Dear Editors and Reviewers:

Thank you for the comments concerning our manuscript entitled "Case Report: Idiopathic basal ganglia calcification associated with new MYORG mutation site" *(Manuscript NO: 62413)*. Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. Revised portion are marked in red in the paper.

The main corrections in the paper and the responds to the reviewer's comments are as following:

Responds to the reviewer's comments:

Reviewer 1:

Major comments:

1) I wonder if the mutations c.1438T>G and c.1271_1272 TGGTGCGC are in one allele or two alleles in Patient II-7. Given the patients III-3 and III-4 has only c.1271_1272 TGGTGCGC mutation and the patient III-5 has only c.1438T>G mutation, I suspect that the two mutations exist in separate alleles in II-7. III-3, III-4, III-5 have no clinical symptoms or calcifications on CT assumingly because they are still 30es. On the other hand, the patient II-5 (66-year-old) has only c.1271_1272 TGGTGCGC mutation and has SLIGHT calcifications on CT WITHOUT clinical symptoms. Moreover, the patient II-7 has PROMINENT calcifications on CT and PROMINENT clinical symptoms. I suspect that MYORG may be autosomal dominant gene, but II-7 accidentally affected by mutations on both alleles. So, could the authors elaborate the discussion about Mendelian inheritance and the corresponding severity of this family?

Response: The mutations c.1438T>G and c.1271_1272 TGGTGCGC are in one allele in patient II-7, and two mutations exist in separate alleles. According to patient's wife and daughters' gene test, we considered that our patient was compound heterozygous mutations. Meanwhile, the research we have found that all prove MYORG was autosomal recessive gene (Yao et al., 2018, Neuron 98, 1116–1123, https://doi.org/10.1016/j.neuron.2018.05.037; Chen et al.,2018, Movement Disorder, DOI: 10.1002/mds.27582). Since II-5, III-3, III-4 and III-5 only had one mutation site, they didn't have clinical symptoms.

2) Total Calcification Score (Nicolas et al., Brain 2013, doi:10.1093/brain/awt255) can be assessed and incorporated into the Table1 (all family members whose cranial

CT examined). This may increase the readability and may help interpret the discussion regarding #1.

Response: Considering the reviewer's suggestion, we assessed total calcification score of all family members and add the results in Table 1.

3) Is there a previous evidence of relationship between mutation sites and phenotypes in MYORG, like SLC20A2 (Nishii et al., Sci Rep 2019, doi: 10.1038/s41598-019-53401-0)? If the novel mutations in the present reports are presented with known mutation sites and discussed, the impact of the present report probably increases.

Response: Our patient's mutation sites never be reported previously. Mutation Taster and SIFT software predicted the pathogenicity of these sites. Previous studies suggested the relationship between clinical and radiographic findings and homozygous and heterozygous features. We added it in discussion.

4) Could the author add the discussion of the needs of the genetic counseling and the further survey of the family member without prominent clinical symptoms? I believe that there are human rights not to know their genetic sequences ethically. (But this is, without fear of misunderstanding, the opposite attitude from a scientific viewpoint.)

Response: We have told the family member the results of their gene tests and gave them genetic counseling. We added it into the discussion.

Minor comments:

5) Is the patient 65-year-old (summary), 61-year-old (Chief complaints), 63-year-old (Age at evaluation in Table 1)? If the first visit and the evaluation time are different, could the authors revise the case presentation for the readers to understand easily?

Response: The patient's first visit and evaluation time was same, at the age of 61. We are sorry for the mistake we made before, and we have corrected the age.

6）Gene names should be written in italics.

Response: We revised all the gene names in italics.

We tried our best to improve the manuscript and made some changes in the manuscript. These changes will not influence the content and framework of the paper. And here we did not list the changes but marked in red in revised paper. We appreciate for Editors/Reviewers' warm work earnestly, and hope that the correction

will meet with approval. We would be glad to respond to any further questions and comments that you may have.

Once again, thank you very much for your comments and suggestion.

Best regards,

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