

Study on the Feasibility and Safety of Transvestibular Approach Endoscopy without Drainage after Operation of Papillary Thyroid Carcinoma

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Abstract

Objective: To evaluate the feasibility and safety of the non-placement of a drainage tube in transvestibular endoscopic thyroid papillary carcinoma surgery by applying the concept of rapid rehabilitation surgery. **Methods:** 106 patients with papillary thyroid carcinoma in the Department of Head and Neck of Affiliated Cancer Hospital of Sun Yat-sen University were retrospectively analyzed, and the observation group (n = 43) 1 who underwent endoscopic surgery without negative pressure drainage tube in the hospital from January 2019 to March 2023 were selected. The control group (n = 63) underwent the same operation at the same time and placed the negative pressure drainage tube. Postoperative hematoma, incision infection, subcutaneous effusion, and use of painkillers were compared between the two groups. **Results:** There were no statistically significant differences in operation time, intraoperative blood loss, postoperative hospital stay, and number of lymph node dissection between the two groups (P > 0.05). No postoperative hematoma or incision infection occurred between the two groups. There were no statistically significant differences in the incidence of subcutaneous effusion and the use rate of painkillers between the two groups (P > 0.05). **Conclusion:** No drainage tube in patients undergoing endoscopic thyroid surgery through oral vestibular approach will not increase the probability of complications such as postoperative hematoma, incision infection, subcutaneous effusion, and the use of painkillers, but can improve the comfort of patients in the concept of rapid rehabilitation.

Keywords

Thyroid Papillary Carcinoma, Transoral Vestibular Approach,

1. Introduction

The incidence of papillary thyroid carcinoma (PTC) is high, and the primary treatment method is surgical intervention [1]-[4], which has a 10-year survival rate of over 90%, indicating a favorable prognosis [5]. In recent years, with continual advancements in surgical techniques and the increasing level of medical expertise in our country, transoral vestibular approach laparoscopic thyroidectomy has emerged [6]-[9]. However, there is still no consensus on whether to keep a drainage tube in place after surgery. Enhanced Recovery After Surgery (ERAS) is based on evidence-based medicine principles and advocates for optimizing peri-operative measures and reducing unnecessary tubes to enhance patient comfort. It has been widely applied across various surgical fields. Therefore, this study, grounded in the ERAS concept, retrospectively analyzes the clinical data of 106 patients who underwent surgery for papillary thyroid carcinoma at our hospital department from January 2019 to March 2023. The aim is to investigate the safety and feasibility of not placing a drainage tube after transoral vestibular approach endoscopic surgery for papillary thyroid carcinoma. The findings are reported as follows:

2. Data and Methods

2.1. Inclusion and Exclusion Criteria

A total of 106 patients who were admitted to the Department of Head and Neck of Affiliated Cancer Hospital of Sun Yat-sen University from January 2019 to March 2023 and who were scheduled to undergo transoral vestibular approach laparoscopic thyroidectomy for papillary thyroid carcinoma were selected as the study subjects. Inclusion criteria: 1) Patients who met the diagnostic criteria for papillary thyroid carcinoma. 2) Patients undergoing their first surgical treatment. 3) Patients with surgical indications, normal coagulation function upon admission, and no skin lesions on the neck. 4) Patients or their family members were informed and provided written consent for the study. Exclusion criteria: 1) History of neck or mandibular surgery. 2) History of radiotherapy. 3) Presence of hyperthyroidism. 4) Pregnant or postpartum women. 5) Presence of malignant tumors in other sites. 6) History of diabetes or cirrhosis. 7) Presence of cardiovascular or pulmonary diseases.

2.2. Clinical Data

From January 2019 to March 2023, patients who underwent transoral vestibular approach laparoscopic thyroidectomy for papillary thyroid carcinoma without placing a negative pressure drainage tube were designated as the observation group (n = 43), while those who underwent the same surgery with a negative pressure

drainage tube were designated as the control group (n = 63). The median age of the observation group was 31 years, comprising 6 males and 37 females. The median age of the control group was 30 years, comprising 2 males and 61 females. Using the chi-square test, the gender distribution between the two groups showed no statistically significant difference ($P > 0.05$). There was a statistically significant difference in the surgical methods used between the two groups ($P < 0.05$), with a higher proportion of lobectomies in the control group. The differences in age between the two groups were analyzed using the rank-sum test, revealing no statistically significant difference in age ($P > 0.05$), as detailed in **Table 1**.

