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Transoral endoscopic thyroidectomy vestibular approach (TOETVA): A case report as new technique in thyroid surgery in Vietnam[☆]

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ABSTRACT

INTRODUCTION: Transoral endoscopic thyroidectomy via vestibular approach (TOETVA) is a promising procedure with many advantages such as truly scar free healing, minimally invasive dissection, and accessible approach to both thyroid lobes.

PRESENTATION OF CASE: A female patient aged 19 presented with a benign thyroid nodule 2 cm in size for a year and the patient decided to proceed with surgery. The operation with a left subtotal thyroidectomy performed by the TOETVA technique was indicated. The surgery was implemented in 110 min, the patient was discharged after three days of postoperative care without any complication except for a mild seroma and swelling in the anterior neck which resolved completely within 10 days.

DISCUSSION: Endoscopic thyroidectomy is a favorable approach to treat patients with benign nodules, Grave's disease and thyroid cancer which has 1–2 cm cancer nodule without extrathyroid extension. There are direct (cervical-anterior or lateral) and extracervical endoscopic procedures to have the thyroid exposed but multiple small scars remain. However, TOETVA is an excellent choice for select patients requiring thyroid surgery who desire to avoid a neck incision.

CONCLUSION: TOETVA with the potential for scar-free surgery is a safe and effective procedure which provides good cosmetic outcome. The long operative time of this approach will be shortened with experience.

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1. Introduction

Nodularity of thyroid tissues is common among thyroid abnormalities. Women are more likely than men to develop thyroid nodules. Surgery still plays the role as the main treatment of the disease [2]. There are two main methods of operation including conventional open and endoscopic thyroidectomy. In the field of classic open surgery, Theodor Kocher was considered a pioneer and leader [3]. However, it leaves an undesirable scar on the neck.

The first endoscopic thyroidectomy was performed in 1996 [4]. Two endoscopic approaches are cervical and extra-cervical entries, nevertheless, multiple small scars remain after these procedures. Moreover, the considerable distance between the position of trocars and the thyroid gland prolongs operative time and pain level, as well as leaves patients at risk of complications after surgery [5].

Transoral endoscopic thyroidectomy via vestibular approach (TOETVA) is a promising procedure with many advantages such as truly scar free healing, minimally invasive dissection, and accessi-

ble approach to both thyroid lobes [6]. However, TOETVA has never been carried out in Vietnam until our performance. Therefore, we report the following case in order to introduce a new technique in thyroid surgery.

2. Case presentation

A female patient aged 19 was admitted to our hospital after she palpated a mass at the base of her neck. Ultrasound revealed a 20 mm × 15 mm nodule in the left thyroid lobe (TIRADs 2). Cytology confirmed a benign tumor and thyroid function tests were normal. The patient's desire was tumor resection with the best cosmetic outcome and the patient decided to proceed with TOETVA procedure. A left subtotal thyroidectomy was performed by the technique on 21th March 2018.

3. Operative technique

The technique was performed step-by-step based on Anuwong's principle [7].

[☆] The following case report has been reported in line with the SCARE criteria [1].

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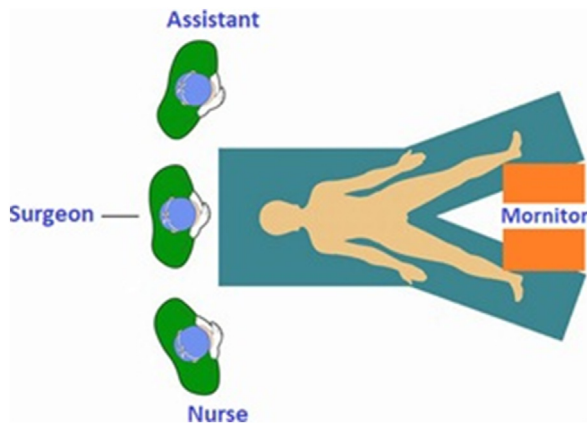


Fig. 1. Operative room set up and surgical team position.



Fig. 2. The first incision for the 10-mm trocar.

