## Metadata of the article that will be visualized in OnlineFirst

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		
Corresponding Author	FamilyName	Dionigi	
	Particle		
	Given Name	Gianlorenzo	
	Suffix		
	Division	Division of Surgery	
	Organization	Istituto Auxologico Italiano IRCCS	
	Address	Milan, Italy	
	Division	Department of Pathophysiology and Transplantation	
	Organization	University of Milan	
	Address	Milan, Italy	
	Phone	··	
	Fax		
	Email	gianlorenzo.dionigi@unimi.it	
	URL	ganorouz o. doing (o, annu. r	
	ORCID	http://orcid.org/0000-0003-0864-6087	
4 .1			
Author	FamilyName	Boni	
	Particle	- · · ·	
	Given Name	Luigi	
	Suffix		
	Division	Department of Surgery, Fondazione IRCCS Ca' Granda	
	Organization	Ospedale Maggiore Policlinico, University	
	Address	Milan, Italy	
	Phone		
	Fax		
	Email		
	URL		
	ORCID		
Author	FamilyName	Fugazzola	
	Particle		
	Given Name	Laura	
	Suffix		
	Division	Division of Endocrine and Metabolic Diseases	
	Organization	Istituto di Ricovero e Cura a Carattere Scientifico (IRCCS) Istituto Auxologico Italiano	
	Address	Milan, Italy	
	Division	Department of Pathophysiology and Transplantation	
	Organization	University of Milan	
	Address	Milan, Italy	
	Phone		
	Fax		
	Email		
	URL		
	ORCID		
	ORCID		

Author	FamilyName	Kim	
	Particle		
	Given Name	Hoon Yub	
	Suffix		
	Division	Department of Surgery, KUMC Thyroid Center	
	Organization	Korea University Hospital, Korea University College of Medicine	
	Address	Seoul, Korea	
	Phone		
	Fax		
	Email		
	URL		
	ORCID		
Author	FamilyName	Miccoli	
	Particle		
	Given Name	Paolo	
	Suffix		
	Division	Department of Surgical, Medical and Molecular Pathology and Critical Care	
	Organization	University of Pisa	
	Address	Pisa, Italy	
	Phone		
	Fax		
	Email		
	URL		
	ORCID		
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?

3 Gianlorenzo Dionigi<sup>1,2</sup> , Luigi Boni<sup>3</sup>, Laura Fugazzola<sup>4,5</sup>, Hoon Yub Kim<sup>6</sup>, and Paolo Miccoli<sup>7</sup>

<sup>5</sup> <sup>1</sup>Division of Surgery, Istituto Auxologico Italiano IRCCS, Milan, Italy; <sup>2</sup>Department of Pathophysiology and

6 Transplantation, University of Milan, Milan, Italy; <sup>3</sup>Department of Surgery, Fondazione IRCCS Ca' Granda, Ospedale

7 Maggiore Policlinico, University, Milan, Italy; <sup>4</sup>Division of Endocrine and Metabolic Diseases, Istituto di Ricovero e Cura

a Carattere Scientifico (IRCCS) Istituto Auxologico Italiano, Milan, Italy; <sup>5</sup>Department of Pathophysiology and
 Transplantation, University of Milan, Milan, Italy; <sup>6</sup>Department of Surgery, KUMC Thyroid Center, Korea University

10 Hospital, Korea University College of Medicine, Seoul, Korea; <sup>7</sup>Department of Surgical, Medical and Molecular Pathology

11 and Critical Care, University of Pisa, Pisa, Italy

12

1

13 To the Editors:

14

15 We read with interest the work of Ngo et al.<sup>1</sup> 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.<sup>2</sup> 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.<sup>1-3</sup> 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."

A5 © Society of Surgical Oncology 2022

- A6 First Received: 14 January 2022
- A7 Accepted: 13 February 2022
- A8 G. Dionigi
- A9 e-mail: gianlorenzo.dionigi@unimi.it

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.<sup>3</sup> The minimally invasive concept, 34 oncologic concerns, and the issues of time, pain, resources, 35 and cost immediately came to mind.<sup>4</sup> 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.<sup>3</sup> 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.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Journal : **10434** Article : **11604** 

## Author Query Form

# Please ensure you fill out your response to the queries raised below and return this form along with your corrections

Dear Author

During the process of typesetting your article, the following queries have arisen. Please check your typeset proof carefully against the queries listed below and mark the necessary changes either directly on the proof/online grid or in the 'Author's response' area provided below

Query	Details Required	Author's Response
AQ1	Please confirm the list of authors is correct.	
AQ2	Please provide highest qualification for all the authors.	
AQ3	Kindly check and confirm the article note is correctly identified	