The rank-sum test was used to statistically analyze the differences between the two groups of patients regarding the maximum diameter of the nodules, surgical time, intraoperative blood loss, postoperative hospital stay, and the number of lymph nodes dissected. The results indicated that there were no statistically significant differences in the maximum diameter of the nodules, surgical time, intraoperative blood loss, postoperative hospital stay, and number of lymph nodes dissected between the two groups ($P > 0.05$), as detailed in **Table 2**.

Table 1. Analysis of the demographic data of the two patient groups.

		Observation Group	Control group	Z/X ² Value	P Value
Age		31 (26, 34)	30 (27, 35)	-0.906	0.425
Gender	Female	37 (86.00)	61 (96.80)	2.851	0.091
	Male	6 (14.00)	2 (3.20)		
Lobectomy or total thyroidectomy	Lobectomy	24 (55.80)	54 (85.70)	12.137	0.002
	Total thyroidectomy	15 (34.90)	8 (12.70)		
	Subtotal thyroidectomy	4 (9.30)	1 (1.60)		

Table 2. Analysis of the general clinical data of the two patient groups.

	Observation Group	Control group	Z Value	P Value
Maximum nodule diameter (mm)	9 (6, 13)	8 (6, 11)	-0.310	0.756
Surgical time (min)	180 (160, 210)	165 (140, 230)	-1.111	0.267
Intraoperative blood loss (ml)	20 (20, 30)	20 (20, 30)	-0.328	0.731
Postoperative hospital stay (d)	4 (3, 4)	4 (3, 4)	-0.985	0.325
Number of lymph nodes dissected (pieces)	3 (1, 6)	4 (2, 5)	-0.615	0.538

2.3. Surgical Method

Both groups of patients underwent preparation according to standard perioperative requirements. Comprehensive assessments were conducted prior to surgery, and potential complications that could cause postoperative bleeding were actively

managed. For patients with pulmonary diseases, guidance was provided for effective coughing and sputum expectoration, and oxygen nebulization treatment was administered if necessary. Surgery was performed once the symptoms had been alleviated. During the surgery, great attention was paid to every operation, with strict hemostasis and adequate management of bleeding from the resection margins. Postoperatively, wound and respiratory status were closely monitored to prevent patients from experiencing severe coughing and vomiting and to avoid excessive neck movement that could lead to wound bleeding [10]. Emphasis was placed on oral care both preoperatively and postoperatively, as well as the use of antibiotics during the perioperative period to prevent postoperative incision infections [11]-[13]. In the control group, a single-lumen 16GA central venous catheter (ARROW) was placed in the surgical cavity after the procedure, connected to an external negative pressure drainage bottle, with pressure dressing applied to the submental area [14] [15]. In the observation group, the anterior neck muscles and oral wounds were sutured. See **Figure 1** and **Figure 2**.



Figure 1. Control group.



Figure 2. Observation group.

2.4. Observational Indicators

1) Postoperative complications: including postoperative hematoma, incision infection, and subcutaneous effusion. 2) Use of analgesics after surgery: Patients do

not routinely receive analgesics postoperatively; instead, they score their pain according to their own experience. Analgesics are administered only if the numerical pain rating scale (NRS) is ≥ 4 .

2.5. Statistical Method

Data analysis was performed using SPSS 23.0 software. Categorical variables were expressed as frequency and proportion, and statistical analysis was conducted using the chi-square test. Ordinal data were analyzed using the rank-sum test. Normally distributed continuous variables were expressed as means and standard deviations, and intergroup comparisons were made using independent samples t-tests. For continuous variables that did not conform to a normal distribution, the median (interquartile range) was reported, and comparisons were made using the independent samples rank-sum test. After correcting for confounding factors using generalized estimating equations, the statistical significance of differences in complication rates between the two groups was determined, with $P < 0.05$ considered statistically significant.

