Author's response to reviews

Title: Residive disc herniation after first lumbar disc herniation surgery; a 5-year follow-up

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Author's response to reviews: see over
RE: 712622961068009
Title: Residive disc herniation after first lumbar disc herniation surgery; a 5-year follow-up

Reviewer 1: Seppo Seitsalo

Comment 1: Firstly, I am little wondering if I am biased to review this article, because the authors are from the same country as I am, and we know each other quite well.
Answer: Although some of us know the reviewer, we do not have a conflict of interest as researchers and we work in different organizations.

Comment 2: This is a retrospective study of a relative small material, on a subject studied earlier quite widely. I am not sure if this article brings something new for readers.
Answer: When we carefully evaluated the previous articles on this subject, we found that at the moment rather little is known about the rate of re-operations at the same site as the primary operation. There are some studies, which report the amount of residive disc herniations. However, the data in many studies are old from the time when more invasive operation techniques and different diagnostic methods and criterion for the operation were used. Further, follow-up times vary widely in all these studies (from 7 months to 14 years within one study). Thus the rate of residive herniations is not clear. Therefore the present study was focused on this issue and we evaluated a group of patients with virgin lumbar disc herniation for a fixed time period.
We have added a new chapter in the discussion about this.

Comment 3: There are some inconsequensies in the terminology: recurrence, reoperation, reherniation, residive and residual. Residive disc herniation is not recidive, if the reoperation is performed on the other level than primary operation. Residive disc herniation (in the title) is not the same as (residive disc herniation leading to) reoperation.
Answer: We have revised the text so that the terms "recurrence" and "reherniation" are no more used in the text to avoid the use of too many different term. We have already used the definition of "residive lumbar disc herniation" in the introduction, results and discussion sections. We also added the definition in the beginning of the Abstract. The Title of the manuscript has been revised as well.

Comment 4: It is not clear, based on the article, if the data is collected only from the patient records or if the patients are also clinically controlled in the out patient clinic.
Answer: We have clarified that in the methods section.

Comment 5: The surgical technique is not described exactly. How thoroughly the disc material is removed, or if only the herniated fragment is extracted?
Answer: We have revised that part of methods section to clarify this. (In surgical technique the herniated fragment was extracted and thereafter loose material from the intervertebral disc was removed.)

Comment 6: In the reference list there are missing some important studies: Maine study (Atlas et al Spine 2001), Osterman et al Spine 2003, etc. Further, on true recurrent disc herniation (same level, same side) there are earlier studies; Silvers et al J Spinal Disord 1994, Suk et al Spine 2001 etc.
Answer: We have revised the discussion and included the results of the 2 mentioned studies (Atlas et al. 2001 and Österman et al. 2003) in the discussion concerning the rate of re-operations. We have also added a new chapter into the manuscript to increase the depth of the discussion about the rate of the residives by referring to the previous studies.
Reviewer 2: Mikko Poussa

Comment 1: General. The paper does not give very much new information about the topics but reflects the management of disc patients needing surgery in a certain area of Finland. It obviously gives a report of uniform indications and surgical techniques in disc surgery.

Answer: This comment is close to that of reviewer 1. When we carefully evaluated the previous articles on this subject, we found that at the moment rather little is known about the rate of re-operations at the same site as the primary operation. There are some studies, which report the amount of residual disc herniations. However, the data in many studies are old from the time when more invasive operation techniques and different diagnostic methods and criterion for the operation were used. Further, follow-up times vary widely in all these studies (from 7 months to 14 years within one study). Thus the rate of residual herniations is not clear. Therefore the present study was focused on this issue and we evaluated a group of patients with virgin lumbar disc herniation for a fixed time period. We have added a new chapter in the discussion about this.

Comment 2: The title of the paper is not correct, because in the material there is also disc herniation at other sites, which are not recurrent herniations. In the text there is also a mixture of terms residual, reoperation, initial disc operation, primary operation, reherniation etc. More uniform expression is needed.

