



Case Report

Endoscopic thyroidectomy – A case report

Karthikeyan Raju¹, Raju Palanigoundar¹, Senthil Kumar¹, Anandh SM^{1*},
Praveen Balakrishnan¹, Archana Harikrishnan¹

¹Kongunad Hospital Private Limited, Coimbatore, Tamil Nadu, India



ARTICLE INFO

Article history:

Received 02-08-2024

Accepted 28-08-2024

Available online 11-10-2024

Keywords:

Minimally invasive surgery

Endoscopic thyroidectomy

Minimally invasive thyroid surgery

Lobectomy

Solitary nodular thyroid

ABSTRACT

Minimally invasive surgery is increasingly employed in the treatment of thyroid diseases. Several minimal access approaches to the thyroid gland have been described. Minimally invasive surgery is rapidly expanding its role in almost all the surgical sub-specialties. There is also a growing demand for minimally invasive approaches, as nowadays, patients are more concerned about cosmesis in addition to their original surgery. Although its role in thyroid surgery has already been proven earlier, it is not yet accepted as a routine approach amongst many thyroid surgeons. The commonly performed surgeries have been endoscopic lobectomies. We have done one such procedure in our institution with a successful outcome.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

The use of minimally invasive approach for thyroid surgery has a wonderful advantage of eliminating the unsightly scar of open thyroidectomy procedure. The goals of minimally invasive approaches for thyroidectomy (ET) are:

1. Limit external scarring
2. Improve the cosmesis
3. Reduce postoperative pain
4. Enhance early postoperative recovery
5. Achieve these ends without compromising treatment efficacy

Endoscopic thyroidectomy is one of the remote access approaches. The first described endoscopic thyroidectomy was in 1997 by Hüscher et al. There has been a significant advancement in thyroidectomy procedures.¹ The different techniques of endoscopic thyroidectomy are Chest–breast approach (CBA), Bilateral axillo-breast approach (BABA),

Trans-axillary approach (TA), Retro auricular approach (RA), Transoral approach (TOA). The other minimally invasive technique is video-assisted thyroidectomy.

2. Case Report

A 74-year-old female presented to our OP with complaints of swelling in the neck for the past one and a half months. She had no other complaints. Upon examination there was firm solitary 3*3 cm swelling in the right lobe of thyroid (Figure 1). We proceeded with a Thyroid function test and ultrasound of neck.

Thyroid function tests were normal. On the USG's neck, there was a 2*1.5cm colloid cyst in the right lobe of the thyroid (TIRADS 2). The patient was advised for endoscopic hemithyroidectomy. The patient was assessed and posted for a minimally invasive hemithyroidectomy procedure. After obtaining appropriate consent, she underwent endoscopic thyroidectomy via an axillary approach.

* Corresponding author.

E-mail address: dranandhsmms@gmail.com (A. SM).



Figure 1: Preoperative image

3. Operative Technique

Under general anesthesia, the patient was in a supine position, a 10 mm camera port was inserted over the right anterior axillary fold, and 2 lateral 5 mm working ports were made on either side. A subcutaneous plane was elevated, and a working tunnel was created after the insufflation of gas and blunt dissection. Strap muscles retracted laterally, and a plane of cleavage was created all around the right lobe of the thyroid after cauterizing the inferior thyroid pedicle (Figure 2) after preserving right recurrent laryngeal nerve, middle thyroid vein and superior thyroid pedicle (Figure 3) using harmonic vessel sealer.

