Reviewer’s report

Title: Towards real-time metabolic profiling of biopsy specimen during a surgical operation by 1H HRMAS-NMR: a case report

Version: 2 Date: 10 October 2011

Reviewer: Timothy Ebbels

Which of the following following best describes what type of case report this is?: Other

If other, please specify:

Implementation of novel technology in patient treatment

Has the case been reported coherently?: Yes

Is the case report authentic?: Yes

Is the case report ethical?: Yes

Is there any missing information that you think must be added before publication?: Yes

Is this case worth reporting?: Yes

Is the case report persuasive?: Yes

Does the case report have explanatory value?: Yes

Does the case report have diagnostic value?: Yes

Will the case report make a difference to clinical practice?: Yes

Is the anonymity of the patient protected?: Yes

Comments to authors:

General Comments

This report presents an interesting case of the use of magic angle spinning NMR to characterise tumoral invasion of colon tissue in real time during surgery. If the time for the analysis can be optimised, this presents an important additional source of information for the surgeon and other clinicians. The report is interesting and relevant to clinical practice.
Revisions necessary for publication

1. The acronym HRMAS-NMR should be spelled out in full at its first use.
2. Abstract and introduction: in what way was the operation ‘simulated’? This needs to be explained more clearly.
3. Case presentation, paragraph 2: What is meant by ‘mirror samples’?
4. More detail on how the pre-existing PLS-DA model was built would be helpful. For example, was it based on binned or peak fitted data? What normalisation was used? What scaling was applied? What were the validation statistics of the model? I understand many of these details are in ref. 11 but it would help the reader to have a brief summary.
5. It is not clear if the tissue from the presented case was included in the samples used to build the statistical model. I presume not, since if so, this significantly diminishes the impact of the case report. This should be clarified.
6. For the test samples it would be helpful to report the model residual which indicates if the test samples fit the model well or not. This is most usefully reported as a plot including the training data, or as a set of ‘PmodX’ values (in the SIMCA-P software) which indicate the probability of the sample belonging to the model, and thus the quality of the prediction. The values of the predicted Y variable should also be reported.
7. Although interesting and useful, I don’t think this is ‘the first report describing the potential application of metabolic profiling by 1H HRMAS NMR to the field of surgery’ as stated in the cover letter. See for example, Kinross, J.M., et al., Metabolic phenotyping for monitoring surgical patients. Lancet, 2011. 377(9780): p. 1817-9, and references therein.

Quality of written English: Acceptable

Declaration of competing interests:

I declare that I have no competing interests