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Short Communication

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Concurrent Primary Carcinoma and Metastatic Lesions of the Thyroid

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ABSTRACT

The thyroid gland is an infrequent site of metastases from other primary sites. Furthermore, concurrent primary carcinoma and metastatic disease of the thyroid gland is extremely rare. We report a case of concurrent primary and metastatic carcinoma of the thyroid gland.

Keywords: Thyroid gland; Papillary thyroid carcinoma; Lung cancer

INTRODUCTION

Metastasis to the thyroid gland is uncommon, with an overall incidence at autopsy ranging from 1.2% to 24.0% (1-4). The most common primary tumor sites are the kidney, breast, and lung (5-8).

The presence of concurrent carcinomas of different origin in the thyroid gland is rare. Specifically, concurrent primary thyroid carcinoma and metastatic disease of the thyroid gland is extremely rare, and to our knowledge, has not been reported previously.

We report a case of concurrent primary thyroid carcinoma and thyroid metastasis of lung adenocarcinoma.

CASE REPORT

A 61-year-old woman presented with a palpable mass in the right supraclavicular fossa. Cervical ultrasonography showed an irregularly shaped hypoechoic nodule, 0.7 cm in diameter, with internal calcification at the lower pole of the right lobe of the thyroid, and multiple, variably-sized enlarged lymph nodes in the both supraclavicular fossae.

Fine-needle aspiration (FNA) cytology was performed. The thyroid mass was suggestive of papillary thyroid carcinoma, and the right supraclavicular fossa mass was suggestive of metastatic carcinoma from the thyroid gland. The FNA results are presented in **Fig. 1**.

