Author’s response to reviews

Title: MR imaging features of spinal pilocytic astrocytoma

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Author’s response to reviews:

The following changes have been made in response to the comments of Reviewer #1:

1. The authors present a relatively large retrospectively identified series of patients with histologically proven spinal pilocytic astrocytomas, who underwent preoperative MR imaging over the past 10 years. They carefully describe the imaging findings, and identify some characteristics that are common in spinal PA and may help raise the suspicion of this rare tumor in patients with intramedullary spinal cord lesions. The clinical characteristics and patient outcomes suggest that the patient population is generalizable to other centers. This study is useful for practicing spine surgeons and I recommend publication.

We thank the reviewer very much for the overall support for this study.

2. There is one typographical error in the abstract (line 27) that should be corrected, describing the range of spinal segments involved by tumor in the series.

Our apology for this mistake. We have now deleted the incorrect sentence “Two had tumors was 1 to 17 vertebral segments, with a mean length of 4.7 segments” in the “abstract” section.

The following changes have been made in response to the comments of Reviewer #2:

1. This research article presents a single-site retrospective case series of spinal pilocytic astrocytoma. The focus is on describing common imaging features that could help diagnose
this rare disease. In total, the authors describe 13 cases with ADC measurements limited to only 3 of those cases. While the numbers are low, this is understandable given the rarity of the disease and the fact that it is a single-center study. The authors do a good job of describing the features of PA in their cases and the figures show a good range of potential presentations. Overall, this is a good paper with few detriments.

We thank the reviewer very much for the overall support for this study.

2. The methods indicate the use of a head coil but the analysis includes all the way down to the lumbar spine. How would the head coil provide image of the lumbar spine?

Our apology for this mistake. “an eight-channel head coil” has been corrected as “a MR phased array spine coil” in the “method” section.

3. While the figure captions include labels for the panels, these are not the present in the actual figures.

As reviewer requested, we have now added labels in the lower right corner of actual figures.

4. While the article does a great job covering the features of PA, I think it would be good to include one more paragraph in the discussion covering differential diagnosis. Ependymomas are mentioned a few times for example and it would be nice to expand on how the imaging features of PA are unique when compared to other spinal tumors.

The reviewer’s insightful comments are well appreciated. As recommended, we have now added one more paragraph in the tenth paragraph of the “Discussion” section as “Spinal PA should be differentiated from other spinal tumors, including ependymoma, hemangioblastoma, and other spinal astrocytoma. Spinal ependymoma usually occur in lower thoracic and lumbar region, showing a central location of spinal cord. Ependymoma can often display intratumoral hemorrhage, presenting a rim of extreme hypointensity seen at the pole of the tumor on T2WI due to subsequent hemosiderin (cap sign). In addition, syringohydromyelia is more common in ependymoma whereas contrast enhancement is more heterogeneous than PA. Hemangioblastoma has the imaging features resembling pilocytic astrocytoma, but the signal void within and around the tumor on MRI is useful for differential diagnosis. Compared with spinal PA, other spinal astrocytoma such as diffuse astrocytoma and anaplastic astrocytoma has an infiltrative nature with poorly defined margin.”
5. There were two sentences in the manuscript that made no sense to me: a. In the abstract (Page 3 line 28): Two had tumors was 1 to 17 vertebral segments, with a mean length of 4.7 segments.6. In the discussion (Page 9 line 4 ): In the current study, a mean size of 4.7 vertebral segments for spinal PA was smaller than previous reports of a mean size of 4.7 vertebral segments for astrocytoma[14].

Our apology for this mistake. We have now deleted the incorrect sentence “Two had tumors was 1 to 17 vertebral segments, with a mean length of 4.7 segments” in the “abstract” section. In addition, “In the current study, a mean size of 4.7 vertebral segments for spinal PA was smaller than previous reports of a mean size of 4.7 vertebral segments for astrocytoma” has been corrected as “In the current study, a mean size of 4.7 vertebral segments for spinal PA was smaller than previous report of a mean size of 7 vertebral segments for astrocytoma” in the “discussion” section. Furthermore, several minor mistakes have also been corrected in our revised manuscript.