The technique and variants of transoral endoscopic thyroidectomy by vestibular approach (TOETVA) to reduce complications.

As abordagens e variantes da tireoidectomia endoscópica transoral por acesso vestibular (TOETVA) para reduzir as complicações.

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LETTER TO THE EDITOR

The article by Tesseroli *et al*.[1] provides important content for head and neck surgery and also for laparoscopic surgery in general. The transoral endoscopic thyroidectomy by vestibular approach (TOETVA) serves as a model for future interventions, not only in the thyroid gland, but for other areas in which one can apply the same principles. The TOETVA technique represents a new endoscopic approach. This access takes place in the buccal aspect of the lower lip, through which the gland can be accessed with less manipulation of the nearby nerves and vascular structures and vascular structures compared with the mammary, axillary-mammary, retroauricular and open approaches. Due to the location of its incisions, the resultant scars of this procedure are not visible, being the most important feature for patients who wish to avoid this esthetic complication[2]. In addition, post-surgical findings reveal a low probability of serious complications, as evidenced by Anuwong *et al*.[3] in their study with 200 patients. They reported the next findings: duration of the procedure between 45min and 300min, blood loss was between 6ml and 300ml, temporary hoarseness was present in eight (4%) patients, temporary hypoparathyroidism in 35 (17.5%), mental nerve injury in three (1.5%) and only one patient (0.5%) presented postoperative hematoma. There was no need for conversion to open thyroidectomy, and no cases of infection. There are other studies comparing the results shown by different approaches, detailing the actual TOETVA benefits, and creating new variants based on the same principle, to reduce all possible complications.

Although many authors support TOETVA because of its clear benefits, some others assure that there are no significant differences in contrast with open thyroidectomy, but with the other approaches. Jitpratoom *et al*.[4] discussed the differences between some types of thyroidectomies, including the mammary approach, the minimally invasive video-assisted thyreoidectomy (MIVAT), the bilateral axillary-mammary approach (ABBA) and TOETVA. Of all these techniques, ABBA was the least favored because of its average duration (190min) and bleeding (229ml). Therefore, some authors seek to modify the TOETVA technique, creating variants to improve its efficiency and reduce complications.

Chen *et al*.[5] present a hybrid variant of TOETVA, called Transoral and Submental Thyroidectomy (TOaST), applied for the first time in a patient. This technique maintains the same principles and advantages of TOETVA, but unlike it, begins with an incision 1cm below the chin (submental area).

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The advantages that make TOaST superior to TOETVA are: 1) the submental approach allows the extraction of larger nodules because it has the ability to extend laterally without causing possible damage to the mental nerve; and 2) TOaST does not envolve to chin pain or loss of sensation after surgery due to the incision in the submental area. This technique avoids dissection and manipulation in the central part of the chin, where the mental nerve is located. As for the scar, TOaST leaves a small one under the chin, which is a negative aspect. However, all other positive features must be taken into account and a specific decision must be made according to the disease.

Another variant, described by Muller *et al*.[6], reveals a new approach to achieve a safe insertion of trocars in the subplatismal space, since in TOETVA the only way to achieve this area is through dissection that can cause acute complications, such as bleeding and bruising. This variant was performed in four thyroidectomies in female cadavers, each lasting approximately 54 minutes, and is based on hydrodissection with a rounded tip dissector to cause the lowest possible damage until reaching the desired area. Once there, saline solution is injected to expand the space below the platysma muscle. Therefore, the use of this technique creates a safe and optimal exposure area, which guarantees greater visibility of the thyroid and parathyroid glands and nerve structures, allowing the performance of an effective transoral thyroidectomy. One of the most important advantages of this variant besides avoiding complications such as pain or decreased sensitivity, is the rapid identification of the recurrent laryngeal nerves (RLN).

As collateral nerve damage is the main complication of this procedure, Dionigi *et al*.[7] applied an intraoperative neuromonitoring technique (IONM) during TOETVA to obtain information about the state of the laryngeal nerves during surgery and thus minimising postoperative adverse outcomes. IONM is performed through a long-paced (230mm) monopolar probe with rounded tip, connected to the IONM system. The authors show the advantages of using IONM in TOETVA, such as monitoring for the identification and evaluation of the functions of vagus (V1, V2), recurrent laryngeal and superior laryngeal nerves without additional incision, since the probe is placed through the same incision of the right side trocar. In addition, the stimulus is of lesser intensity to the nerve structure due to its direct contact, causing no trauma by the round tip. However, the limitations in the use of IONM are its costs, the loss of CO_2 by this trocar, the exchange of instruments and the availability of the probe. Despite this, IONM increases the confidence of surgeons to perform TOETVA.

In conclusion, TOETVA is a minimally invasive type of thyroidectomy that provides several post-surgical benefits as mentioned above. However, the feature that makes it superior to other techniques, is the absence of a visible scar. Although the other complications of TOETVA are not significantly different from the ones of the other approaches, it is recommended to apply the variants shown to modify the technique, using the same laparoscopic principles, to cause the least possible collateral damage to the adjacent structures.

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