3.1. Preoperative preparation

The TOETVA was performed under general anesthesia with nasotracheal. The patient was placed in supine position with a sandbag under the shoulders to slightly extend the neck. Preoperative intravenous amoxicillin/clavulanic acid (Augmentin) was given 30 min prior to the operation. Fig. 1 demonstrates the operative room set up and surgical team position. The oral cavity was cleaned with normal saline and Betadine (povidone iodine) before incision.

3.2. Technique

After identifying the landmarks of the oral vestibular area, three incisions were performed. In the next step, a Veress needle with 500 mL normal saline and 1 mL adrenaline was used to dissect the subplasmal plane via the central, right and left axes. The first trocar was placed at the middle line as shown in Fig. 2, followed by carbon dioxide insufflation maintained at 6 mmHg. Then, two 5 mm trocars were inserted in front of the canine tooth on both sides at the level of the inferior molars in order to avoid injury of the mental nerve (Fig. 3).

The working space was dissected between the strap muscle and platysma muscle by using a monopolar hook and an ultrasonic energy device (Harmonic Scalpel). Thyroid exposure was



Fig. 3. The three trocars were inserted.

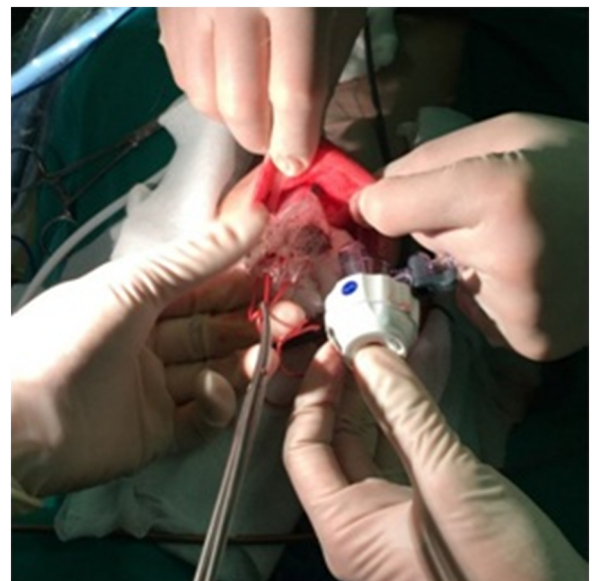


Fig. 4. The specimen was taken out through the 10-mm incision in the oral cavity.

approached by opening the deep fascia between strap muscles in the midline. Next, in order to retract the left strap muscle, silk 2-0 suture was passed through the neck skin.

The following steps were identifying and cutting the isthmus. The left superior thyroid vessels were then ligated using an ultrasonic scalpel. The left upper parathyroid, recurrent laryngeal nerve would be revealed and the lower parathyroid was also preserved. Left subtotal thyroidectomy was completed by Harmonic device. The specimen was put into an endobag and taken out through the 10-mm incision in the oral cavity (Fig. 4). The deep fascia and the



Fig. 5. The vestibular port locations were closed.

vestibular port locations were closed using 4-0 absorbable sutures (Fig. 5).

A pressure dressing was applied over the chin and neck for 24 h. Two postoperative doses of intravenous amoxicillin/clavulanic acid were administered. The patient continued to mouth-wash until the seventh day postoperative and oral diet was allowed on the first day after operation. Histopathological evaluation revealed thyroid adenoma.

4. Discussion

Endoscopic thyroidectomy is a favorable approach to treat patients with benign nodules and Grave's disease. There are direct (cervical-anterior or lateral) and extracervical endoscopic procedures to have the thyroid exposed but multiple small scars remain [5].

Transoral endoscopic thyroidectomy was firstly performed in 2008 by Witzel [8]. Recently, in 2018 Anuwong published a study comparing outcomes between the TOETVA approach in the 425 patients and the conventional open approach. The results revealed that TOETVA with the potential for scar-free surgery is a safe and effective procedure. The new technique was also reported to have longer operative time but less postoperative pain in comparison with open techniques. The proportion of postoperative complications is similar to that of the classic open thyroidectomy [7].

