Author’s response to reviews

Title: Temporomandibular Joint Disc Repositioning Using Bone Anchors: An Immediate Post Surgical Evaluation by Magnetic Resonance Imaging

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Version: 9 Date: 18 August 2010

Author’s response to reviews: see over
Dear editor:

Thank you very much for publishing my paper in your Journal last year, and giving me the opportunity to revise my paper (1249876804304315). The paper was carefully revised according to the reviewers’ comment. And also, I have submitted the ethical approval and informed consent. I hope my paper will be published in your Journal again.

Best wishes,

Yours Sincerely

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Reviewer’s report
Title: Temporomandibular joint disc repositioning using anchor: short-term follow up by magnetic resonance imaging to treat internal derangement
Version: 6 Date: 19 May 2010
Reviewer: Andrew J Sidebottom

Reviewer’s report:
This is a much improved submission. I still feel it would be valuable to define in the article what the authors mean by excellent, good and poor outcome as access to other journals immediately is not straightforward.

In page 6, I add the The evaluation criteria were as follows: 1) reposition in 3 sagittal parts is excellent, 2) reposition in 2 parts is good, and 3) none or only 1 reposition is poor. Excellent and good evaluations were regarded as successes (if there was disc displacement in only 1 or 2 levels, only replacement of all levels was regarded as a success).

I am not sure whether there is a problem with my article but there are still a lot of squares where there should be numbers - i.e. Wilkes classifications in the discussions.

p8 I would add at the end that they intend to continue with long-term follow up of outcomes.

The second reviewer------Professor Larry Wolford suggested me changed the title into “Temporomandibular Joint Disc Repositioning Using Bone Anchors: An Immediate Post Surgical Evaluation by Magnetic Resonance Imaging”, so I thought that the results for long-term follow up could be introduced as part 2 in the future, Do you agree with me?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

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.
Reviewer's report
Title: Temporomandibular joint disc repositioning using anchor: short-term follow up by magnetic resonance imaging to treat internal derangement
Version: 6 Date: 28 April 2010
Reviewer: Larry Wolford
Reviewer's report:
TITLE: “Temporomandibular Joint Disc Repositioning Using Anchor: An Effective Method to Treat Internal Derangement in Stage ______ to ______”
(There is still no “stage” designation)

According to Professor Larry Wolford suggestion, I changed the title into “Temporomandibular Joint Disc Repositioning Using Bone Anchors: An Immediate Post Surgical Evaluation by Magnetic Resonance Imaging”

This paper is improved but still needs additional work. The abstract still needs to be cleaned up considerably. Suggestions for the abstract rewriting would be as follows;

ABSTRACT
Purpose: Open joint procedures using bone anchors have shown clinical and radiograph good success, but post surgical disc position has not been documented with MRI imaging. We have designed a modified technique of using two bone anchors and 2 sutures to reposition the articular discs. This MRI study evaluates the post surgical success of this technique to reposition and stabilize the TMJ articular discs.
Methods: Consecutive 81 patients with unilateral TMJ internal derangement (ID) (81 TMJs) were treated between December 1, 2003, and December 1, 2006, at the Department of Oral and Maxillofacial Surgery, Ninth Peoples Hospital, Shanghai, Jiao Tong University School of Medicine. All patients were subjected to magnetic resonance imaging before and one to seven days post surgery to determine disc position using the modified bone anchor technique.
Results: Postoperative MRIs (one to seven days) confirm that 77 of 81 joints were identified as excellent results and one joint was considered good for an overall effective rate of 96.3% (78 of 81 joints). Only 3.7% (3 of 81) of the joints were designated as poor results requiring a second open surgery.
Conclusions: This procedure has provided successful repositioning of the articular discs in unilateral TMJ ID at one to seven days post surgery.

I have changed the abstract according to Professor Larry Wolford’ suggestion.

Introduction (Background): The authors labeled the introduction as “Background”, and I believe “Introduction” would be a better terminology.
I have changed the “Background” into “Introduction”, according to Professor Larry Wolford’ suggestion.

Since this article is discussing the use of bone anchors to stabilize the articular discs, I am
surprised that there is no mention of articles that document the success of other bone anchor techniques such as the Mitek anchor in stabilizing the TMJ articular discs. The authors should at least mention other techniques in the Introduction since bone anchor technology has been used by some of us routinely in the TMJ since 1992. The use of bone anchors is definitely not a new idea of these authors: They have simply modified an existing technique.

I have added the reference 7, and changed the reference accordingly.

The last statement in the background should read “... and to assess the immediate post surgical disc positioning using MRI evaluation”. On the bottom of page 4, the sentence “the mouth opening and pain index were recorded before operation”. This sentence should be removed as it has no bearing on this study since no data is presented related to these factors.

I have removed the sentence “the mouth opening and pain index were recorded before operation”, according to Professor Larry Wolford' suggestion.

Page 5, next to the last paragraph, the sentence “postoperative management including a progressive physical therapy regimen. a semi-fluid diet is strongly required for one week after the operation.” This entire section needs to be removed as it has no bearing on this study since no data is included and is beyond the study period of 1 to 7 days post surgery. The last sentence in that same paragraph should read “MRI evaluations were taken to confirm the disc position within one to seven days post surgery.” In the next paragraph, it can be shortened by stating “pre and postoperative MRI scans were obtained using a 1.5-T imager....according to the routine sequence [9, 10].

