Peer Review File

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Reviewer A

Comment 1: I suggest that oncologic variables from cancer surgery should be evaluated, such as harvested lymph nodes and thyroglobulin level (TSH stimulated, unstimulated).

Reply 1: Thank you very much for this suggestion. We agree that such oncologic measures are important to know when considering thyroidectomy outcomes for malignant indications. Of the papers that we reviewed, only some were specific about the indications of thyroidectomy in their patients and few provided information on oncologic variables like lymph node involvement and thyroglobulin level. At this time, looking at the literature, we would not be able to substantially say much about this.

Reviewer B

Comment 1: I have read this article in principle it would seem interesting, the idea, material and methods are adequate as well as the results, however I would expect more about other topics in the discussion: frequently ask how safe is this surgery when it comes to cancer.

Reply 1: Thank you very much for this suggestion. As stated in our reply to comment 1, we agree that it is important to look at this approach to thyroidectomy in the specific view of cancer. However, the state of the current literature does not give us enough information to comment on that aspect. TOETVA is still a new technique that is being learned globally. Our review is the first in over a year to look at all the TOETVA cases published worldwide.

Comment 2: The discussion could be better, since the technique has already shown that it is not inferior to open thyroidectomy.

Reply 2: Thank you for your comment. To our knowledge, TOETVA outcomes have only been compared to those of open thyroidectomy on a small case-series scale. Our review is the first updated review of all of the TOETVA cases that have been published so far and from them has amassed collective complication rates. Previous comparisons have not occurred with TOETVA complication rates drawn from such a large number of reported cases.

Comment 3: Another issue to discuss is the safety of the implication of hidden gaglionic disease. ETC.

Reply 3: Thank you very much for mentioning occult neck metastasis as this is something that we thyroid surgeons definitely worry about. In general the management of the central neck electively in patients with known thyroid cancer varies throughout the world. In our practice, at Weill Cornell and Hopkins we are very strict about following ATA guidelines when it comes to managing the central neck. We are not performing elective central compartment neck dissections for small thyroid nodules that are suspicious on FNA. We make sure to perform a complete preoperative US of the neck to evaluate those lymph nodes and the lymph nodes of the lateral neck very carefully. When those nodules turn out to be thyroid cancer, if small with no evidence of extra thyroidal extension and if margins are negative there is no indication currently to go back in the neck to do a completion thyroidectomy or a central neck dissection at that point. For this we believe that transoral thyroidectomy is applicable in those cases. When a central compartment is indicated we are able to do so using this technique with great success. Those

outcomes are outside of the scope of this paper however but will be included in publications in the future.

Reviewer C
Comment 1: Could the authors show us what the indications for surgery were? Nodules < 3 cm, low risk cancer? This would really add to the manuscript.
Reply 1: Thank you for this suggestion. As each paper was published at a different level of early adoption of this technique, the indications were quite diverse depending on the experience of the surgeon who was conducting the procedure.

Comment 2: Is the TOETVA technique feasible for redo surgery (e.g. completion surgery)?
Reply 2: Thank you for your question. Yes TOETVA has been done for completion thyroidectomies and several of those cases are included in the 1880 cases included in our analysis.

Comment 3: It would be of great interest if the authors could give an overview of the complication rates compared to the other minimal invasive techniques: MIIVAT / RATT / BABA.
Reply 3: Thank you for the suggestion. While this would be very interesting indeed to compare, our goal with this review is to quantify complication rates of TOETVA as reported in the literature so far and compare it to the standard for thyroidectomy, which is the open approach.

Comment 4: Table 1 doesn't contribute to the manuscript.
Reply 4: Thank you for your comment. Table 1 corresponds to the section of our paper entitled "Rate of Adoption Compared to Other Remote Access Approaches". The purpose of this section is to show that in the first five years of existence of the TOETVA technique, it has been more rapidly adopted in the academic literature as compared to the other minimally invasive thyroidectomy techniques in their first five years of existence. Table 1 is essential to that point, showing the cases published of each technique within their first five years of existence.