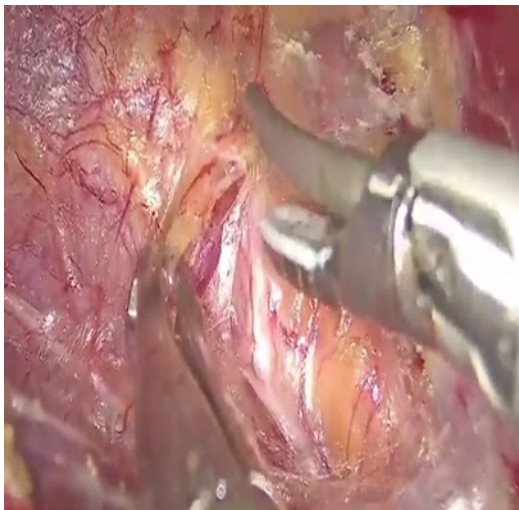


Figure 2: Inferior pedicle

The right lobe of the thyroid is separated from the isthmus by cauterizing through a glandular substance. Hemostasis achieved. The specimen was retrieved by extending the 5mm working port incision (Figure 4). 12 size Romovac drain was kept, and ports were removed (Figure 5).

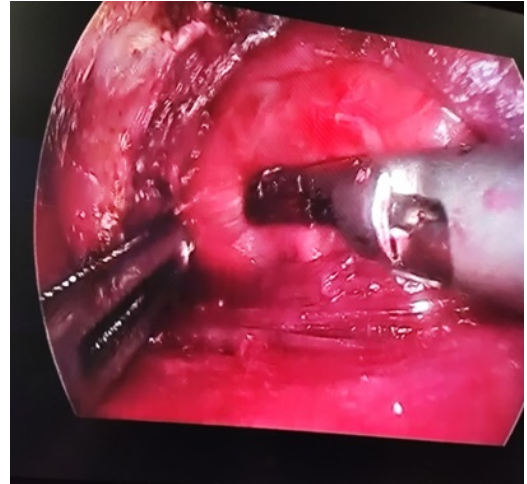


Figure 3: Ligation of superior pedicle

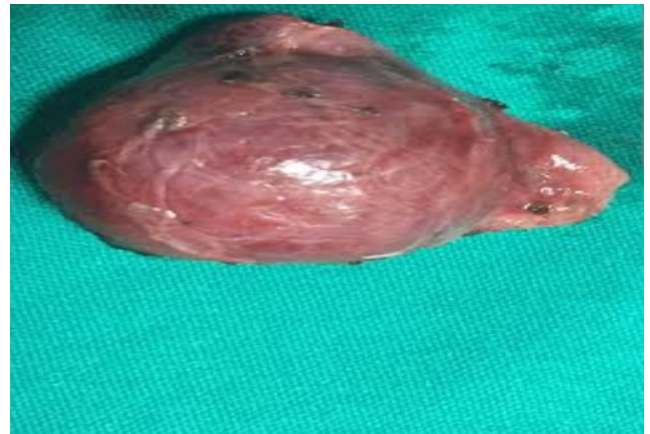


Figure 4: Right hemithyroidectomy



Figure 5: Postoperative image depicting port sites

4. Discussion

Thyroid surgery was historically considered to be the most aggressive procedure marked by high mortality and morbidity due to hemorrhage, asphyxia, gangrene and air embolism.² Over the years, with a better understanding of the anatomy coupled with technical developments in anesthesia, antisepsis and surgery, it has become one of the safest surgical procedures.³ The history of thyroid surgery dates back to ancient times and it is one of the most commonly performed surgical neck procedures.

The neck crease Kocher incision on the neck has remained the standard approach. In the last few decades, there has been a shift towards minimally invasive and endoscopic techniques in order to improve cosmetic outcomes of thyroidectomy patients. Trans-axillary endoscopic thyroidectomy was first described by Ikeda et al.⁴ This was then modified by Chung et al. in 2006 by utilizing a gasless approach.⁵ The trans-axillary approach also has excellent cosmesis because the incision is moved to the axilla, it is hardly visible, and its surgical and oncologic outcomes are good.^{6,7}

The surgical view and instrument direction are from lateral to medial. So it has remarkable advantage in identifying the recurrent laryngeal nerve and parathyroid glands, as well as in dissecting the upper pole or Berry's ligament. Additionally, compared with other types of endoscopic thyroidectomy, its advantages are:

1. It provides a relatively larger surgical space, which makes it easier to operate on, particularly for large nodules or thyroid lobes.
2. Trans-axillary approach has lesser operating time.
3. Faster learning curve because of its easier subcutaneous dissection and larger working space.

