Reviewer’s report

Title: A Comparative Analysis of Diffusion-weighted Imaging and Ultrasound in Thyroid Nodules

Version: 0 Date: 23 Aug 2019

Reviewer: Yingxin Chen

Reviewer's report:

THYROID NODULES are the most common disorder of thyroid gland. Thyroid nodules are frequently seen in adults and women. Despite tremendous improvement in diagnostic techniques such as ultrasound, radionuclide imaging and CT, there is still a big challenge to have a non-invasive and reliable technique to differentiate benign from malignant lesions. Diffusion-weighted imaging (DWI) is one of the functional MRI modalities, which allows quantitative measurement of the motion of water molecules in lesions and normal tissues. Various studies have assessed the power of DWI and its quantitative counterpart apparent diffusion correction (ADC) for differentiation between benign and malignant thyroid nodules. In this study, authors found that ultrasound has high sensitivity in differentiating benign and malignant thyroid nodules, and ADC value has high specificity in differentiating thyroid nodules. As a conclusion, DWI and Ultrasound have their own advantages in differentiating benign and malignant thyroid nodules.

Overall, the manuscript is relatively well written, the statistics are nicely performed and the study contains some provocative data and imaging given previous findings. However, I have a number concerns and suggestions detailed below strong their finding.

1. Please provide the representative imaging of ultrasound to compare current DWI imaging.
2. Figure 3b is T2WI? No figure 4B in this version, please resubmit it.
3. Please draw the ROI on the DWI imaging to display the key process for the measurement of the ADC value.
4. In addition to scientific comments, many English wording problems need to correct.

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.

Yes

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.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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