In Page 5, I have removed the sentence “postoperative management including a progressive physical therapy regimen. a semi-fluid diet is strongly required for one week after the operation.” according to Professor Larry Wolford' suggestion. And also, we changed the sentence “MRI evaluations were taken to confirm the disc position within one week” into “MRI evaluations were taken to confirm the disc position within one to seven days post surgery. In the next paragraph, it can be shortened by stating “pre and postoperative MRI scans were obtained using a 1.5-T imager....according to the routine sequence [10, 11].

In the Discussion at the top of page 7 for clarity for the authors, the technique described by Mehra and Wolford does use one Mitek anchor, but with two separate sutures attached to the anchor to function as 2 artificial ligaments. Thus, the same is being accomplished by the authors to support the disc (2 artificial ligaments) except they use two bone anchor screws (instead of one) with a separate suture to each anchor screw.

I agree with part of Professor Larry Wolford' suggestion, but not totally same, especially for lateral displacement or medial displacement, two bone anchor screws with a separate suture to each anchor screw are not the same as one Mitek anchor with two separate sutures.
On page 8 in the Conclusions, the first sentence makes no sense. The authors state “….the significant advantages of this procedure are as follows: It is convenient for us to treat the changes in the inferior joint compartment or condylar disease, besides pathology in the upper joint compartment.” I have no idea what this means and it should be restated as such: “In conclusion, this technique provides a method to reposition the articular discs confirmed by MRI immediately post surgery. However, long-term follow-up studies are required to validate the success of this treatment approach.” The authors cannot say that compared with other disc repositioning methods that their technique has a significant advantage; there is no evidence in this paper to support this conjecture. This is not proven by this study and requires long-term follow-up evaluation with subjective and objective evaluations as well as imaging to determine if this is true or not.

In page 8, I have **removed** the sentence “the significant advantages of this procedure are as follows: It is convenient for us to treat the changes in the inferior joint compartment or condylar disease, besides pathology in the upper joint compartment.” And **changed it into** “In conclusion, this technique provides a method to reposition the articular discs confirmed by MRI immediately post surgery. However, long-term follow-up studies are required to validate the success of this treatment approach.”

Later in the same paragraph, a recommended change would be “….MRIs confirmed that over 96.3% of the patients (78 of 81) had successful disc repositioning at the immediate post surgical time interval.”

In page 8, According to Professor Larry Wolford’ suggestion, a recommended change from “Of all the consecutive 81 patients (81 joints) undergoing disc repositioning, postoperative MRIs confirmed that over 96.30% patients (78/81) had successful results. This showed the discs were adequately surgically repositioned confirmed by MRI at one to seven days post surgery. However, further clinical follow-up and the MRI evaluation should be carried out.” into “MRIs confirmed that over 96.3% of the patients (78 of 81) had successful disc repositioning at the immediate post surgical time interval.”

Relative to the illustrations, it would be very helpful to have a picture of the actual anchor. You could put it in a little box and insert it into one of the other photographs.

**According to Professor Larry Wolford’ suggestion, I added a picture of the actual anchor in Figure 1A.**

One additional comment addressing the MRI imaging, particularly Figure 3D, E, F, and G. All three of these images show that the discs are over corrected and posteriorly positioned relative to a normal disc position. I certainly would not classify these as excellent results because of the overcorrection and posterior displacement. These patients may likely have problems in the future with the condyle translating anterior to the disc on subsequent opening. This unfortunate overcorrection may be the result of the authors detaching the lateral pterygoid muscle from the disc, thus eliminating anterior stabilization to the disc. It would be helpful to keep the lateral pterygoid muscle attached to the disc to prevent this posterior displacement. If
these are the best images and these are considered excellent results, I would be concerned about the long term outcomes for many of these patients. Additional comments worthy of the authors’ consideration include the following. 2-0 Ethibond suture is a relatively thin suture to support the TMJ articular disc. 0 Ethibond is thicker and will better support and maintain the disc in position.

According to our experience, the discs are over corrected and repositioned to 11 o’clock (Right TMJ) or 1 o’clock (left TMJ) relative to a normal disc position will more stable. Certainly, some patients may likely have Occlusal disorders problems. traction will be used to correct this problems, and this will be introduced in detail in other paper. Also, it would be concerned about the long term outcomes for all of the patients using the disc anchor through MRI. The results will be reported in another paper as part 2. In addition, the lateral pterygoid muscle attachment was not totally released, thus we thought that anterior stabilization to the disc was not eliminated. Accordingly, because the lateral pterygoid muscle attachment was partial released, a relatively thin suture of 2-0 Ethibond suture is to support the TMJ articular disc.

I am still overwhelmed by the extensive incisions the authors make. The surgery can easily be done through an incision ¼ the size they use. The final concern is in reference to the anchors extending out of the posterior head of the condyle, with the possibility of these anchors poking into the retrodiscal tissue contributing to post surgery pain. The Mitek anchors are completely positioned within the condylar head, so only the sutures (artificial ligaments) sit on the posterior head thus minimizing additional pressure on the bilaminar tissues. Often there is not much space between the posterior condylar head and the posterior fossa wall.

Professor Larry Wolford is a very famous TMJ specialist, with skilled technique to perform any TMJ surgeries. As to our technique, we will carry out the long-term follow-up studies to validate the success of this treatment approach.

This paper is getting closer to being publishable, but I would certainly like to see the above comments and suggestions addressed.