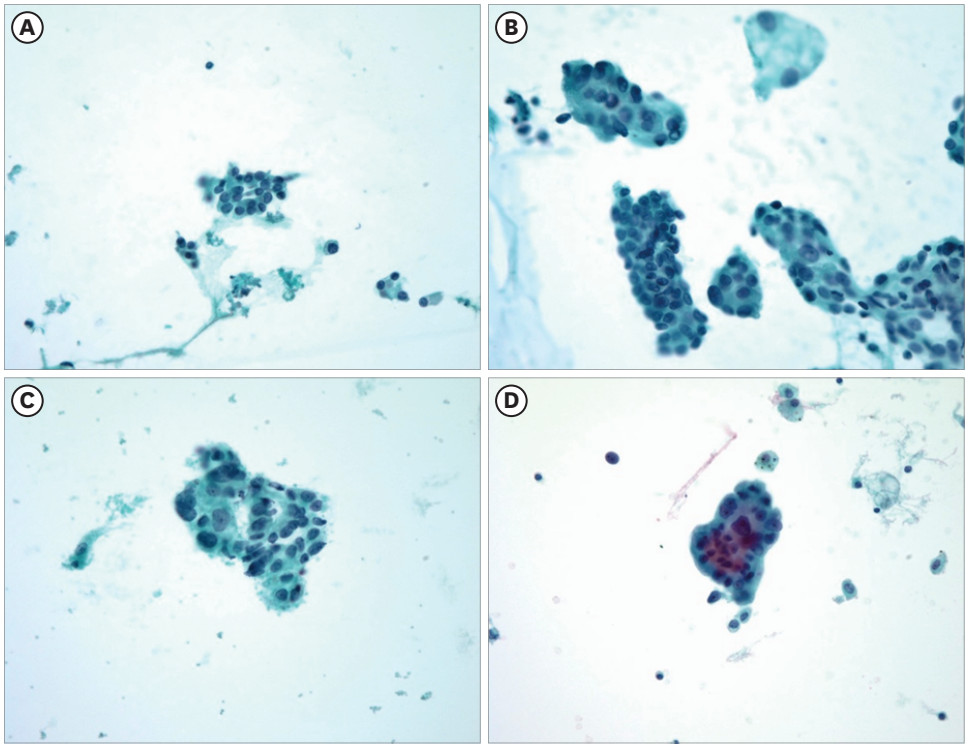

Fig. 1. Cytological findings of thyroid and lymph node tissue smears (Papanicolaou stain ×400). (A) FNA cytology of the thyroid showing relatively uniform follicular cell clusters with frequent grooves and rare pseudo-inclusions, suggestive of papillary thyroid carcinoma. (B, C) FNA cytology of lymph nodes (B: level VI; C: supraclavicular) showed several clusters of pleomorphic tumor cells. The tumor cells were suggesting metastatic carcinoma and different from papillary thyroid carcinoma. (D) FNA cytology of the lung revealed clusters of pleomorphic tumor cells resembling the cells seen on cytology of the lymph node aspirates.
FNA = fine-needle aspiration.

Cervical and chest computed tomography showed a speculated nodule, 2.1 cm in diameter, in the anterior basal segment of the left lower lobe of the lung, abutting the major fissure, and multiple lymph nodes in the right paratracheal, para-aortic, right hilar, and subcarinal areas.

Positron emission tomography scan and whole-body bone scan showed lung and multiple bone metastases.

The patient underwent a diagnostic right lobectomy of the thyroid gland and bilateral level IV diagnostic dissection. First, intraoperative frozen sections of supraclavicular lymph nodes on both sides were prepared, and were confirmed to contain metastatic lung adenocarcinoma. Second, right lobectomy of the thyroid gland and central compartment node dissection was performed, and the thyroid gland was confirmed to contain both primary papillary thyroid carcinoma and metastatic lung adenocarcinoma. Two lymph nodes in the central compartment contained metastatic lung adenocarcinoma.

After the surgery, the patient underwent 6 cycles of adjuvant chemotherapy with docetaxel and gemcitabine at 3-week intervals. The patient remains well, with stable disease, 24 months after surgery. There was no special clinical events or symptom of patient during the chemotherapy period.

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1. Consent for publication

We obtained written informed consent from the patient for publication of this case report.

DISCUSSION

Thyroid metastases are uncommon relative to primary thyroid carcinomas, which range from 1.2% to 24.0% in autopsy studies (1-4). Concurrence of 2 distinct neoplasms in the thyroid gland, derived from different cells of origin is rare. In particular, coexistence of primary thyroid carcinoma and metastatic disease from another primary malignancy is extremely rare.

Common primary sites of metastasis to the thyroid gland are the breast, lung, and kidney, and less frequent primary sites are the pancreas and gastrointestinal malignancies (5-10).

As thyroid metastatic lesions may mimic primary thyroid carcinoma upon imaging studies including ultrasonography, preoperative differentiation between metastatic lesions and primary lesions is difficult. FNA cytology plays a definitive role in patient management of thyroid metastases, as it helps distinguish between primary thyroid cancer and thyroid metastatic lesions that mimic primary thyroid cancer by providing an easily accessible means of diagnosis (11). In this case, primary thyroid carcinoma was suspected based on the preoperative FNA cytology, and the metastatic lesion was subsequently diagnosed based on the final histopathology.

There is a lack of consensus regarding the role of surgery for metastatic thyroid cancer. Thyroidectomy does not prolong survival (9), but it may reduce further dissemination of the tumor to nearby tissues, thereby reducing morbidity (9,12). In this case, a diagnostic lobectomy of the thyroid gland was performed, and intraoperative frozen sections of the level IV lymph nodes on both sides were obtained. The thyroidectomy was not extended after confirming the presence of metastatic lesions in the thyroid gland. Although papillary thyroid cancer was also present, a total thyroidectomy was not performed because the tumor was small (1.0 cm in diameter) and intra-thyroidal. The patient underwent adjuvant chemotherapy for the lung cancer.

Although it was previously thought that thyroid metastases are associated with widespread malignant disease and a poor prognosis (2), recent research has shown that thyroid metastases do not affect overall survival (9,12). In this case, we cannot ascertain the patient's prognosis because of the short follow-up period to date.

In conclusion, concurrent primary thyroid carcinoma and thyroid metastases from another carcinoma is extremely rare. To our knowledge, this is the first such case to be reported in the English literature.

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