Reviewer’s report

Title: Have we achieved adequate recommendations for target volume definitions in anal cancer? A PET-imaging based patterns of failure analysis in the context of established contouring guidelines

Version: 0 Date: 31 May 2019

Reviewer: Shiro Watanabe

Reviewer's report:

Comments for manuscript, BCAN-D-19-00907

The authors examined the difference of 3 contouring guidelines for the CTV in AC with FDG PET imaging as reference. LN "misses" appear generally cranially or caudally to the recommended CTVs. The established guidelines differ significantly in the inguinal region, and authors suggested for CTV definition of the inguinal region.

This is an important retrospective study evaluating pattern of LN spread and comparing the contouring guidelines in detail.

Although a small sample size, this does lay the groundwork for future studies. Overall, I think it reasonably well written, however, I have several specific comments and suggestions.

Specific comments

Background

1. P6 L10, P6 L29:

I could not confirm the cited content in [3] and [8]. Please correct.

Method

2. P7 L31:

Details regarding FDG PET and CT or MRI acquisitions are lacking. FDG PET/CT and FDG PET/MRI protocol and reconstruction needs to be addressed.
3. P7 L40:
The definition of PET-positivity was not explained well. Although FDG PET imaging is very sensitive for LN metastasis, false positive/negative is not uncommon. The reproducibility remains unclear. The criteria for PET-positivity need further specification and explanation, so that the reader can follow the justification for the grouping. If needed, please comment in the limitation section.

4. P9 L14:
Please explain the contouring method if LN was smaller than 9mm.

Results
5. P10 L6:
Characteristics of 22 patients should be given in Table.

6. P10 L16:
table 2 → Table 1?

Discussion
7. P13 L6:
153 → 154?

8. P18 L15:
Please add the number or percentage instead of just "reasonable number". I have the question whether LN "misses" in inguinal regions really contribute to low local control rate in CRT.

Tables
9. P26 L1:
This sentence is copy of figure 3. Please correct.

Figures

10. Figure 3:

Please add SUV color scale bar.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Unable to assess

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:

Acceptable

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