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ArticleTitle	Which Is the Best Endoscopic Procedure for Thyroid Gland?		
Article Sub-Title			
Article CopyRight	Society of Surgical Oncology (This will be the copyright line in the final PDF)		
Journal Name	Annals of Surgical Oncology		
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Schedule	Received	14 Jan 2022	
	Revised		
	Accepted	13 Feb 2022	
Footnote Information	Commentary to the paper published "Ngo DQ, Le DT, Ngo QX, Le QV. Bilateral central neck dissection via transoral approach in papilla thyroid carcinoma. Ann Surg Oncol. 2021 Oct 25. https://doi.org/10.1245/s10434-021-10996-x. Epub ahead of print. PMID: 34694524."		



2 Which Is the Best Endoscopic Procedure for Thyroid Gland?

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13 To the Editors:

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15 We read with interest the work of Ngo et al.¹ There are very few, if any, surgeons who would still claim that 16 17 endoscopic thyroidectomy (ET) is not one of the greatest 18 breakthroughs in the field of thyroid surgery in the last two 19 decades.² In fact, the "battle" against standard thyroidectomy has been largely won in terms of cosmesis. In recent 20 21 years, we have seen a virtually unstoppable search for 22 further improvements to make cosmesis even better. 23 Remote thyroidectomy, robotics, transoral thyroidectomy 24 (TOT), and single ports seem to have dominated the scene in recent years.¹⁻³ Several surgeons have done their best to 25 26 join the growing enthusiasm for the new approaches. 27 Unfortunately, concerns about the minimally invasive 28 nature have crowded out our initial curiosity for these 29 approaches. The best endoscopic procedure has yet to be 30 described. Currently, all endoscopic procedures have

A1 Commentary to the paper published "Ngo DQ, Le DT, Ngo QX, Le

A2 QV. Bilateral central neck dissection via transoral approach in

A3 papillary thyroid carcinoma. *Ann Surg Oncol.* 2021 Oct 25. https://d A4 oi.org/10.1245/s10434-021-10996-x. Epub ahead of print. PMID: 34694524."

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- A6 First Received: 14 January 2022
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limitations. We read that thyroid glands are removed, at 31 normal volume, in 2–3 h for a procedure that, even if fully 32 indicated for the disease, would normally be performed in 33 less than half an hour.³ The minimally invasive concept, 34 oncologic concerns, and the issues of time, pain, resources, 35 and cost immediately came to mind.⁴ In addition, all 36 surgeries seem difficult to perform, mainly owing to long 37 and non-anatomical dissection, non-median access to the 38 thyroid, limited endoscopic visualization of the nerves and 39 parathyroid glands, and use of inappropriate instruments 40 designed for completely different purposes but modified for 41 the new need. We also saw recurrent laryngeal nerves cut 42 without any semblance of functional control or safety 43 measures to prevent damage to the parathyroid glands or 44 trachea and esophagus.³ Why would we perforate their 45 "natural orifices" and expose them to unnecessary risks to 46 perform a well-standardized, validated, open procedure? 47 The answers to both questions merit a survey of TOT 48 surgeons. This commentary is not intended to be a criticism 49 50 of endoscopy. The authors are well aware of the advantages of endoscopy. However, simplification of endoscopic pro-51 cedures is needed. Robust, large, randomized, clinical trials 52 are needed to convince the surgical community of the 53 utility (and thus acceptance) of TOT for the treatment of 54 thyroid cancer. The surgical community rightly needs 55 evidence before accepting the TOT approach for this 56 common cancer. We understand the importance of research 57 and development of new technologies and new surgical 58 instruments and devices. Only when specific advanced 59 instruments are available can we realistically develop new 60 procedures for the treatment of malignant thyroid disease. AQ3 1



1	Journal : Large 10434	Dispatch : 9-3-2022	Pages : 2
	Article No. : 11604	□ LE	□ TYPESET
•	MS Code : ASO-2022-01-0056	🖌 СР	🗹 DISK

62 **REFERENCES**

- 1. Ngo DQ, Le DT, Ngo QX, Le QV. Bilateral central neck dissection
 via transoral approach in papillary thyroid carcinoma. *Ann Surg Oncol.* 2021;29:1973–4. https://doi.org/10.1245/s10434-021-1099
 6-x.
- bionigi G, Dralle H, Materazzi G, Kim HY, Miccoli P. Happy
 20th birthday to minimally invasive video-assisted thyroidectomy! *J Endocrinol Investig.* 2020;43(3):385–8. https://doi.org/10.1007/
 \$40618-019-01119-1.
- Miccoli P, Dionigi G. Tailored approach for recurrent laryngeal nerve dissection according to different endoscopic endocrine

surgery. *Head Neck*. 2019;41(11):4060–1. https://doi.org/10.1002 /hed.25901.

4. Zhang D, Caruso E, Sun H, Anuwong A, Tufano R, Materazzi G, Dionigi G, Kim HY. Classifying pain in transoral endoscopic thyroidectomy. *J Endocrinol Investig.* 2019;42(11):1345–51. https://doi.org/10.1007/s40618-019-01071-0.

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