Reviewer’s report

**Title:** Respiratory-gated (4D) contrast-enhanced FDG PET-CT for radiotherapy planning of lower oesophageal carcinoma: feasibility and impact on planning target volume

**Version:** 0  **Date:** 31 May 2017

**Reviewer:** Jianbin Li

**Reviewer's report:**

This study analyzed the feasibility and potential impact on target delineation of respiratory-gated (4D) PET-CT by comparing the PTVs of lower oesophageal carcinoma derived from 4D CT, 4D CT with co-registered 3D PET and 4D PET-CT. Overall, the design and method is well, there are few reports on 4D PET-CT for oesophageal carcinoma. However, I still have some comments that I like to address see below:

1. The study only included complete datasets of 7 patients. Whether the results of 7 patients could reflect a reliable phenomenon?

2. The study used the paired T-test for analyzing the variations of different of target volumes. However, non-parametric test should be used for the study due to few cases.

3. The authors should elaborate the contouring standard and how to determine the upper and lower bound of oesophageal carcinoma on 4DCT, and PET-CT, it is crucial to the study.

4. Comparison of different target volumes is based on registration of 4DCT and PET (or 4D PET-CT). The authors should state the registration method and whether the method would affect the results.

**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.

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

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