Reviewer’s report

Title: The impact of incidental durotomy on the outcome of decompression surgery in degenerative lumbar spinal canal stenosis: Analysis of the Lumbar Spinal Outcome Study (LSOS) data --- A Swiss prospective multi-center cohort study

Version: 0 Date: 02 Oct 2015

Reviewer: Alice Kongsted

Reviewer's report:

BMSD-D-15-00164

Thank you for the opportunity to review this paper. First I would like to make clear that I have no expertise in surgical procedures and have therefore reviewed the paper from a methodological rather than a clinical point of view. Also, I cannot judge whether the existing literature in the field is well represented because the paper being is not within my field of research.

The paper is generally well written, but I have some concerns. The sample includes 15 cases with durotomy with a baseline profile that differed on many parameters from those without durotomy (although not statistically significant). The baseline differences would suggest that you adjust for some of these factors when comparing the outcome in the groups. However, that is problematic with this few cases. Still, I suggest reporting both observed group differences and differences adjust for some potentially important baseline variables (maybe introduced one by one). Some other point for consideration below:

Background

I think some of the studies mentioned in the discussion would be relevant to the background. E.g. the study by Desai et al. SPORT: Does incidental durotomy affect long-term outcomes in cases of spinal stenosis? seems highly relevant to this study and I suggest this is included in the background making it clear whether your study addressed a different question than that paper.

Method

It is described in the literature that durotomy can cause symptoms such as postural headaches, nausea, vomiting and dizziness which is not included as outcome measures in this study. I think
it should be clear from the objective and the conclusion that the study is about long-term consequences in terms of spinal stenosis symptoms and disability.

Analysis

I believe that the group comparisons of outcome measures during follow-up were made in unadjusted analyses due to the few cases with durotomy and maybe because no statistical significant baseline differences were demonstrated. However, this is not clear from the paper.

Given the small sample size I don't think baseline differences could be assessed based on p-values. It seems that those who had incidental durotomy were slightly younger, more often male, had higher education and reported better general health than those without durotomy. This implies that the groups are not directly comparable although the differences are not statistically significant.

Results

Did all patients respond to all follow-up questionnaires? How was that achieved? If not, please state the drop-out rate at each follow-up point.

In Figures 1 +2 I suggest that you merge the results of the two groups into one graph, so group comparisons appear more direct.

Discussion

Please, make it clear in statements like "The results of our study indicate that incidental durotomy followed by appropriate repair measures has no negative effect on the outcome" that the results relates to spinal stenosis outcome (maybe just adding "… no effect on these measured outcomes..") to avoid the that readers interpret this as also side-effects/complications were investigated.
It is mentioned that a more positive outcome observed in the durotomy group may relate to lower levels of depression pre-operative. I agree with that but think it could be expanded to other factors since it appears to me that the durotomy had more positive prognostic factors on a number of aspects.

I think the conclusion should be stated with the reservation that the number of cases was low and baseline differences were not accounted for.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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