



Incidental thyroid carcinomas: experiences related to the surgery of head and neck cancers

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Background: Incidental thyroid carcinomas (ITCs) in patients undergoing head and neck surgery are rare, but there are no standard guidelines for the treatment of this situation. This retrospective study sought to detail our experiences in the treatment of ITCs related to the surgery of head and neck cancers.

Methods: We conducted a retrospective analysis of the data about the ITCs in the patients with head and neck cancer, who underwent surgical treatments at Beijing Tongren Hospital in the past 5 years. The number and size of the thyroid nodules, postoperative pathology, follow-up results, and other information were recorded in detail. All the patients underwent surgical treatment and were followed-up for >1 year.

Results: A total of 11 patients (10 male and 1 female) with ITC were included in this study. The patients had an average age of 58 years. Most of the patients (72.7%, 8/11) had laryngeal squamous cell cancer, and 7 were diagnosed with thyroid nodules on ultrasound. The surgical procedures for laryngeal and hypopharyngeal cancers included partial laryngectomy, total laryngectomy, and hypopharyngectomy. All the patients underwent thyroid stimulating hormone (TSH) suppression therapy. No recurrence or mortality events from thyroid carcinoma were observed.

Conclusions: More attention needs to be paid to ITCs in head and neck surgery patients. Additionally, more research and the long-time follow-up of ITC patients are needed to extend understandings. For patients with head and neck cancers, if the suspicious thyroid nodules are found pre-operatively by ultrasound, fine-needle aspiration (FNA) is recommended. If FNA cannot be performed, the guidelines for thyroid nodules should be followed. In patients with postoperative ITC, TSH suppression therapy and follow-up is indicated.

Keywords: Head and neck cancer; papillary thyroid carcinoma; incidental thyroid carcinomas; prognosis

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Introduction

Thyroid carcinoma is one of the most common endocrine cancers, and the annual incidence of differentiated thyroid cancer is increasing (1,2). Incidental thyroid nodules (ITNs) refer to thyroid lesions that are found on imaging

examinations that are being conducted for other reasons, such as the diagnosis and prognostication of head and neck cancer or chest disease (3,4). Most ITNs are benign, and only 20% are malignant (5). Currently, there is still a lack of standards for the clinical management of ITNs, especially

incidental thyroid carcinomas (ITCs) (6).

ITCs may occur during head and neck surgery for laryngeal or hypopharyngeal cancers. The incidence of ITC is reported to be 3–10% (7). The current study sought to investigate the clinical characteristics and management of ITCs associated with head and neck cancers (8). We present this article in accordance with the STROBE and AME Case Series reporting checklists (available at <https://gs.amegroups.com/article/view/10.21037/ggs-23-88/rc>).

Methods

This was a retrospective, consecutive case series, single-center study. The data include patients who had been first diagnosed as head and neck cancers (except patients with primary thyroid carcinomas) in the otorhinolaryngology head and neck surgery of the Beijing Tongren Hospital during the past 5 years. The data of the patients who underwent partial thyroidectomy, lobectomy, total thyroidectomy, and or neck lymph node dissection at the same time during the surgery were also analyzed. The clinical data of the patients were reviewed, including their age, sex, preoperative thyroid nodules, postoperative pathology, and postoperative grade of thyroid carcinoma. All the patients were followed-up. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). This study was approved by the Institutional Review Board of Tongren Hospital, Capital Medical University (No. 20221007). Informed consent was waived as the patients' medical records and images were evaluated retrospectively

and anonymously.

Statistical analysis

All the analyses were performed using SPSS software (version 19.0, SPSS Inc., Chicago, Illinois, USA) and Stata software (version 12.0, StataCorp LP, College Station, Texas, USA). The length of overall survival was calculated from the date of the tumor diagnosis to death or the last follow-up. Differences were considered statistically significant at P values of <0.05.

Results

Demographic information

A total of 11 patients (10 male and 1 female) were enrolled in this study. The patients had a mean age of 58 years. The confirmed diagnoses were laryngeal squamous cell cancer (n=8), laryngeal adenoid cystic cancer (n=1), and hypopharyngeal cancer (n=2). The surgical treatment methods for laryngeal and hypopharyngeal cancer included laser surgery (n=1), partial laryngectomy (n=4), and total laryngectomy (n=6).

None of the patients had thyroid-related symptoms, and the thyroid nodules were incidentally detected during the preoperative examinations or based on the postoperative pathology reports. Neck ultrasounds were performed in 7 patients before surgery, among whom 4 had benign thyroid nodules and 3 had suspicious malignant nodules. Detailed patient information is provided in *Table 1*.

Treatments

All the patients underwent surgical treatment for head and neck cancer, including laryngeal surgeries, hypopharyngeal surgeries, and neck lymph node dissections. According to the National Comprehensive Cancer Network (NCCN) guidelines, the patients with laryngeal or hypopharyngeal cancer underwent ipsilateral thyroid lobectomy, and central compartment lymph nodes dissection. In this sample, 8 patients underwent unilateral thyroidectomy, while 3 patients were referred for bilateral partial resection. Postoperative radiotherapy and/or chemotherapy were administered in accordance with the guidelines for head and neck cancers. In this study, 8 patients received radiotherapy for head and neck malignancies after surgery, and 1 patient underwent preoperative radiotherapy. All the patients underwent thyroid stimulating hormone (TSH) suppression

Highlight box

Key findings

- More research needs to be conducted on incidental thyroid carcinomas (ITCs) in head and neck surgery patients.

What is known and what is new?

- Incidental thyroid carcinomas (ITCs) in patients undergoing head and neck surgery are rare.
- For the ITCs were found after head and neck surgery, the TSH inhibition treatment of conventional oral thyroxine is carried out. Because most of head and neck cancers are subject to postoperative external radiotherapy, iodine therapy for ITCs is not recommended.

