Reviewer's report

Title: A re-evaluation of the scratch test for locating the liver edge: a reliable physical sign

Version: 1 Date: 14 December 2012

Reviewer: Jochen Schuld

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A re-evaluation of the scratch test for locating the liver edge: a reliable physical sign

To the authors:

The authors present a study comparing the clinical examination of the liver edge with standard ultrasound.

1. I have no concern with the methods clinically and statistically used in the paper. The abbreviation “ICC” has to be explained before first appearance in the text (see “Results” in the abstract)

2. The term “body habitus” sounds imprecisely and should be corrected. The cut-off p-value considered as statistically significant and the tests used to compare patients (see also comments concerning results section) should be provided.

3. Were the patients continuously breathing during the examinations or stopped they breathing during measurements?

4. The authors should clearly determinate “underestimation” and furthermore “overestimation” in relation to the reference point (below/above/nearer to the pelvis or the clavicle).

5. The authors should provide the main biometric statistics concerning the patients included in both parts of the study (e.g. age, male/female, height, weight and the resulting body mass index).

6. Furthermore, authors have to describe the differences between the 15 patients examined by Rater 1 and the 16 patients examinded by Rater 2 using standard statistical tests.

7. The y-axis on table 2 is missing (“Rater 1”, isn’t it?)

8. Authors postulate that a Spearmans rho of 0.37 shows only a moderate agreement. That is generally right. I would suppose to underline that statement with the corresponding literature.

9. The y-axis of figure 3 (“….raters pooled”) doesn’t correspond to that what is written in the text (“….difference between a rater”). Please correct or comment on that.

10. The calculation of ratings within the 1,2 or 3 cm of the reference value has to
be described in the methods section. How did you define 1 cm, 2 cm and 3 cm. Perhaps 0.5 cm/2cm and 1.5 cm above and below the reference value? Please comment on that, as written in the paper, it sounds somehow misleading.

11. Figure 4 should be omitted. Instead of that figure, a second Bland Altman Graph should be provided comparing twq BMI-groups at a cut-off value (set at the median BMI).

12. Linear regression analysis should be provided as a table with RR (alternatively : exp (beta)), 95% confidence interval and p-value.

Discussion:

1. The authors should discuss more extensively their paper concerning clinical relevance of knowing the lower liver edge in the midclavicular line.

2. The fact that physicians tend to underestimate objects and intraoperative findings is well known. The authors should cite some recent papers and discuss their results in that context.

3. After having read the article, the reader gets the impression (especially based on the statistical tests) that the scratch test is reliable but not precise. The authors should include this fact into the title of their paper. “Re-evaluation….: reliable but imprecise.”

4. The authors should discuss the limitations of their study; small number of patients included in the study and the natural bias which may be given by the rater itself (degree of hearing loss etc.)

5. The authors should discuss their results in the context of further medical education for students

1. Is the question posed by the authors well defined? yes
2. Are the methods appropriate and well described? See comments
3. Are the data sound? yes
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes, but see comments
5. Are the discussion and conclusions well balanced and adequately supported by the data?
6. Are limitations of the work clearly stated? no
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? n.a.
8. Do the title and abstract accurately convey what has been found? No, see comments
9. Is the writing acceptable? Yes

I therefore recommend “Major revisions”
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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'