Author’s response to reviews

Title: A pilot evaluation of magnetic resonance imaging characteristics seen with solid papillary carcinomas of the breast in 4 patients

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Version: 3 Date: 06 Sep 2016

Author’s response to reviews:

Dear Editor and Reviewers:

We are deeply grateful to the insightful comments and suggestions made by the reviewers on our manuscript. We have made revisions accordingly by taking account of each and every comment and suggestion by all reviewers. The revised portions (or portions we’d like to draw attention to from our responses) in the manuscript have been highlighted in yellow. After revising as suggested, we believe that the description of MRI findings in this manuscript have been improved significantly to present the rare type of breast cancer. Detailed point-by-point responses to each comment by the reviewers (in blue font) are provided below.
Response to editor

Comment 1: Page 2, line 38: Specify how prognosis of SPC is “different” – is prognosis better or worse?

Author: Thanks for the suggestion. Based on literature research, prognosis of SPC seems to be better than that of intraductal papillary carcinoma (the most common papillary tumor) because of SPC's unique pathological pattern. We added this description in the revised manuscript and please see line 37-39: “Although still under investigation, the prognosis of SPC seems to be better than that of intraductal papillary carcinoma (the most common papillary tumor) because of SPC's unique pathological pattern [1-3].”

Comment 2: Pg 4, line 64: change “nodes” to “node”

Author: We changed as recommended in the revised manuscript and please see Line 64 “indicating no lymph node involvement.”

Comment 3: Pg 4, lines 65-67: was the SPC at the same site as the previous malignancy or at a different site within the same breast?

Author: Thank you for the comment. We had explained in the revised manuscript and please see Line 67: “at a different site within the same breast.”

Comment 4: Pg 4, lines 68-69: why were lesions not seen on MMG or US (particularly the larger 2 masses)? Was it bloody nipple discharge that prompted MRI? What prompted MRI in patients who did not have bloody nipple discharge?

Author: Thank you for the comment. MRI examination was prompted since no definite diagnosis could be obtained through MMG or US for all four patients presented. It was not bloody nipple discharge that prompt MRI. We explained this in the revised manuscript in line 68-71: “All patients had a unilateral lesion that cannot be definitely diagnosed by either mammography or ultrasound, where MRIs were used for diagnosis instead. Currently, we are investigating why MMG and US cannot see some of masses, but it is beyond the scope of this paper.”
Comment 5: Pg 5, line 98: delete “of”
Author: changed as suggested. Please see Line100-101

Comment 6: Pg 6, lines 105-106: Insert period and end sentence after “Table 2”. Move “Histography and IHC results are shown in Figure 1 A-D. Case 2 and 4 were associated with a mucinous component on pathology.” to line 110 after “had no dilated ducts.”
Author: Changed as recommended. Please see Line 105-107, 110-112

Comment 7: Pg 6, line 112: delete “the” and change “follows” to “follow”
Author: Changed as suggested. Please see Line 112-114

Comment 8: Pg 8, lines 140 – 143: Delete the sentence: “Since washout or plateau-type TIC findings…..rather than delayed phases.”
Author: Deleted as suggested.

Comment 9: The manuscript should have a brief and simple explanation of ADC values; this is attempted in pg 8, lines 145-154, but these lines need to be rewritten to give a clearer explanation for the reader. A potential of DWI/ADC is to try to increase specificity of MRI by differentiating benign lesions (typically higher ADC values) from malignant lesions (typically lower ADC values). The ADCs obtained by the authors for the SPC cases illustrate that, like ADCs of mucinous cancer, ADC values of SPCs may overlap with those of benign lesions. I believe the authors are trying to relay this, but needs to be rewritten to better communicate because this is a major point of the paper.

Author: Rewritten as suggested. Please see Line 144-148: “DWI is typically used to differentiate benign lesions from malignant lesions based on ADC values. Higher ADC values are associated with well-differentiated tumors, normal breast parenchyma or benign conditions [14,15] where the cutoff value is 1.15-1.2×10-3mm2/s [4, 14]. In our study, ADC values of SPC were in the range of 1.3-1.9×10-3mm2/s which was higher than the typical cutoff value.”
Line 151-155: “The ADCs obtained by the SPC cases illustrate that ADC values of SPCs may overlap with those of benign lesions similar to ADCs of mucinous cancer and the increased ADC values in SPC are likely due to the partially cystic or mucus components and solid tumor cell structures of SPC.”

Comment 10: Pg 9, lines 159-161: this sentence should also be rewritten. Assistance of a native English speaker or professional writing assistance may significantly improve points #9 and #10

Author: Rewritten as suggested. Please see Line 156-160 “The MRS report in our study is not only the first MRS report of SPC but also the first for breast papillary tumors. MRS is another powerful tool to differentiate benign breast lesions from malignant breast lesions. Typically, malignant lesions are more likely to show high levels of choline-containing compounds compared to benign or normal breast tissues [10] presenting a Cho metabolite peak.”

Line 165-167 “Therefore, the failure of choline detection in all four lesions might be related to the low-grade nature of the tumors which grow with intervening stromal cells [18, 19].”

Comment 11: Could small size (<1cm) be a factor or limitation in lack of choline peak for the 0.8 cm lesions? The addition of choline peak information to the figures for the 2 larger masses within the revisions has already improved this

Author: This is a good question. Although small size (<1cm) could be a factor in lack of choline peak[10], the absence of Cho metabolite in the two large lesions (2 cm and 3.2 cm, respectively) suggests the concentration of Cho in SPC may be too low to be detected. This is consistent with the conclusion that low-grade tumor may contains low level of choline-containing compounds in the literature [10, 17, 18]. We added this explanation in the revised manuscript (Please see Line161-165).

Comment 12: Pg 9, line 177 : change “increase” to “enhancement”

Author: Changed as recommended.

Comment 13: Figure 1 needs arrows or some annotation of what reader is supposed to see on images
Author: Added as suggested.

Comment 14: Figures 3 and 5: Add contrast-enhanced image of each lesion.

Author: Added as suggested.