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Reviewer Comments

In this case report, the authors describe a case of giant PVS. The case is interesting, although some additional details might be appropriate. The manuscript is clear and the overall structure is appropriate. I found some inaccuracies throughout the text that need to be clarified. The figures are good, but some edits and clarifications are needed. The discussion is good, but some references are not appropriate or missing. Please find my specific comments below.

1. “The perivascular spaces (PVSs) of the brain are small pia mater-lined, interstitial fluid-filled cystic spaces that surround the walls of vascular structures (arteries, arterioles, veins, and venules) along their course across the subarachnoid space and the brain parenchyma.”

There are several inaccuracies in this statement: first, PVS by definition are not in the subarachnoid space, but only in the brain parenchyma; then, I recommend removing “interstitial” both in this sentence and in the abstract, because it is still unclear whether PVS are filled exclusively with cerebrospinal fluid, interstitial fluid, or a mixture of both (Wardlaw et al., 2020); finally, I suggest removing “pia mater-lined” because, according to reference n.3 (Zhang et al., 1990) and also in Pollock et al., 1997, it is unclear whether the pia mater lines perivenous spaces.

Reply: We have made the corrections as suggested by the reviewer.

Changes in text: The perivascular spaces (PVSs) of the brain are small fluid-filled cystic spaces that surround the walls of vascular structures (arteries, arterioles, veins, and venules) along their course across the brain parenchyma.

2. “they have been noted to occur in nearly all individuals. Usually found bilaterally, they are not always symmetric.” These sentences require at least one reference, such as PMID: 33183133 and 33033050.

Reply: Reference has been added as suggested.

3. Figure 1, 2, and 3 legends read “in the right parietotemporal cortex”. This is inaccurate, since the lesion appears in the white matter underlying the right parietotemporal cortex. The cortex seems to be mostly spared.

Reply: Figure legends have been corrected as suggested.

Changes in text: **Figure 1: A** Coronal and **B** axial view on non contrast CT scan of the

brain demonstrating a heterogeneous irregular cystic space in the white matter underlying the right parietotemporal cortex.

Figure 2: A Coronal, B saggital, and C axial view on T1-weighted sequence of brain. D Coronal, E saggital, and F axial view on T1 fat saturated post contrast MRI sequences of the brain demonstrating multiple small cystic spaces in the white matter underlying the right parietotemporal cortex coalescing into a single giant cavity suggestive of a giant perivascular space.

Figure 3: Axial view on A T2 weighted, B diffusion weighted image, and C T2-FLAIR MRI sequences demonstrating a multicavitary cystic lesion in the white matter underlying the right parietotemporal cortex with surrounding perilesional satellite lesions in the adjacent cortex.

4. “her symptoms improved with medical therapy”. Please clarify which medical therapy the patient underwent to.

Reply: The patient only received conservative treatment with fluids and meclizine. No surgical intervention was performed.

Changes in text: The patient was discharged after her symptoms improved with conservative management with meclizine.

5. According to figure 2 legend, the panels A, B, and C represent a T1-FLAIR sequence. Please double-check that the name of the sequence is correct, because to me it looks a T1-weighted image not FLAIR.

Reply: Figure legend has been corrected as suggested.

Changes in text: **Figure 2:** A Coronal, B saggital, and C axial view on T1-weighted sequence of brain. D Coronal, E saggital, and F axial view on T1 fat saturated post contrast MRI sequences of the brain demonstrating multiple small cystic spaces in the white matter underlying the right parietotemporal cortex coalescing into a single giant cavity suggestive of a giant perivascular space.

6. According to figure 3 legend, panel C is a T1-weighted image, but in reality it is not. It seems a T2-FLAIR sequence.

Reply: Figure legend has been corrected as suggested.

Changes in text: **Figure 3:** Axial view on A T2 weighted, B diffusion weighted image, and C T2-FLAIR MRI sequences demonstrating a multicavitary cystic lesion in the white matter underlying the right parietotemporal cortex with surrounding perilesional satellite lesions in the adjacent cortex.

7. Please clarify the name of the “gradient” sequence depicted in panel B of figure 3.

Reply: Panel B is diffusion weighted image and figure legend has been corrected.
Changes in text: **Figure 3:** Axial view on A T2 weighted, B diffusion weighted image, and C T2-FLAIR MRI sequences demonstrating a multicavitary cystic lesion in the white matter underlying the right parietotemporal cortex with surrounding perilesional satellite lesions in the adjacent cortex.

8. “thinner sections, higher-field strength resulting in better spatial resolution, contrast, and better visualization of VR spaces, thus leading to an increase in the prevalence of the same”. Here the authors should at least cite PMID: 33237016.

Reply: Reference has been added as suggested.

9. “mild cognitive impairment (MCI), dementia, Alzheimer disease, and Parkinson’s”
The references reported by the authors are not fully appropriate. The authors should cite recent papers such as PMID: 33422892 and 33470460.

Reply: Reference has been added as suggested.

10. “some of these lesions are due to the presence of dilated PVSs (21, 30, 31)”. This sentence is inaccurate. None of the references reported prove that the white matter lesions are due to dilated PVSs, which is still debated. Please rephrase.

Reply: Text has been rephrased as suggested.

Changes in text: A study showed that abnormal white matter hyperintensities can be found in nearly 30% of the elderly population and some of these lesions are debated to be due to the presence of dilated PVSs (1-3).

11. “Occasionally, even mildly dilated PVSs, which are not large enough to be labeled as giant/tumefactive PVS, may cause hydrocephalus.” This sentence requires at least one reference.

Reply: Reference has been added as suggested.

12. “Also, PVSs can act as a conduit for the spread of infections, inflammatory diseases, and neoplasms.” This sentence requires at least one reference.

Reply: Reference has been added as suggested.

13. In reference 18 (Wardlaw et al., 2020), the name of the journal is missing.

Rerply: Journal name has been added.