Reviewer’s report

Title: Nitrous oxide induced subacute combined degeneration with longitudinally extensive myelopathy with inverted V-sign on spinal MRI: a case report and literature review

Version: 0 Date: 03 Jul 2017

Reviewer: Amir Garakani

Reviewer's report:

This is an interesting and important case study that is relevant to the scientific literature. The authors are able to report a clinical finding that is also supported by neuroimaging results. It is also noteworthy that the patient's vitamin B12 and homocysteine levels were normal, which is unusual but has been reported in other cases of nitrous oxide abuse. My major criticism is that the authors did not report that there are in fact multiple other case studies reporting subacute combined degeneration in a person abusing nitrous oxide.

BACKGROUND

Lines 5-7: "Only a few case studies..."

Perhaps the authors should re-word this sentence. Please see the review of the case literature (Garakani et al. Neurologic, psychiatric, and other medical manifestations of nitrous oxide abuse: A systematic review of the case literature. Am J Addict. 2016 Aug;25(5):358-69.)

Lines 11-15: "To our best knowledge..."

Again, if you review the above review paper, you will see that there were there were 17 cases of subacute combined degeneration reported.

CASE PRESENTATION

Page 3, Lines 23-24: Please revise as follows: "She had inhaled about 100-200 whipped cream chargers of nitrous oxide (N2O) at a time, for recreational purposes, for at least one year."

Please, also, if possible, clarify what you mean by "at a time". Was this every day?
Page 3, Lines 27-29: Please capitalize "Mental State". Also please clarify what this score means for the readers who are not familiar with it. Please note that it is out of 30.

Page 3, Line 40: Although the authors note that vitamin B12 and homocysteine were normal, please give the actual #’s and reference ranges.

Page 4, Line 5: What was the dose and means of administration of the vitamin B12 (cyanocobalamin)?

DISCUSSION

Lines 48-52: "To the best of our knowledge": please check to see if this is accurate (see Garakani review referenced above)

Lines 58-61: "...developing countries, especially in China": this is redundant from the previous sentence. Please revise. Also, is China a developing country?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript
Quality of written English
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