Besides TOETVA is indicated for benign tumors, this procedure works well for selected patients with thyroid cancer. Central lymph node dissection can be done safely by this technique. According to Anuwong et al, the current indications of the TOETVA are: benign thyroid disease, Grave's disease limited to 10 cm in size and thyroid carcinoma with 1–2 cm nodule [7].

In this report, we operated the patient following the steps which Anuwong has described. The operative time was 110 min, then the patient was discharged from hospital on the third postoperative day. The recovery was uneventful without any complication

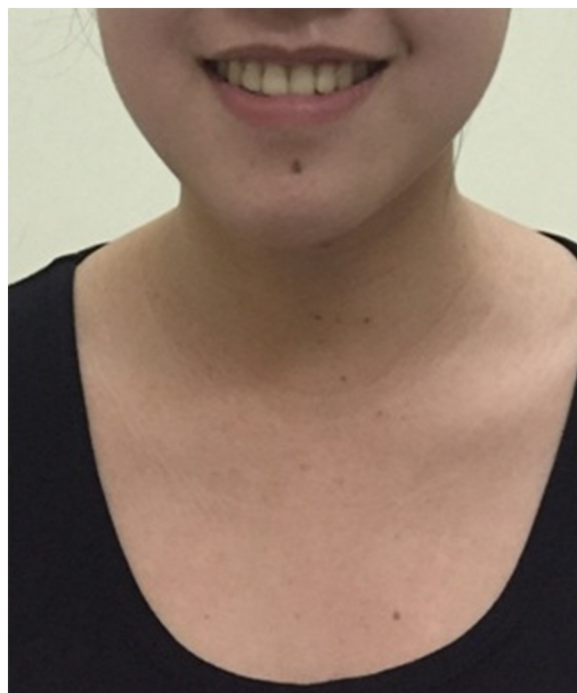


Fig. 6. The surgical outcome after 10 days.

except a mild seroma and swelling in the anterior neck which resolved completely within 10 days. The patient felt satisfied with the surgery outcomes, especially the cosmetic result (Fig. 6).

5. Conclusion

TOETVA with the potential for scar-free surgery is a safe, effective procedure which provides good cosmetic outcomes. The long operative time of this approach will be shortened with experience.

Conflicts of interest

None.

Funding

None.

Ethical approval

The study was approved by our research committee, Vietnam National Cancer Hospital, Hanoi, Vietnam.

Consent

The publication of this study has been consented by all relevant patient.

Author contribution

Quang V. Le: Surgeon performed the case.
Duy Q. Ngo: Assisting surgeon operated all cases, wrote manuscript.
Quy X. Ngo: Follow up and post-operative management.

Registration of research studies

researchregistry4179.

Guarantor

Quang V. Le, M.D.

References

- [1] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, for the SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (October) (2016) 180–186.
- [2] L. Hegedus, Clinical practice. The thyroid nodule, *N. Engl. J. Med.* 351 (2004) 1764–1771.
- [3] S.A. Hannan, The magnificent seven: a history of modern thyroid surgery, *Int. J. Surg.* 4 (3) (2006) 187–191.
- [4] M. Gagner, Endoscopic subtotal parathyroidectomy in patients with primary hyperparathyroidism, *Br. J. Surg.* 83 (6) (1996) 863–875.
- [5] C.T. Tan, W.K. Cheah, L. Delbridge, “Scarless” (in the neck) endoscopic thyroidectomy (SET): an evidence-based review of published techniques, *World J. Surg.* 32 (7) (2008) 1349–1357.
- [6] A. Anuwong, K. Ketwong, P. Jitpratoom, T. Sasanakietkul, Q.Y. Duh, Safety and outcomes of the transoral endoscopic thyroidectomy vestibular approach, *JAMA Surg.* 153 (January (1)) (2018) 21–27.
- [7] A. Angkoon, Y.K. Hoon, D. Gianlorenzo, Transoral endoscopic thyroidectomy using vestibular approach: updates and evidences, *Gland Surg.* 6 (June (3)) (2017) 277–284.
- [8] K. Witzel, B.H. von Rahden, C. Kaminski, H.J. Stein, Transoral access for endoscopic thyroid resection, *Surg. Endosc.* 22 (8) (2008) 1871–1875.

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