

Peer Review File

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Round 1

Comment of reviewer A:

33 Under microscopy-> Under microscopic surgery or Under microscopic procedures.

63 in the paper;-> in the paper.

67 significant hemostatic effect, and dramatically improves the endoscopic view, endoscopic surgical view. or endoscopic view of surgical field.

I think that's a more reasonable expression.

Reply A: We thank the reviewer for this comment. The suggested points have been corrected accordingly (Lines 43 to 44, Line 108, and Line 111).

Comment of reviewer B:

The authors presented the new hemostatic procedures for Full Endoscopic Spine Surgery (FESS) under continuous saline irrigation. For this technique, the authors developed a nozzle applicator to plaster up the bone wax.

This technical note is very informative for the surgeons who are performing decompressive laminectomy by FESS. Before resubmitting the article, please consider following minor points.

Major points;

1) The authors should emphasize that the surgeons could avoid the dirt of working channel and lens itself by the bone wax and the surgeons could continue the laminectomy under clear visual field.

Minor points;

- 1) It is necessary to indicate the size (especially for the diameter) of new instrument (a nozzle applicator). It is also necessary to indicate the size of working channel of the endoscope which is applicable for this technique.
- 2) Introduction and comments (should be change to “Discussion”) are too short. Please explain other hemostatic procedures and compare with this new technique.
- 3) Similar to above comment, please cite more references regarding hemostatic procedures.
- 4) If authors have data showing the superiority of this new technique, please show the data and indicate that in the text. e.g., Could you show the reduction of the amount of postoperative drainage after introduction of this technique? Could you show the reduction of operation time after introduction of this technique?
- 5) English should be brushed up by native English speaker.

Reply B: We thank the reviewer for the comments.

Major point (1) - We have emphasized that the advantage our technique was the use of a nozzle applicator (Lines 27 to 33).

Minor point (1) - The size of a nozzle applicator was indicated (Lines 57 to 58).

Minor point (2) – The introduction and comments (changed to discussion) were revised (Lines 38 to 47, and Lines 79 to 112) to discuss other hemostatic procedures with their pitfalls and the advantage of our bone wax technique.

Minor point (3) - There was scarcely any other reference on the journal database; however, the description in the textbook by Hofstetter CP et al (1) was a helpful guide during surgery. The textbook has been cited:

1. Hofstetter CP. Principles of Full-Endoscopic Surgical Technique. In: Hofstetter CP, Ruetten S, Zhou Y, Wang MY, editors. Atlas of Full-Endoscopic Spine Surgery. New York: Thieme; 2020. p. 36-8.

Minor point (4) – The reduction in operation time was not significant. The quantity of postoperative drainage in each case was deficient or lost. However, dural tear, including cases

with CSF leakage and without CSF leakage (namely exposure of arachnoid membrane kept intact), was significantly decreased after the introduction of the bone wax technique. These data have been added to the Surgical results section (Lines 67 to 77).

Minor point (5) - The revised paper has been proofread by a native English speaker.

Comment of reviewer C:

The video shows solid technique. The video shows good control.

The application of bone wax in endoscopic approaches however is not novel. I feel this does not add much to the literature.

The advantage of continuous irrigation allows for continuation of the case and often times, the bony bleeders slow down. Bipolar devices are often used as well over the bony channels which also can be an effective maneuver.

Reply C: We thank the reviewer for this comment. Continuous irrigation and bipolar devices are effective in most situations. However, we are aware of the possibility of intractable bleeding during FESS, especially while using a large endoscope for laminotomy. Chu et al. (2) reported the use of the bone wax technique in 2018. Hofstetter systematically described hemostasis in FESS in his book section (published in 2020) (1), including the use of bipolar devices and the Kerrison technique or the application of thrombin. However, Hofstetter did not describe the use of the bone wax technique in his 2020 book (1). One major disadvantage of bone wax, which sticks to the working channel and lens of the endoscope in FESS, was well known in 2020, when we started FESS. Although Chu's idea of bone wax (2) use before our applicator innovation is acceptable, it seemed infeasible for general application. We expect our innovative nozzle applicator for the delivery of bone wax to attract interest from readers after this article is published.

1. Hofstetter CP. Principles of Full-Endoscopic Surgical Technique. In: Hofstetter CP, Ruetten S, Zhou Y, Wang MY, editors. Atlas of Full-Endoscopic Spine Surgery. New York: Thieme; 2020. p. 36-8.
2. Chu L, Yang JS, Yu KX, Chen CM, Hao DJ, Deng ZL. Usage of Bone Wax to Facilitate Percutaneous Endoscopic Cervical Discectomy Via Anterior Transcorporeal Approach for Cervical Intervertebral Disc Herniation. World Neurosurg. 2018;118:102-108.(doi):10.1016/j.wneu.2018.07.070. Epub Jul 17.

Comment of reviewer D:

Very interesting article. Video is easy to understand and meets the requirements of a technical note.

Reply D: We thank the reviewer for these comments.

Comment of reviewer E:

This is an interesting article demonstrating the use of bone wax in full endoscopic spine surgery. It was challenging to control the bleeding on the bony structure under endoscope and it might be helpful by using the technique introduced by the article. However, the article offered only 1 case. It is hard to judge the effectiveness of the technique by only 1 case. Besides, the author might consider describing some of the challenging point or pitfalls when applying this technique.

Reply E:

We thank the reviewer for these comments. We demonstrated the surgical results of 80 cases. After introduction of our bone wax technique, dural tear, including cases with CSF leak and without CSF leakage (namely arachnoid membrane kept intact) significantly decreased (Table 1). The limitations of this bone wax technique were noticed when the epidural vein was involved, as bleedings are typically caused by bites with the Kerrison rongeur during the decompression of the contralateral recess (1). Our recovery shot using Bemsheets has been described in the manuscript (Lines 98 to 105).

1. Hofstetter CP. Principles of Full-Endoscopic Surgical Technique. In: Hofstetter CP, Ruetten S, Zhou Y, Wang MY, editors. Atlas of Full-Endoscopic Spine Surgery. New York: Thieme; 2020. p. 36-8.

Comment of reviewer F:

Brief words but interesting innovation. Can share with us the dimension of the bone wax applicator and which company that makes it?

Reply F: We thank the reviewer for this comment. The applicator, which is a product of Ethicon, Inc., Raritan, NJ, USA (Lines 57 to 58), was 34 cm in length, with an outer diameter of 2 mm.

Round 2

Review Comment 1: Please delete duplication of references.

Reply 1: We thank the editor for deletion of the duplicated references.

Review Comment 2: “full-endoscopic” should be used alternative to “full endoscopic”.

Reply 2: “full endoscopic” had been alternated to “full-endoscopic” in L1, L30, L45 and L48.