

University of Groningen

## Borrelia burgdorferi mimicking central nervous system relapse in diffuse large B cell lymphoma

Nijland, Marcel; Bakker, Martijn; Meijer, Kees; Plattel, Wouter

*Published in:*  
Annals of Hematology

*DOI:*  
[10.1007/s00277-020-04022-5](https://doi.org/10.1007/s00277-020-04022-5)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2020

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Nijland, M., Bakker, M., Meijer, K., & Plattel, W. (2020). Borrelia burgdorferi mimicking central nervous system relapse in diffuse large B cell lymphoma. *Annals of Hematology*, (12), 2947-2948. <https://doi.org/10.1007/s00277-020-04022-5>

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*



## *Borrelia burgdorferi* mimicking central nervous system relapse in diffuse large B cell lymphoma

Marcel Nijland<sup>1</sup> · Martijn Bakker<sup>1</sup> · Kees Meijer<sup>2</sup> · Wouter Plattel<sup>1</sup>

Received: 9 March 2020 / Accepted: 2 April 2020  
© Springer-Verlag GmbH Germany, part of Springer Nature 2020

Dear editor,

A 61-year-old male was successfully treated with 6 cycles of rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisolon because of an intermediate risk diffuse large B cell lymphoma (DLBCL). Shortly after completion of treatment, he experienced progressive weight loss, muscle strains, and diminished strength of both legs. <sup>18</sup>F-FDG positron emission tomography showed no signs of relapse. A magnetic resonance imaging of the brain showed diffuse white matter enhancement, most prominent at the trigone of the lateral ventricle (Fig. 1a). Spinal fluid showed pleocytosis with suspicious lymphocytes (Fig. 1b: green arrow indicating normal lymphocytes, red arrow indicating enlarged

lymphocytes). Flowcytometric analysis indicated 0.3% large CD19 positive, CD20 negative B cells, and thus, leptomeningeal DLBCL relapse was considered and the patient was scheduled to receive high-dose methotrexate chemotherapy. However, several days later *Borrelia burgdorferi*-specific antibodies and *Borrelia burgdorferi* polymerase chain reaction (PCR) in the spinal fluid were positive. It was only then realized that the leptomeningeal B cells were reactive. Retrospectively the patient had experienced an erythema migrans earlier that year. The patient was treated with ceftriaxone for 30 days, after which he fully recovered. Repeated liquor analysis after completion of ceftriaxone was normal. In Europe Lyme borreliosis is caused by an infection with the spirochete *Borrelia burgdorferi* which is transmitted by the bite of the infected tick *Ixodes ricinus*. A minority of patients develops neuroborreliosis estimated at 6.5 per million inhabitants. Facial nerve palsy and radiculoneuritis are the most common manifestations. Only a few cases have been described in immunocompromised patients [1]. In patients treated with chemo-immunotherapy who present with neurological symptoms and pleocytosis of the cerebrospinal fluid, one should consider not only CNS relapse but also infectious diseases like neuroborreliosis.

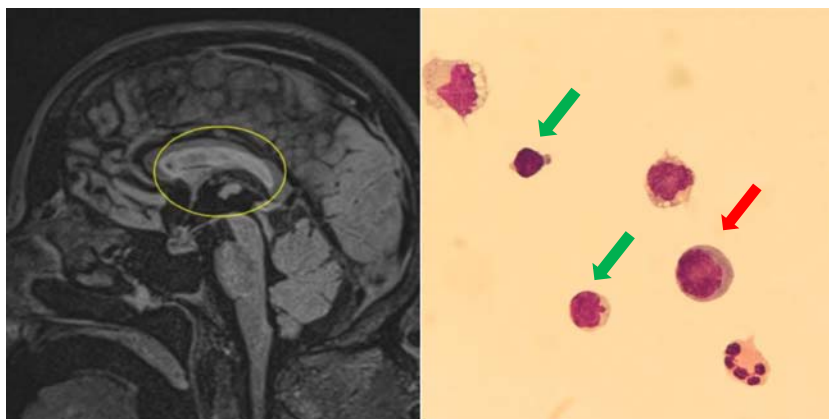
---

✉ Marcel Nijland  
m.nijland@umcg.nl

<sup>1</sup> Department of Hematology, University Medical Center Groningen, Hanzeplein 1, DA21, Groningen, Netherlands

<sup>2</sup> Department of Laboratory Medicine, University Medical Center Groningen, Groningen, Netherlands

**Fig. 1 a** Magnetic resonance imaging of the brain showing diffuse white matter enhancement, most prominent at the trigone of the lateral ventricle. **b** Spinal fluid showing pleocytosis with suspicious lymphocytes (green arrow indicating normal lymphocytes, red arrow indicating enlarged lymphocytes)



### Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Ethical approval** This article does not contain any studies with human participants performed by any of the authors.

**Informed consent** Informed consent was obtained from the participant included in the study.

### Reference

1. Furst B, Glatz M, Kerl H, Mulleger RR (2006) The impact of immunosuppression on erythema migrans. A retrospective study of clinical presentation, response to treatment and production of *Borrelia* antibodies in 33 patients. *Clin and Exp Dermatol* 31:509–514

**Publisher's note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.