Borrelia* antigens and represents a late manifestation of this disease. IgG antibodies are frequently the only antibodies positive at that time. A positive IgM response alone in a patient with arthritis is likely to be a false-positive response and should not be used to support the diagnosis of lyme arthritis.^[4] A total of 23% of our patients were positive for IgM lyme ELISA. High IgM positivity in clinically incompatible cases with alternate diagnoses points toward a possibility of cross-reactivity. Previous studies have shown high IgM lyme positivity (9–18%) in apparently healthy individuals.^[5] There is a need for further evaluation of IgM lyme serology for diagnosis of acute manifestation of lyme disease in Indian settings. This report highlights the geographical spread of lyme disease and the need of creating awareness among the primary care physicians. Its diagnosis may help in alleviating long-term morbidity and therefore should be kept in the differential of patients presenting with undifferentiated oligoarthritis.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Table 1: Clinical features of the three cases diagnosed with lyme arthritis

S/n	Age/Sex	State	Clinical features	Joint involvement	IgG ELISA	IgG Western blot
1	43 years, male	Uttarakhand	No constitutional symptoms. History of travel to Bahrain, Kuwait and Syria	Left ankle for two months	Positive	Positive
2	37 years, male	Bihar	Fever, constitutional symptoms	Bilateral hip joint for four months	Borderline	Positive
3	23 years, male	Uttarakhand	No constitutional symptoms	Right wrist, bilateral knee for three years	Borderline	Positive

**Nitin Gupta¹, Rama Chaudhry²,
Vinayaraj E. Valappil²,
Manish Soneja³, Animesh Ray³,
Uma Kumar⁴, Naveet Wig³**

*Departments of ¹Medicine and Microbiology, ²Microbiology,
³Medicine and ⁴Rheumatology, All India Institute of Medical
Sciences, New Delhi, India*

Address for correspondence: Prof. Rama Chaudhry,
Department of Microbiology, 2nd Floor, Teaching Block, AIIMS,
New Delhi - 110 029, India.
E-mail: drramach@gmail.com

References

1. Tevatia P, Ahmad S, Gupta N, Shirazi N. Lyme disease in north India: A case for concern. *Trop Doct* 2018;48:352-5.
2. Handa R, Wali JP, Singh S, Aggarwal P. A prospective study of Lyme arthritis in north India. *Indian J Med Res* 1999;110:107-9.
3. Sancar F. New Indications for Lyme disease tests. *JAMA* 2019;322:1036.
4. National Guideline Centre (UK). Lyme Disease: Diagnosis and Management. London: National Institute for Health and

Care Excellence (UK); 2018.

5. Praharaaj A, Jetley S, Kalghatgi A. Seroprevalence of *Borrelia burgdorferi* in North Eastern India. *Med J Armed Forces India* 2008;64:26-8.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Received: 06-10-2019

Revised: 07-10-2019

Accepted: 07-10-2019

Published: 10-12-2019

Access this article online

Quick Response Code:



Website:

www.jfmprc.com

DOI:

10.4103/jfmprc.jfmprc_859_19

How to cite this article: Gupta N, Chaudhry R, Valappil VE, Soneja M, Ray A, Kumar U, *et al.* Lyme arthritis: A prospective study from India. *J Family Med Prim Care* 2019;8:4046-7.

© 2019 Journal of Family Medicine and Primary Care | Published by Wolters Kluwer - Medknow