Author's response to reviews

Title: Piezoelectric osteotomy in hand surgery: First experiences with a new technique

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Author's response to reviews: see over
Reviewer's report
Piezoelectric osteotomy in hand surgery: First experiences with a new technique Title:
2 11 November 2005 Version: Date:
robert strauuch Reviewer:
Reviewer's report:
General
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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
Page 7, line 14: the authors note that minimal preparation of the bone is needed prior to the osteotomy, and yet they still cut the periosteum and the surgical exposure in Figure 2, with hohman retractors around the bone is identical to the exposure that would be used with a traditional oscillating saw. How is this exposure and soft tissue handling any different? Can the osteotomy be performed without stripping the periosteum and without retracting the soft tissues, since this device theoretically does not cut the soft tissues?

Our aim of the first time use of the Piezosurgery® Device in hand surgery was to check it’s usability in osteotomies. The harmless effects on soft tissue is known from literature. To check the effect on the soft tissue, we examined a resected nerve histologically after direct contact with the device. We were able check the anatomical and histological but not the physiological integrity. We recognised that normal exposure is harmless. For safety reasons we prepared the bone as usual and reduced the difference of the operating process to the point of interest. These circumstances are now pointed out in the corrected version of the manuscript on page 5:

Our aim of the first time use of the Piezosurgery® Device in hand surgery was to check it’s usability in osteotomies of long bones. The preparation of the bone was done in the usual manner as is done when cutting with an oscillating saw. The reason for this was that our goal was to show the usability of this device, regardless of the suggested harmless effects on soft tissue.

Because of your remark, we changed also the formulation of the conclusion in the abstract and in the text as follows:

Conclusion in the abstract:
The Piezosurgery® Device is useful for small long bone osteotomies. Using the fine tip enables curved cutting and provides an opportunity for new osteotomy techniques. As the device selectively cuts bone we feel that this device has great potential in the field of hand- and spinal surgery.

Conclusion in the text:
The Piezosurgery® Device is a useful device for small long bone osteotomies. We feel that this device has great potential in the field of hand- and spinal surgery. As the device selectively cuts bone, nerve lesions can considerable be avoided and minimal invasive surgeries are possible. Using the fine tip enables curved cutting and provides an opportunity for new osteotomy techniques.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1) Abstract: In Method: "We will report on our experiences with a follow up time of one year" should be "We will report on our experience with one case, with a follow up time of one year." We have changed the sentence as proposed.

2) Page 3, abstract. What is hollow cutting?
We changed the word „hollow“ to „curved“.

3) Page 4, second sentence, 'adapted' should be 'varied'.
We have changed the sentence as proposed.

4) Page 4, line 3: What problems are produced with magnification?
We have supplemented the sentence as follows:
They also pose problems while being used in conjunction with magnification, as one’s range of sight and focus is restricted when wearing magnifying glasses.

5) Page 4, last sentence: The authors indicate that an integrated pump is available for cooling. How hot does the tip actually get?
We don't have any data, sorry. The aspect intraoperatively doesn't suggest an overheating of the tissue, no smoke or vapor was produced. The cooling system, the relatively small tip and the slow procedure may be the reasons for that.

6) Page 5, last sentence: same point as in #1 above.
We have changed the sentence as proposed.

7) Page 6, first sentence, should be "a 23 year old worker who suffered a malunited metacarpal bone fracture...."
We have changed the sentence as proposed.

8) Page 6, line two, should be, "X-rays revealed a 45 degree angular deformity of the fifth metacarpal neck with internal rotation."
We have changed the sentence as proposed.

9) Page 7, line 5, should end, "...nor is there the danger of a break out." , not 'brake'.
We have changed the sentence as proposed.

10) Page 7, line 9, what is 'hollow cutting'? 
We changed the word „hollow“ to „curved“.

11) Page 7, line 12: The authors mention that the downside of the device is the slow sawing process; how long did it take?
We added a sentence as follows:
The authors mention that the downside of the device is the relative slow sawing process. We needed about 30 seconds for one cut of the relatively small bone. This is about 20 seconds longer than the time needed for cutting with the usual saw.

12) Page 8, last sentence: should be, "The patient as well as the surgeons were fully satisfied with the result."
We have changed the sentence as proposed.

We are sorry for the bad english of the submitted manuscript. The language of the revised manuscript is now checked again by an english speaking co-worker.
Discretionary Revisions (which the author can choose to ignore)
Unable to decide on acceptance or rejection until the authors have responded to the What next?:

major compulsory revisions
An article whose findings are important to those with closely related research Level of interest: interests
Needs some language corrections before being published Quality of written English:
No Statistical review:
Declaration of competing interests:
I declare that I have no competing interests.
Reviewer's report
Piezoelectric osteotomy in hand surgery: First experiences with a new technique

Title:
21 November 2005 Version: Date:
David Pichora Reviewer:

Reviewer's report:
- Major Compulsory Revisions
1. Please add any quantitative data that might strengthen the paper:
   a. Time take to perform the osteotomy
   We added a sentence as follows:
   The authors mention that the downside of the device is the relative slow sawing process. We needed about 30 seconds for one cut of the relatively small bone. This is about 20 seconds longer than the time needed for cutting with the usual saw.

   b. Time to healing
   Healing is a broad expression. In our case we found that the patient was completely painless after 4 weeks, so we let him return to work. At this time there were no radiological signs of callus formation to be seen on the x-rays. Follow up examinations showed no problems in the course of healing. Therefore our decision to let the patient return to work was correct. We cannot give an exact time for healing after an osteotomy with the new device. We cannot say this as we do not know whether the patient would have been able to return to work 4 weeks after having received a conventional osteotomy because of quick healing or whether the healing after an osteotomy using the new device takes less time. Therefore we mentioned:
   In our patient the postoperative healing of the wound and the bone consolidation (Figure 4) were smooth. The duration of postoperative care as well as sick leave was with four weeks in the bottom half of the normal time needed after comparable operations.

c. Capital cost of this device
d. Cost for disposables required to perform the osteotomy with this device
   The price for the device has risen in the last two years. We noted the actual price in the added sentences: The cost of the device is about 7.000 USD. Additional costs per operation are for the cooling liquid and are in the range of a few dollars.

2. Editing for English grammar and style.
   We are sorry for the bad english of the submitted manuscript. The language of the revised manuscript is now checked again by an English speaking co-worker.

- Minor Essential Revisions
1. More information regarding the Manufacturer, City of manufacturer, model of machine etc.
   Would be of interest to readers
   We noted a link in the reference list. The homapage has recently been edited. Actual information about the company and the device can be found in:

Accept after review of revisions, to see if there is any further substantive data to support the conclusions

Needs some language corrections before being published Quality of written English:
   The language of the revised manuscript is now checked again by an English speaking co-worker.

No Statistical review:
Declaration of competing interests:
'I declare that I have no competing interests'