Reviewer’s report

Title: Quantitative margin assessment of radiofrequency ablation of a solitary colorectal hepatic metastasis using MIRADA RTx on CT scans: a feasibility study

Version: 0 Date: 24 May 2019

Reviewer: Raphaëla Dresen

Reviewer’s report:

Overall
- Important topic of which accurate knowledge is lacking
- Generally well written
- Should the word "CT" be mentioned in the title?

Abstract
- Good description of background and aims
- Clear presentation of methods and results
- Conclusion can be formulated a bit more to the point

Background
- Nice overview of the existing literature
- The importance of the need of accurate margin evaluation is highlighted
- A possible solution to the currently challenging co-registrations was explored

Methods
- Patient selection is not completely clear. Of the 313 patients 284 were excluded (p6, line 40-50). However, the summation of 112 + 25 + 8 + 19 + 13 + 3 + 4 = 184 instead of 284. What happened to the other 100 patients?
- P6, line 49-60 can be deleted, multifocality was already mentioned as an exclusion criterion.
- P7, line 18: were there also ultrasound guided procedures (this is in contrast to the paragraph title)? If yes, how many?

- Full description of the CT parameters should be provided (p7, line 36-45), also from the pre RFA scan

- Location of the metastases should be mentioned as it might be of influence on the success of co-registration

- P8, line 10: more info about the radiologists: years of experience, subspecialization etc

- P8, line 16: more detailed description of the Mirada RTX should be given. This is very important as this is the system on which the whole article is based.

- P8, line 16: "manual co-registration"; is this part of the semi-automatic system or is it not semi-automatic? Who performed this? Please explain.

- P8, line 23-39: Grading system: did the score of both radiologist have to be 4 or 5 or was there a consensus reading? Please provide extra information.

- P8, line 39: "manually altered if necessary"; how many times was this necessary and who did the alteration?

- P8, line 50: define complete margin

- P8, line 52-55: please provide the number of patients for each category

Results

- P9, line 13: the numbers of co-registration grade 1-3 should be mentioned with explanations of the reasons for the low score as this is a main part of the conclusions of the article.

- P9, line 13: grade 4 or 5; evaluated by which radiologist? Both or consensus or one of them?

- P9, line 26-32: evaluated by which radiologist? Both or consensus or one of them?

- P10, line 26-32: provide the number of patients per category of ablation margin

Discussion

- Good overview of the current literature in relation to this study.
- More discussion is needed concerning the 11 patients who had an insufficient quality of co-registration.

- P13, line 26-29: the mentioned number (mean 1 mm, range 0-6 mm) does not correlate with the number mentioned in the results section on p10: mean 2.2 ±1.9 mm; please explain.

References
Ok

Tables
Additional mentioning of the lesion location is appreciated

Figures
Is it possible to provide us with a Figure of a real case?

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

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

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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