3. Results

Comparison of Postoperative Complications between the Two Groups: Neither group experienced postoperative hematoma or incision infection. In the observation group, three patients developed subcutaneous effusion postoperatively, all occurring on postoperative days 2 to 3. The effusions gradually resolved after 1 - 2 aspirations, removing 3 - 5 ml of fluid each time. After adjusting for the impact of the surgical method using the generalized estimating equation model, there were no statistically significant differences in the rates of postoperative subcutaneous effusion or analgesic usage between the two groups ($P > 0.05$), as detailed in [Table 3](#) and [Table 4](#).

Table 3. Postoperative complications in the two groups of patients.

		Observation Group	Control group
Postoperative hematoma	No	43 (40.60)	63 (59.40)
	Yes	0 (0)	0 (0)
Incision infection	No	43 (100.00)	63 (100.00)
	Yes	0 (0)	0 (0)
Subcutaneous effusion	No	40 (88.40)	62 (98.40)
	Yes	3 (11.60)	1 (1.60)
Use of analgesics	No	40 (93.00)	61 (96.80)
	Yes	3 (7.00)	2 (3.20)

Table 4. Analysis of postoperative complications in the two groups of patients.

Complication	Group	β	S.E.	X ² Value	df	P Value
Subcutaneous effusion	Observation group	2.069	1.146	3.260	1.000	0.071
	Control group	-				
Use of analgesics	Observation group	0.309	1.024	0.091	1.000	0.763
	Control group	-				

4. Discussion

With the development of the economy and the continuous improvement of medical technology in China, thyroid tumor patients increasingly prioritize the appearance of the neck, especially among certain demographics, such as young women who value beauty, those with scar tendencies, and individuals who have high aesthetic demands. These patients have a strong desire for a scar-free neck [16]-[18], prompting clinical practitioners to continuously explore new approaches to thyroid surgery through cervical access [19]-[22]. As transoral vestibular approach laparoscopic thyroid surgery has gained popularity globally [23]-[26], the Thyroid Surgery Committee of the Surgical Physician Branch of the Chinese Medical Association specifically developed the “Expert Consensus on Transoral Vestibular Approach Laparoscopic Thyroid Surgery” in 2018 to further promote the standardized implementation of this surgical method in China [27].

Some studies suggest that the incidence of fatal hemorrhage after open thyroid surgery is only 0.3% to 1% [28] [29], and the use of drainage cannot completely prevent its occurrence [30] [31], leading to a recommendation against the routine placement of cervical drainage tubes [32]-[35]. There is still considerable debate regarding whether to place drainage tubes after transoral vestibular approach laparoscopic thyroid surgery. Proponents argue that drainage can help prevent postoperative complications (such as subcutaneous effusion, hematoma, bleeding, and the need for reoperation) [36] [37], while opponents contend that drainage does not effectively prevent the occurrence of these complications [38] [39].

After researching the issues highlighted by scholars regarding the non-placement of drains, I further investigated the feasibility and safety of not placing drains after transoral vestibular approach surgery for papillary thyroid carcinoma. Postoperative hemorrhage is a common complication following transoral vestibular approach laparoscopic thyroid surgery. To monitor for potential bleeding, regular ward rounds are conducted postoperatively, with close observation of the patient’s neck for swelling and the skin for signs of bruising. If there is a suspicion of active postoperative bleeding, emergency surgery is required. Hemostasis is ideally achieved through the laparoscopic approach, and open incision hemostasis is recommended only when hemostasis cannot be completed laparoscopically to avoid serious consequences such as respiratory distress. Active symptomatic support treatments like expectoration and cough suppression can significantly reduce the

likelihood of postoperative bleeding [40]. This study retrospectively analyzed the clinical data of 106 patients who underwent surgery for papillary thyroid carcinoma at my hospital from January 2019 to March 2023. The analysis showed that neither group experienced postoperative hematoma or incision infection. There were no statistically significant differences in the rates of postoperative subcutaneous effusion or analgesic usage between the two groups ($P > 0.05$). In the observation group, three patients developed subcutaneous effusion, all occurring on postoperative days 2 to 3, which gradually resolved after aspiration. This indicates that the non-routine placement of drains does not significantly increase the likelihood of postoperative complications, and the placement of drains may even lead to increased scarring and heightened postoperative discomfort.

