Reviewer's report

Title: Relationship between morphological features and kinetic patterns of enhancement of the dynamic breast magnetic resonance imaging and clinico-pathological and biological factors in invasive breast cancer

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Reviewer: Gary Tse

Reviewer's report:

This is an interesting study on the correlation of MRI with DCE and several important biological parameters of breast cancers. Some of the findings are quite novel, however there are several issues that the authors need to address.

Major compulsory revision

Introduction. The authors stated that studies on DCE-MRI and tumor characteristics were few, and it is not true. There are many studies in the literature (e.g. Filippo Montemurro, 2007; Roka Matsubayashi, 2000; Mitsuhiro Tozaki 2004; etc.) The authors need to update the literature background search, and put forth how the current study differs from those in the literature.

Materials and Methods.

a. Early breast cancer cases were selected. How were they selected, and what were the criteria for defining a case as early.

b. Did the authors classify the tumors into different histotypes? Breast cancer is a heterogeneous disease, and not all tumors behave like the NOS type.

c. The authors have not defined how to assess the micro-vessel density (MVD)

d. HER2 assessment – most people use 30% cutoff as positive rather than 10%.

e. How was the histologic grade assessed? Modified Bloom and Richardson? Did the authors also assess the nuclear grade? This has to be listed in the M&M section.

Results.

a. Some authors reported correlation of grade to enhancement pattern. The authors need to comment the reason(s) for this disparity (Tuncbilek N, 2005)

b. The text on the possible reason for increased MVD and delayed maximal enhancement was difficult to understand, suggest further explanation (second half of p.15)

c. VEGF has a prominent and important role in enhancing vascularity permeability, thus contrast diffusion. This fact may warrant some discussion.

d. Was there any correlation between nuclear grade with the DCE-MRI parameters? Was there any correlation between VEGF and MVD?
Minor essential revisions

Materials and Methods.

a. It is interesting to note that axillary dissection was done in all cases as these were defined as early breast cancer. Was sentinel node assessment performed in the institution?

b. For VEGFR assessment, 400x power objective? Please clarify

c. For VEGFR assessment, the authors tried to average out the staining score. Giving the known tumor heterogeneity of breast cancer, it is not better to concentrate on the highest staining area?

Results.

a. The authors need to include in the study cohort whether or not there was DCIS component.

b. Some authors reported correlation of grade to enhancement pattern. The authors need to comment the reason(s) for this disparity (Tuncbilek N, 2005)

c. Was there any correlation between nuclear grade with the DCE-MRI parameters? Was there any correlation between VEGF and MVD?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

'I declare that I have no competing interests'