



Rice, C. M., Renowden, S. A., Urankar, K., Love, S., & Scolding, N. J. (2020). Brain biopsy before or after treatment with corticosteroids. *Neuroradiology*. <https://doi.org/10.1007/s00234-020-02381-4>

Peer reviewed version

Link to published version (if available):  
[10.1007/s00234-020-02381-4](https://doi.org/10.1007/s00234-020-02381-4)

[Link to publication record in Explore Bristol Research](#)  
PDF-document

This is the author accepted manuscript (AAM). The final published version (version of record) is available online via Springer Nature at <https://link.springer.com/article/10.1007%2Fs00234-020-02381-4>. Please refer to any applicable terms of use of the publisher.

## University of Bristol - Explore Bristol Research

### General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available: <http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

## Letter to the editor about the paper by Bot *et al.* on military enhancement in the brain

Claire M. Rice<sup>1,2</sup>, Shelley A. Renowden<sup>3</sup>, Kathryn Urankar<sup>4</sup>, Seth Love<sup>2</sup> and Neil J. Scolding<sup>1,2</sup>

<sup>1</sup>Department of Neurology, Southmead Hospital, Bristol, BS10 5NB

<sup>2</sup>Translational Health Sciences, Bristol Medical School, University of Bristol, Bristol, BS10 5NB

<sup>3</sup>Department of Neuroradiology, Southmead Hospital, Bristol, BS10 5NB

<sup>4</sup>Department of Neuropathology, Southmead Hospital, Bristol, BS10 5NB

Corresponding author: Dr Claire M. Rice Email [c.m.rice@bristol.ac.uk](mailto:c.m.rice@bristol.ac.uk) Orcid id 0000-0002-9851-4426

Keywords:       Magnetic resonance imaging  
                      Neuroinflammatory disease  
                      CNS lymphoma  
                      Brain biopsy

We read with great interest the paper by Bot *et al.* on military enhancement in the brain [1]. This is a scholarly article of clinical utility; the broad range of differential diagnoses underlying this unusual pattern of radiological changes is clearly discussed and a systematic approach to investigation and management of these challenging cases is presented.

We agree with the authors that careful work up of patients may avert the need for diagnostic brain biopsy but disagree with the recommendation that biopsy should be considered *after* a trial of corticosteroid therapy. We are concerned that this approach has potential to delay definitive diagnosis and targeted treatment, most particularly for CNS lymphoma. Although not pathognomonic, lymphoma is frequently steroid-responsive but relapses on corticosteroid withdrawal. Furthermore, our own experience is in keeping with other reports indicating that prior corticosteroid treatment complicates histological interpretation in as many as 50% of subsequent CNS biopsies, increasing subjectivity and diagnostic uncertainty. [2-4] Opportunities to tailor treatment to other steroid-sensitive conditions with distinct treatment regimens such as primary CNS vasculitis or neurosarcoidosis may be similarly missed.

Although the risks of brain biopsy are not to be taken lightly, we no longer consider diagnostic brain biopsy in cryptogenic neurological disease an investigation of 'last resort'. There have been significant improvements in the safety of the procedure and the high diagnostic yield, particularly when a radiological target is identified, is notable [5].

Overall therefore, in those cases of cryptogenic neurological disease where there has been comprehensive diagnostic work-up but where the diagnosis remains uncertain, we advocate pursuing a histological diagnosis in advance of corticosteroid therapy, most particularly when lymphoma is included in the list of differential diagnoses [4].

## Compliance with ethical standards

Funding NA

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

Ethical approval NA

Informed consent NA

## References

1. Bot, J.C.J., Mazzai L., Hagenbeek R.E., Ingala S., van Oosten B., Sanchez-Aliaga E., and Barkhof F. Brain miliary enhancement. *Neuroradiology*, 2020 Epub ahead of print. <https://doi.org/10.1007/s00234-019-02335-5>.
2. Önder, E., Ankök A.T., Önder S., Han U., Sorar M., Kertmen H., Yilmaz E.D., Fesli R., and Alper M. Corticosteroid pre-treated primary CNS lymphoma: a detailed analysis of stereotactic biopsy findings and consideration of interobserver variability. *Int J Clin Exp Pathol*, 2015. 8(7):7798-808.
3. Kan, E., I. Levi, and D. Benharroch. Alterations in the primary diagnosis of lymphomas pretreated with corticosteroid agents. *Leuk Lymphoma*, 2011. 52(3):425-8.
4. Brück, W., Brunn A., Klapper W., Kuhlmann T., Metz I., Paulus W., Deckert M., Netzwerk Lymphome und Lymphomatoide Läsionen des Nervensystems. Differential diagnosis of lymphoid infiltrates in the central nervous system: experience of the Network Lymphomas and Lymphomatoid Lesions in the Nervous System. *Pathologe*, 2013. 34(3):186-97.
5. Rice, C.M., Gilkes C.E., Teare E., Hardie R.J., Scolding N.J. and Edwards R.J. Brain biopsy in cryptogenic neurological disease. *Br J Neurosurg*, 2011. 25(5):614-20.