The concept of rapid recovery after surgery refers to employing effective strategies to reduce surgical stress and its associated complications, ensuring less trauma and fewer complications, which allows for faster recovery for patients [41] [42]. In this study, the difference in postoperative hospital stay between the two groups was not statistically significant ($P > 0.05$), suggesting that not placing a drain postoperatively does not increase the length of hospital stay for patients.

This study also has limitations: as a retrospective study with limited clinical data, some data may be incomplete or lack precision, preventing a comparison of postoperative comfort levels between the two groups. Further studies with larger sample sizes and higher quality metrics are needed to confirm the specific clinical effectiveness.

5. Conclusion

In summary, not all patients undergoing transoral vestibular approach laparoscopic thyroidectomy for papillary thyroid carcinoma require the placement of drains. The absence of drainage does not increase the likelihood of complications such as subcutaneous effusion or the use of analgesics. Not placing drains has a promising outlook, and I believe that in the near future, the practice of not routinely providing drainage after laparoscopic thyroid surgery will become a consensus. However, healthcare professionals must still make choices that are most beneficial for patients based on actual clinical situations.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Qin, F.W., Liu, M.F. and Chen, H.Y. (2021) Construction of Nursing Plan for Patients Undergoing Laparoscopic Thyroid Surgery via Transoral Vestibular Approach. *Chinese Journal of Nursing*, **56**, 873-879.
- [2] Ferlay, J., Colombet, M., Soerjomataram, I., Mathers, C., Parkin, D.M., Piñeros, M., *et al.* (2018) Estimating the Global Cancer Incidence and Mortality in 2018: GLOBOCAN Sources and Methods. *International Journal of Cancer*, **144**, 1941-1953. <https://doi.org/10.1002/ijc.31937>

- [3] Zhou, J.P., Xu, F., Liang, W.F., *et al.* (2021) Propensity Score Matching Analysis of Endoscopic Transoral Vestibular and Total Areolar Approach to Thyroid Surgery. *Chinese Journal of Endoscopy*, **27**, 34-39.
- [4] Zhang, G.J. and Zheng, H.T. (2021) Analysis of Short-Term Efficacy of Endoscopic Treatment of Papillary Thyroid Cancer through Oral Vestibular and Total Areola Approaches. *Chinese Journal of Surgical Oncology*, **13**, 401-405.
- [5] Ma, X., Wang, T.X., Wang, B., *et al.* (2022) Research on the Application of Drainage without Placement in Radical Resection of Thyroid Cancer. *Journal of Clinical Oncology*, **27**, 433-437.
- [6] Wang, P., Wu, G.Y., Tian, W., *et al.* (2018) Expert Consensus on Transoral Vestibular Approach Laparoscopic Thyroid Surgery (2018 Edition). *Chinese Journal of Practical Surgery*, **38**, 1104-1107.
- [7] Witzel, K., von Rahden, B.H.A., Kaminski, C. and Stein, H.J. (2007) Transoral Access for Endoscopic Thyroid Resection. *Surgical Endoscopy*, **22**, 1871-1875. <https://doi.org/10.1007/s00464-007-9734-6>
- [8] Wilhelm, T. and Metzger, A. (2010) Endoscopic Minimally Invasive Thyroidectomy (eMIT): A Prospective Proof-of-Concept Study in Humans. *World Journal of Surgery*, **35**, 543-551. <https://doi.org/10.1007/s00268-010-0846-0>
- [9] Wang, C., Zhai, H., Liu, W., Li, J., Yang, J., Hu, Y., *et al.* (2014) Thyroidectomy: A Novel Endoscopic Oral Vestibular Approach. *Surgery*, **155**, 33-38. <https://doi.org/10.1016/j.surg.2013.06.010>
- [10] Zeng, C.F., Ma, Y., Li, K., *et al.* (2019) Discussion on the Application of Not Placing Drains after Thyroid Papillary Carcinoma Surgery in Fast-Track Surgery. *Chinese Journal of General Surgery Fundamentals and Clinical*, **26**, 814-817.
- [11] Anuwong, A., Sasanakietkul, T., Jitpratoom, P., Ketwong, K., Kim, H.Y., Dionigi, G., *et al.* (2017) Transoral Endoscopic Thyroidectomy Vestibular Approach (TOETVA): Indications, Techniques and Results. *Surgical Endoscopy*, **32**, 456-465. <https://doi.org/10.1007/s00464-017-5705-8>
- [12] Ma, Y.H. (2016) Perioperative Nursing of Transoral Vestibuloscopic Thyroidectomy. *Journal of Nursing Education*, **31**, 724-725.
- [13] Wang, Y., Xie, Q.P., Yu, X., *et al.* (2017) Clinical Analysis of 150 Cases of Endoscopic Thyroid Surgery via Transoral Vestibular Approach. *Chinese Journal of Surgery*, **55**, 587-591.
- [14] Anuwong, A., Ketwong, K., Jitpratoom, P., Sasanakietkul, T. and Duh, Q. (2018) Safety and Outcomes of the Transoral Endoscopic Thyroidectomy Vestibular Approach. *JAMA Surgery*, **153**, 21-27. <https://doi.org/10.1001/jamasurg.2017.3366>
- [15] Jitpratoom, P., Ketwong, K., Sasanakietkul, T. and Anuwong, A. (2016) Transoral Endoscopic Thyroidectomy Vestibular Approach (TOETVA) for Graves' Disease: A Comparison of Surgical Results with Open Thyroidectomy. *Gland Surgery*, **5**, 546-552. <https://doi.org/10.21037/gs.2016.11.04>
- [16] Lin, J.H., Wu, Q.F., Wen, J.B., *et al.* (2022) Effectiveness of Endoscopic Thyroid Surgery through Oral Vestibular Approach in the Treatment of Benign Thyroid Tumors. *China Medical Herald*, **19**, 104-108.
- [17] Liu, Y.X., Zhu, J., Liu, C.R., *et al.* (2022) Exploration of Neuroprotection in Robotic Thyroid Surgery via Transoral Vestibular Approach. *Chinese Journal of Laparoscopic Surgery (Electronic Edition)*, **15**, 211-216.
- [18] Owen, Y., Luo, Q.R., Lin, L.Z., *et al.* (2021) Clinical Analysis of Endoscopic Thyroid Surgery through Oral Vestibular Approach in the Treatment of Benign Thyroid Lesions.