Jantharapattana et al. reported a randomized study to compare the trans-axillary and conventional approach.⁸ As from the study the complication rates for complications such as vocal cord paresis and seroma, were not significantly different between the two groups. The minimal surgical trauma is another advantage of this approach compared with other endoscopic thyroidectomies.

A review of the literature has overall shown that endoscopic approaches overall, with appropriate patient selection, are safe and generally meet the goals intended. The surgeon learning curve however, seems to be slow and it is accepted, as experienced in this case, that the procedure will initially take longer than open surgery and requires more surgeon experience for instrument handling to see any significant decrease in operative time.

5. Conclusion

Remote access thyroid surgery is here to stay, though it is largely up to the surgeon to comprehend the indications and limitations of these procedures aimed at safe and effective

use. Although the approaches are diverse, the philosophy is consistent in achieving oncologically sound, safe and reliable outcomes. Ascertaining and measuring the enduring benefits of these approaches over and above their redressal of cosmetic concerns calls for elaborate and well-designed trials.

6. Source of Funding

None.

7. Conflict of Interest


None.


References


1. Lirici MM, Hüscher CS, Chiodini S, Napolitano C, Recher A. Endoscopic right thyroid lobectomy. *Surg Endosc.* 1997;11(8).
2. Kudpaje A, Subash A, Subramaniam N, Palme CE, Rao V, Arakeri G. Remote access thyroid surgery: A review of literature. *Indian J Surg Oncol.* 2022;13(1):191–8.
3. Sakorafas GH. Historical evolution of thyroid surgery: From the ancient times to the dawn of the 21st century. *World J Surg.* 2010;34(8):1793–804.
4. Tucker N, Mitchem J, Gillanders W. Minimally invasive surgical techniques in the management of differentiated thyroid cancer. *Otorinolaringologia.* 2013;63(2):53–61.
5. Yoon JH, Park CH, Chung WY. Gasless endoscopic thyroidectomy via an axillary approach: Experience of 30 cases. *Surg Laparosc Endosc Percutan Tech.* 2006;16(4):226–31.
6. Kim K, Lee S, Bae JS, Kim JS. Comparison of long-term surgical outcome between transaxillary endoscopic and conventional open thyroidectomy in patients with differentiated thyroid carcinoma: a propensity score matching study. *Surg Endosc.* 2021;35(6):248–61.
7. Ji YB, Song CM, Bang HS, Lee SH, Park YS, Tae K. Long-term cosmetic outcomes after robotic/endoscopic thyroidectomy by a gasless unilateral axillo-breast or axillary approach. *J Laparoendosc Adv Surg Tech A.* 2014;24(4).
8. Jantharapattana K, Maethasith J. Transaxillary gasless endoscopic thyroidectomy versus conventional open thyroidectomy: A randomized study. *Eur Arch Otorhinolaryngol.* 2017;274(1):495–500.

Author biography


Karthikeyan Raju, Medical Director and General Surgeon
 <https://orcid.org/0009-0004-2440-6643>

Raju Palanigounder, Chief Surgeon and Head of the Institution
 <https://orcid.org/0009-0006-7584-1674>

Senthil Kumar, Head of the Department  <https://orcid.org/0009-0007-0434-3835>

Anandh SM, Consultant Surgical Oncologist  <https://orcid.org/0009-0003-9402-626X>

Praveen Balakrishnan, Consultant General Surgeon
 <https://orcid.org/0000-0003-1739-8054>

Archana Harikrishnan, General Surgery Resident
 <https://orcid.org/0009-0008-5294-3381>

Cite this article: Raju K, Palanigoundar R, Kumar S, SM A, Balakrishnan P, Harikrishnan A. Endoscopic thyroidectomy – A case report. *Southeast Asian J Case Rep Rev* 2024;11(3):83-86.