Answer: We have revised the whole manuscript so that the terms "recurrence" and "reherniation" are no more used in the text to avoid the use of too many different terms. The title of the manuscript has also been modified.

Comment 3: It did come clear from the text if the patients were invited to outpatient clinics for the study or was the data collected from the patient charts?

Answer: We have revised the methods section to clarify this.

Comment 4. In the chapter Introduction the authors say that little is known about reherniations. His statement must be corrected.

Answer: We have stated that little is known about "the rate of residues at the site of the primary operation". Please, see also the answer on comment 1.
Reviewer 3: Sohail K Mirza

Comment 1: The manuscript describes useful research related to the risk of repeat surgery following lumbar disc surgery. The investigators sought to clarify the risk related to recurrent herniation at the same lumbar segment as the initial surgery; this information is lacking in larger studies based on administrative data.

I think the study provides useful information on the cumulative risk of repeat surgery at 5-year follow-up.

Answer: -

Comment 2: Please clarify whether this study is a prospective study or whether it is a case series from a retrospective chart review. The methods section states that patients completed pain and function questionnaires before surgery and also states that data for the study were collected from patient files. Was this a retrospective review of all data in the chart, including pre-operative questionnaires? Were data collected for outcomes other than re-operation (e.g. pain, disability)? It seems to be so in the abstract, but it is not presented in the rest of the paper. Were questionnaires also completed at the end of follow-up? What can be said of the possibility of repeat surgery among the 37 patients who did not "return for a post-operative check in the hospital's outpatient clinic"? If these patients had the option of seeking treatment elsewhere, then it may be difficult to interpret the observed re-operation rate.

Answer: This is originally a prospective study of the patients having lumbar disc operation in Jyväskylä Central Hospital in 1999 and patients were asked preoperatively to volunteer for a follow-up study. Of the total number of 210 patients, 173 volunteered for a follow-up study, filled a preoperative questionnaire and were referred for 2 and 12 month post-operative check-up visits in the hospital's out-patient clinic. The patients were first followed prospectively up to 12 months after the operation to study the early recovery and disability (Häkkinen et al. J Rehab Med 2003:35:236-40). Later they were mailed a 5-year questionnaire to obtain the current health information from the patients. Hospital records were also evaluated. We have revised the methods section to clarify this.

Comment 3: I find the second paragraph of the methods section confusing. It seems to describe a general treatment approach rather than specific methods for this study. If this section describes protocol for a prospective study, then specific information should be provided for the study patients (i.e. percentages).

Answer: Many of the earlier studies are rather old (as seen from a new paragraph from the discussion) and from the time when more invasive operation techniques and different diagnostic methods and criterion for the operation were used. And therefore we would like to include the criterion for the surgery, diagnostics methods as well as operation technique into the methods section. We have revised the second paragraph of the methods section. In the first paragraph we have added the percentage of the patients followed.

Comment 4: In the statistical analysis description, it would be helpful to clarify what the investigators mean by "bias-corrected bootstrap" and "bootstrap estimate of variance."

Answer: We have revised the that part of the statistical analysis section and added a reference for bootstrap analysis.

Comment 5: I am also not clear about the label "residive lumbar disc herniation"; is this the same as recurrent? Or do the investigators suggest persistent herniation not excised at discectomy?

Answer: We have revised the text so that the terms "recurrence" and "reherniation" are no more used in the text to avoid the use of too many different term. We have already used the definition of "residive lumbar disc herniation" in the introduction, results and discussion sections. We also added the definition in the beginning of the Abstract. The title of the manuscript has been revised as well.

Comment 6: The investigators are attempting to examine the association between re-operation and several pre-operative characteristics. With re-operation in only 17 patients, I am not sure how many factors can be analyzed in a multivariate model. I think some discussion of sample size and power is appropriate. The study likely does not have a sufficiently large sample size to assess many of the potential risk factors currently being analyzed.

Answer: We have added the comment on the limitation of the study in the discussion.

Comment 7. The Oswestry disability index is mentioned in the abstract but nowhere else, and no data for it are presented.

Answer: We have deleted that wrong reference from the abstract.