- Fujian Medical Journal*, **43**, 106-108.
- [19] Wang, D.H., Zhang, R., Feng, E.Z., et al. (2022) Study on the Effectiveness of Transoral Vestibular Approach Laparoscopic Surgery in Central Area Lymph Node Dissection for Thyroid Cancer. *Journal of Clinical Otorhinolaryngology Head and Neck Surgery*, **36**, 540-544, 558.
- [20] Jing, X.L., Niu, Y.B. and Wang, X.M. (2020) Observation on the Effects of Different Nursing Positions in Patients Undergoing Laparoscopic Thyroid Surgery. *Nursing Research*, **34**, 3493-3495.
- [21] Li, C., Wang, X., Zhou, Y.Q., et al. (2019) Laparoscopy-Assisted Thyroidectomy: From Small Incision in the Neck to No Trace on the Body Surface. *Cancer Prevention and Treatment*, **32**, 563-571.
- [22] Wang, X.X. (2021) Comparative Analysis of Postoperative Nursing Effects between Laparoscopic Thyroid Surgery and Traditional Open Thyroid Surgery. *Heilongjiang Medicine*, **45**, 1976-1977.
- [23] Dionigi, G., Chai, Y.J., Tufano, R.P., Anuwong, A. and Kim, H.Y. (2017) Transoral Endoscopic Thyroidectomy via a Vestibular Approach: Why and How? *Endocrine*, **59**, 275-279. <https://doi.org/10.1007/s12020-017-1451-x>
- [24] Peng, J., Wang, B., Shen, P., et al. (2022) Effects of Two Different Endoscopic Approaches on Lymph Node Dissection and Postoperative Pain in Patients with Papillary Thyroid Cancer. *Western Medicine*, **34**, 1351-1355, 1360.
- [25] Guo, J., Kong, Y., Wang, Y.H., et al. (2022) Nursing Cooperation in Transthoracic and Breast Approach Laparoscopic Thyroid Surgery. *Journal of Laparoscopic Surgery*, **27**, 307-308.
- [26] Min, Y.Y., Zhao, N. and Wang, P.H. (2022) Comparative Study of Three Laparoscopic Surgeries and Open Surgeries for cT1N0 Stage Thyroid Cancer. *Chinese Journal of General Surgery (Electronic Edition)*, **16**, 443-446.
- [27] Li, R., Li, T.L., Cheng, R.C., et al. (2022) Application of Accelerated Recovery Surgery in Transoral Vestibular Approach Endoscopic Thyroid Surgery. *Cancer Prevention and Treatment*, **35**, 181-185.
- [28] Suslu, N., Vural, S., Oncel, M., Demirca, B., Gezen, F.C., Tuzun, B., et al. (2006) Is the Insertion of Drains after Uncomplicated Thyroid Surgery Always Necessary? *Surgery Today*, **36**, 215-218. <https://doi.org/10.1007/s00595-005-3129-x>
- [29] Bergqvist, D. and Källrö, S. (1985) Reoperation for Postoperative Haemorrhagic Complications. Analysis of a 10-Year Series. *Acta Chirurgica Scandinavica*, **151**, 17-22.
- [30] Shaha, A.R. and Jaffe, B.M. (1994) Practical Management of Post-Thyroidectomy Hematoma. *Journal of Surgical Oncology*, **57**, 235-238. <https://doi.org/10.1002/jso.2930570406>
- [31] Li, L. (1996) Analysis of Drainage Results in 154 Cases of Thyroid Surgery. *Journal of Youjiang Medical University for Nationalities*, No. 1, 45-46.
- [32] An, C.M., Jin, Z.X., Zhao, B.H., et al. (2020) Clinical Observation of Rapid Recovery Surgery for Thyroid Cancer without Placing Drains. *Cancer Prevention and Treatment*, **33**, 973-978.
- [33] Fan, W.H., Lu, Y.X., Xie, T.Y., et al. (2020) Feasibility of Non-Routine Placement of Cervical Drainage Tubes during Radical Resection of Thyroid Cancer. *Journal of Clinical and Pathology*, **40**, 388-392.
- [34] Khanna, J., Mohil, R., Chintamani, Bhatnagar, D., Mittal, M., Sahoo, M., et al. (2005) Is the Routine Drainage after Surgery for Thyroid Necessary?—A Prospective Randomized Clinical Study [ISRCTN63623153]. *BMC Surgery*, **5**, Article No. 11.