What is the implication, and what should change now?

- More research and the long-time follow-up of ITC patients are needed to extend understandings of ITCs.

Table 1 Detailed information for the 11 patients

No.	Age, years	Date of surgery	Type of primary disease	Clinical stage (SCC)	Preoperative thyroid ultrasound	Pathology	Clinical stage for ITCs
1	52	2017-06-07	Larynx, SCC	T4N2M0	None	1 lateral cervical lymph node metastasis, (PTC)	T1aN1bM0
2	48	2019-08-23	Larynx, SCC	T3N0M0	Hypoechoic nodules	Left lobe (PTC), 1 lateral cervical lymph node metastasis	T1bN1bM0
3	55	2019-10-09	Larynx, SCC	T4N2M0	Multiple nodules, benign	Metastatic lymph node of tracheal esophageal sulcus (4/10), (PTC)	T2N1aM0
4	58	2019-10-16	Larynx, ACC	T4N2M0	None	Metastatic lymph node of tracheal esophageal sulcus (1/7), (PTC)	T1bN1aM0
5	80	2020-08-27	Larynx, SCC	T2N0M0	Right lobe, benign	Metastatic VI lymph node (1/3) (PTC)	T1aN1aM0
6	47	2020-11-11	Larynx, SCC	T4N1M0	Left lobe, hypoechoic nodules, with calcification	Micropapillary carcinoma of the left lobe, VI metastatic lymph node, (1/8), (PTC)	T1aN1aM0
7	57	2020-4-13	Hypopharynx, SCC	T3N2M0	Right lobe, nodules, benign	Micropapillary carcinoma of the right lobe	T1aN0M0
8	48	2021-01-18	Hypopharynx, SCC	T4N0M0	None	Micropapillary carcinoma of the right lobe	T1aN0M0
9	60	2021-02-22	Larynx, SCC	T4N0M0	Diffuse change, without nodules	1 lateral cervical lymph node metastasis, (PTC) and 1 metastatic Delphain node, (PTC)	TxN1bM0
10	71	2021-03-04	Larynx, SCC	T4N1M0	Left lobe, hypoechoic nodule, malignancy?	2 micropapillary carcinoma of the left lobe	T1aN0M0
11	62	2021-04-24	Larynx, SCC	T2N2M0	None	Micropapillary carcinoma	T1aN0M0

SCC, squamous cell cancer; ACC, adenoid cystic carcinoma; PTC, papillary thyroid carcinoma; ITC, incidental thyroid carcinoma.

therapy but none of the patients received iodine therapy for the thyroid cancers.

Follow-up

All the patients were closely followed-up after surgery in accordance with the NCCN guidelines for postoperative follow-up of thyroid carcinoma, including 1 patient who underwent a unilateral lobectomy whose contralateral lobe was found to have a nodule after surgery. During the close follow-up by ultrasound, no lymph node metastasis was found. No other patients showed signs of recurrence and metastasis of thyroid cancer. No recurrence, metastasis, or death due to thyroid carcinoma were observed in any of the patients during the follow-up period.

Discussion

The overall incidence of ITCs discovered during the

surgical treatment of head and neck malignancies is low (1–10%) (3,9,10). Given the indolent nature of thyroid carcinoma, especially differentiated papillary thyroid carcinoma, routine clinical follow-up is advised (11,12). The 10-year follow-up data of patients with papillary thyroid carcinoma who received conservative treatment showed that most (85%) diseases remained stable (13). Surgical intervention for patients with disease progression during follow-up was feasible, which did not affect the overall prognosis. There are no standard guidelines for the treatment of ITCs found during the surgeries for head and neck cancers. Case reports have indicated the difficulties of treatment in such cases, particularly when postoperative pathological evaluation suggests lymph node metastasis of papillary thyroid carcinoma (9,14).

This study reviewed the clinical characteristics of ITCs in patients with head and neck cancer referred for surgical treatment at our institution. The incidence of ITCs was generally low in patients with head and neck squamous cell

cancer, and most such patients were male. The pathological features of the included cases in this study were papillary thyroid carcinoma, including 2 cases with metastatic lymph nodes and no primary tumors, and 9 cases of papillary thyroid carcinoma. Among the patients, 7 (63.6%) presented with central lymph node metastasis. The postoperative pathology reports were consistent with malignancies in 2 patients, and preoperative ultrasounds revealed benign nodules in 2 cases. Preoperative ultrasonography indicated malignant metastasis to the cervical lymph nodes.

All the patients underwent surgical treatment for head and neck cancer and postoperative radiotherapy, according to the NCCN guidelines. Head and neck cancers are associated with a poorer prognosis than thyroid carcinoma (15). For differentiated thyroid carcinoma, the treatment is still dictated by the primary tumors. ITCs in head and neck cancer are not significant determinants of survival during follow-up (16). No recurrence or metastasis of thyroid carcinoma was observed in this study. However, such diseases still need attention, especially in terms of the pathology and regular follow-up. If the degree of differentiation is low, it needs to be closely monitored. There is no consensus regarding the frequency of follow-up, which is worth exploring.

Conclusions

For patients with head and neck cancer who present with ITCs on preoperative ultrasound, fine-needle aspiration (FNA) biopsy is recommended. If conditions do not permit or the patient does not receive, it is recommended to treat them according to the guidelines for thyroid nodules. For the ITCs were found after head and neck surgery, the TSH inhibition treatment of conventional oral thyroxine is carried out. Because most of head and neck cancers are subject to postoperative external radiotherapy, iodine therapy for ITCs is not recommended. Although the reoperation or iodine treatment of ITC is not necessary, it is still necessary to carry out a clear and long-term follow-up for the ITCs.

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Footnote

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