Author's response to reviews

Title: Radiographic Occult Cerebellar Germinoma Presenting with Progressive Ataxia and Cranial Nerve Palsy Case Report

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Version: 7 Date: 2 October 2015

Author's response to reviews: see over
Dear Editor, Dear Reviewer,

We deeply appreciate the time and effort you've spent on reviewing our manuscript. Your comments are really thoughtful and we honestly agreed with most of them. Before we address the comments individually, please allow us to explain several difficulties we encountered, which eventually resulted in the libations of the manuscript, which were also pointed out in your comments.

Reviewer1

Comments:

1. Does the patient have any abnormality in the FLAIR images at presentation? Please provide initial T2WI, FLAIR, and sagittal T1WI. (If they are truly normal, provide them in the supplementary figures)

Response:

There was no abnormal finding on FLAIR images at presentation. Unfortunately, we do not have the sagittal T1WI with no enhancement. We only have the gadolinium enhanced one. Thus, we added the initial T2WI, FLAIR, and sagittal gadolinium-enhanced T1WI image as the additional file3 (supplementary figure). We would like you to confirm it.

2, 3. It is not easy to make clinical decisions based on positive findings in only T2*WI and SWI without other accompanying evidence. Is there any other report on the use of the imaging sequences for diagnosis of germinoma?

Some occult germinoma exhibits hypermetabolism in methionine PET, as demonstrated in studies of basal ganglia germinoma. Did the patient have any PET studies? The authors should discuss the impact of this modality.
Response:

Unfortunately, to our knowledge, there seem to be no other valuable imaging sequence aside from the $^{11}$C-methionine positron emission topography (PET) as the reviewer pointed out. Although we did not perform the $^{11}$C-PET for this patient, I totally agree that we should mention the usefulness of it in the discussion. We would like you to confirm the revised part of the discussion.

4. It would be better to include a table summarizing clinical characteristics of cerebellar or posterior fossa germ cell tumors reported in the literature.

Response:

We appreciate your comments. We should include a table summarizing clinical characteristics of cerebellar GCTs. We added the table as the additional file 4 (Table), and please confirm it.

Reviewer2

Comments:

Basal ganglia germinomas on SWI was characteristics of an obvious hypointensity not only in the tumor but also in the globus pallidus. As a reason, it was thought that tumor invasion to the basal ganglia may lead to disruption in axonal transport of transferrin, resulting in abnormal iron accumulation in the basal ganglia.

In the present case, however, I am not sure how a cerebellar germinoma is associated with abnormal iron accumulation.

In my opinion, low-intensity lesions on T2*WI and SWI for this case showed that this tumor merely include intratumoral blood. Thus, the feature on T2*WI and SWI never provide important information in the differential diagnosis of cerebellar tumor.
Response:

In the previous report (AJNR Am J Neuroradiol. 2009 Oct;30(9):1694-9), Lou et al. speculated that one of the causes of SWI hypointensity in basal ganglia GCTs might be tumor invasion, leading to disruption in axonal transport of transferrin. However, another previous report (J Magn Reson Imaging. 2012 Jul;36(1):92-8) showed SWI hypointensity at the thalamic germinoma lesion, as well as basal ganglia lesion. Moreover, this report showed that several pineal lesions had hypointensity in SWI. We agree with your comments that our case does not seem to be associated with the abnormal iron accumulation due to this mechanism, however, the mechanism of SWI hypointensity is not fully clarified. In our case, we consider that the SWI hypointensity was due to the intratumoral microbleeds, as we mentioned in the discussion.

What we consider the most important is, that we did not suspect the possibility of GCTs at the early stage because of the lack of decisive clinical features, and which led to the delayed diagnosis and treatment. Therefore, whether or not the cause of SWI hypointensity is intratumoral bleeding, we should come up with the possibility of GCTs in case we saw the intracranial hypointensity lesion on SWI or T2*WI, and this is what we’d like to emphasize. Hence, this case contains the adequate clinical significance and we believe our case is worth reporting.