Reviewer's report

Title: The role of Spectrophotometry in the diagnosis of Melanoma

Version: 3 Date: 14 June 2010

Reviewer: Tim Lee

Reviewer's report:

Major Compulsory Revisions:

>Table 5: How are the histological diagnoses classified as positive and negative in each group?

>>In Statistical Method at pages 8-9, we specified that “Taking histology as the standard, a lesion was considered true positive (TP) if both SPT and histology were positive, true negative (TN) if both these technique were negative, false positive (FP) if SPT was positive but histology was negative and false negative (FN) if SPT was negative but histology was positive. Moreover, taking histology as the standard, a lesion was considered true positive (TP) if both ELM and histology were positive, true negative (TN) if both these technique were negative, false positive (FP) if ELM was positive but histology was negative and false negative (FN) if ELM was negative but histology was positive.”

I still do not understand the histological definition used in Table 5. I do not think a histological positive lesion in column 3 indicates a melanoma. For example, there were 3 lesions in Group 1 of SPT (non melanocytic and very low risk lesions); the histological results for this group were 2 positives and 1 negative, and the agreement was 66.6%. It seems to me that Table 5 does not follow the histological diagnosis definition stated in the paper and, again, in your reply. Instead, the third column of the table is defined according to each SPT group, i.e. there were 2 non melanocytic and very low risk lesions (2 positives) so that the agreement was 66.6%. In this case, the paper should state the precise definition used for each SPT group.

>Table 6: Similar to previous point, what are the definitions for the positive and negative diagnoses for the ELM classification?

>>See the answer to question 6.

I am sorry, actually I meant Table 4 in the previous review. Again the definition used in column 3 (histological diagnosis) of Table 4 is based on the ELM diagnosis of the ELM group instead of histological diagnosis of a lesion. A positive histological result does not indicate a melanoma. For example, for the 11 lesions in the very low risk ELM diagnosis group, there were 11 histological positive lesions and the agreement was 100%. According to the text, these 11 lesions were 6 papillomatosus compound naevus and 5 intradermal naevus. The text also reports the lesion types for all ELM groups, but a formal histological definition used for each group is not reported; particularly, the paper should
explain the reason for assigning papillomatosus compound naevi and intradermal naevi to the very low risk group, while compound naevui are assigned to the low risk group.

Discretionary Revisions:

>What were the breakdown between the A and B groups and their correlation between the ELM and SPT in this data set?

>>All we authors think this information will not improve the content of the manuscript.

In order to interpret the results properly, the characteristics of the data set should be described fully. The A and B groups are crucial for clinical diagnosis; without knowing the number of lesions in these groups, one cannot determine the number of clinically important lesions or the number of lesions due to cosmetic reasons. Also, the relationship between these groups and SPT will help reader understand whether the technique has a high correlation with clinical diagnosis.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests