Reviewer's report

Title: Immunostaining with D2-40 improves evaluation of lymphovascular invasion, but may not predict sentinel lymph node status in early breast cancer

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Reviewer: Marjut H Leidenius

Reviewer's report:

The authors of the manuscript "Immunostaining with D2-40 improves" address (the lack of) usefulness of D2-40 immunostaining in the evaluation of lymph vascular invasion in breast cancer, which is an interesting and clinically relevant topic. The result of the study was a negative one, and maybe there-fore, the authors have included lots of unnecessary details and immunostainings in their study and consequently, the key message is totally lost. They state (the last row of the BACKGROUND para-graph) that “the aim of the study was to add some discussion....” which obviously means that de-pressed by the negative result, the authors have lost their original aim. Furthermore, hardly any re-sults are provided, just correlation coefficients and p- values....

However, the histological evaluation of the study specimens appears as carefully performed and the study report is worth of rewriting with a focus on the clinical feasibility of D2-40 staining, not on “adding some discussion...”

Major Compulsory reviews
- Omit the results of VEGF-A and CD 34 stainings.
- Describe shortly the “risk groups” in Methods section
- Include patient and tumour features in the Methods section (that is table 1 and corresponding text in the beginning of the Results section)
- Start the Results section by reporting the proportion of LVI+ specimens when LVI is assessed with HE and D2- 40 stainings and compare these “sensitivities” of the stainings with Fisher’s exact test
- Then divide the material in to SL negative and SL positive cases and report the proportion of LVI+ cases in HE staining in the SL negative and positive subgroups and compare the subgroups with Fish-ers exact test. Report the result and compare the subgroups similarly when LVI is assessed with D2-40,
- Then divide the cases again into two subgroups 1) SL negative or cases with 1-3 positive nodes 2) cases with 4 or more positive nodes and report and compare similarly the proportion of LVI+ cases in the subgroups, when LVI is evaluated first with HE and then with D2-40
- Finally, divide the study cases to “risk groups” and report the proportion of LVI+ cases in each risk group when using HE and compare the LVI positivity in the risk groups with X2 – test. Report and compare similarly when LVI is assessed using D2-40

- Then do discuss these results

**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