<https://doi.org/10.1186/1471-2482-5-11>

- [35] Tian, J., Li, L., Liu, P. and Wang, X. (2016) Comparison of Drain versus No-Drain Thyroidectomy: A Meta-Analysis. *European Archives of Oto-Rhino-Laryngology*, **274**, 567-577. <https://doi.org/10.1007/s00405-016-4213-0>
- [36] Liu, Z.Y., Peng, X.W., Li, Z., et al. (2020) Clinical Analysis of Small-Caliber Drainage in Transoral Vestibular Laparoscopic Thyroid Surgery. *Chinese Journal of Surgery*, **58**, 870-875.
- [37] Zheng, W.J., Chen, J. and Wang, J.D. (2021) Application Choice and Experience of Learning Curve in Transoral Vestibular Approach Laparoscopic Thyroid Surgery. *Tumor*, **41**, 740-748.
- [38] Lu, Y., Sun, J.Y., Han, Z.Q., et al. (2016) Multifactor Analysis Affecting the Cosmetic Outcome of Thyroid Surgery Incisions. *Heilongjiang Medical Journal*, **40**, 733-736.
- [39] He, J., Zhang, C.J. and Xie, J. (2016) Application and Clinical Research of Tailing Hemostatic Gauze in Thyroid Surgery. *Chinese Community Physicians*, **32**, 39-40, 42.
- [40] You, L.M. and Wu, Y. (2017) Internal Medicine Nursing. 6th Edition, People's Medical Publishing House.
- [41] Du, Y., Wei, N. and Yu, J. (2021) The Application Value of Rapid Recovery Surgery Concept in Laparoscopic Pancreatic Distal Resection in the Elderly. *Chinese Journal of Gerontology*, **41**, 280-283.
- [42] Yuan, Y., Jin, F., Wu, C.L., et al. (2020) Application of Rapid Recovery Surgery in Perioperative Care of Laryngeal Cancer. *Journal of Chongqing Medical University*, **45**, 1636-1640.