

Endoscopic Transoral Thyroidectomy by Vestibular Approach: A Case Report

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Abstract

The natural orifice transluminal endoscopic surgery (NOTES), was performed for the first time by Dr. Witzel in 2008, introducing the transoral approach for the thyroid disease on cadavers and pigs. In the year 2016, Dr. Anuwong published the first series of cases in humans by vestibular approach. In it, it is shown the case of a 37-year-old patient, who attended the consultation presenting a previous two-month-old cervical tumor. Thyroid ultrasound with polynodular goiter. Fna: Follicular hyperplasia in left and right lobe Lesion. It is decided to perform a transoral endoscopic thyroidectomy by vestibular approach. The intervention duration was 180 minutes, blood loss was 20 ml. Slight pain and hospitalization time, 36 hours. The present work intends to develop this technique and the experience in our first case of total thyroidectomy in benign thyroid pathology.

Keywords: Notes; Transoral Thyroidectomy; Thyroidectomy

Introduction

Since the description of the technique developed by Theodor Kocher in the nineteenth century, the approach to and the surgery of the thyroid gland have become quite a challenge for the specialist surgeon [1].

The use of mini-invasive techniques [2] and the use of natural holes through endoscopic transillumination surgeries (NOTES) have motivated the development of different approaches on general surgery and in particular on head and neck surgery [3,4].

The transoral endoscopic thyroidectomy vestibular approach (TOETVA), was developed by Dr. Anuwong in 2015 [5], introducing the first series of 60 cases made on humans. In 2016, Dr. Gordillo

published the first experience developed in Latin América [6]. A case is developed where this technique is applied on a female patient with a benign thyroid disease, with glandular size under 5 cm and no history of previous cervical surgery or radiation.

Materials and Methods

This is a 37-year-old female patient, no comorbidities, who presented an anterior cervical tumor with a two-month evolution and compressive symptoms to swallowing in a progressive way according to the patient, which is the reason why she goes to the head and neck surgery outpatient clinic. A thyroid profile is requested, which was normal, and a neck and thyroid ultrasound where a nodular image of 24 x 19 x 19 mm in the right lobe and a nodule of 22 x 16 x 14 mm in the left lobe were identified which by FNA cytologi-

cal findings that match a follicular hyperplastic Bethesda II was informed. The patient is informed of the possibility of performing surgery, and, in the presence of bilateral nodular thyroid disease, it is jointly decided to perform total transoral thyroidectomy by vestibular approach. Pre-surgical studies and direct laryngoscopy were requested and the surgery is scheduled.

Description of the technique

The patient is positioned on dorsal decubitus with interscapular enhancement and with her head hyperextended and fixed on the surgical table. Nasal intubation and placement of head cover fields.

The approach is made on an inferior vestibular level, placing a horizontal central trocar of 12 mm and two lateral trocars of 5 mm, avoiding the chin nerves. hydrodissection at the subplatysmal level is performed, and trocars are introduced and guided by palpation and direct visualization. The patient is insufflated with CO₂ at a pressure of 6 mmHg to avoid subcutaneous emphysema. Tractor point is made at skin level in the anterior cervical region.

The carving of the subcutaneous cell tissue with electrocautery begins until the sternal manubrium to expose the pre-thyroid musculature.

Opening of the median raphe and identification of the thyroid isthmus below. Lateralization of the pre-thyroid muscles and external retraction with a silk point that is introduced through the skin.

Isthmectomy and dissection with blunt and sharp maneuvers to expose the lateral aspect of the thyroid lobe. Dissection and section of the upper and lower vascular pedicle with ultrasonic scalpel (Figure 1), previously identifying the parathyroid glands and the recurrent laryngeal nerve with intraoperative bipolar neuromonitoring (Figure 2).

Resection of the gland in the cephalocaudal direction, releasing the Berry ligament. Same procedure in contralateral thyroid lobe.

The endobag extractor is introduced and the gland within is removed through the 12 mm trocar, relocating the laparoscopic vision towards one of the lateral ports. Strict control of the hemostasis, in this case it was decided not to leave drainage.

Approximation of the midline with absorbable material suture. Vestibular mucous membrane closure with separated stitches of the same material.

Figure 1: Resection of the right thyroid lobe with vascular seal. Isthmus (short black arrow), right thyroid lobe (black arrow head), trachea (long black arrow), right lower parathyroid (white arrow).

Figure 2: Identification of the recurrent laryngeal nerve with neuromonitoring. Neuromonitoring (short black arrow), left thyroid lobe (black arrow head), recurrent laryngeal nerve (long black arrow), crocothyroid muscle (white arrow).

Results

The procedure was well tolerated by the patient. A total thyroidectomy was performed properly identifying the parathyroid glands and both recurrent nerves intraoperatively.

The duration of the intervention was 180 minutes, aspirated blood loss was 20 ml. There were no post-surgery complications. The patient presented a slight hypoesthesia of the lower lip that subsided after 72 hours. She presented a small submental hematoma and no changes were registered in her voice.

pain management was handled with intravenous administration of two blisters of Diclofenac in 500 cc of physiological solution for the first 12 hours, and then an Ibuprofen Tablet every 8 hours, with a manifestation according to the numerical scale of the pain of 3/10 manifested by the patient.

There were no clinical signs of hypocalcemia or laboratory abnormalities. A liquid diet was started 15 hs after the surgery and a soft diet 24 hours after the surgery, with good tolerance. The patient was discharged 36 hours after the surgery.

Follow-up was carried out jointly between the surgery and endocrinology external offices. Excellent healing of the oral mucous membrane was evidenced and the patient did not refer to pain nor hypoesthesia after the third day post-surgery.

Pathological anatomy was received 20 days after surgery, that informs that left thyroid lobe: Partial cystic nodular hyperplasia, and in the right thyroid lobe: Classical variant papillary thyroid carcinoma with whole capsule not compromised, and with no evidence of extrathyroid extension or vascular invasion.

Discussion and Conclusion

Within our concerns, the safety of the patient was our main priority. In the pre-surgical consultation, it was informed of the development of this new technique with the possible complications, including conversion by Kocher cervicotomy during the surgery.

It is necessary the adequacy to the laparoscopic vision and the correct identification of the different structures to preserve, among others, the recurrent laryngeal nerve and the parathyroid glands. In our experience we can evidence a suitable handling of the pain, and by not performing the traditional cervical incision, we achieved satisfactory aesthetic results.

So far, we have performed 5 cases between total thyroidectomy and hemithyroidectomy and soon we will begin to approach parathyroid glands pathologies through this method. But studies with long term results will be needed to assess the cost-effectiveness of the technique, the accurate indications and the limitations for this approach.

We consider that the TOETVA technique could be a safe and reproducible method, but we believe that it should be applied to selected cases. Therefore, the systematic development of this technique is a reason for concern, and we recommend a multidisciplinary approach for the decision making with consent and clarity of information towards the patient.

Disclosure

The authors declare that this article has not been published in any other magazines or books. Also, this article is not in the process of evaluation nor publication by other magazines.

Ethical Responsibilities

Protection of animals and people: the authors declare that no experiments on humans or animals have been performed for this research.

Data Confidentiality

The authors declare that no personal data of the patient is included in this article.

Right to Privacy and Informed Consent

The authors have the informed consent of the patients that are included in this article for the publication of the case and the photographic illustration. This document is in the possession of the correspondence author.

Conflict of Interest

None.

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