Pathology-Proven Inguinal Node Metastasis from Papillary Thyroid Cancer in a Male without Disease below the Diaphragm

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What Is Known about This Topic

- Very little is known about lymphatic spread of thyroid cancer outside the regional lymphatic nodal stations.

What This Case Report Adds

- It shows for the first time metastatic disease from thyroid cancer to a distant, nonregional lymphatic nodal station.

Key Words

Thyroid cancer · Metastasis · Inguinal node

Abstract

We present the case of a 55-year-old white male with biopsy-proven left inguinal lymph node metastasis from differentiated papillary thyroid cancer. Inguinal node metastasis from papillary thyroid cancer is an extremely rare finding. The case demonstrates that papillary thyroid cancer is capable of metastasis presumably through the lymphatic system to unexpected locations.

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Introduction

Most thyroid cancers are differentiated, and are classified pathologically as papillary or follicular or variants of these. In the US, papillary thyroid cancer is the most common type of thyroid cancer, representing 75–85% of cases. It occurs about 3 times more frequently in women and usually presents in the 20- to 55-year age group. Papillary thyroid cancer has a high tendency to metastasize locally to lymph nodes. If untreated and in older patients, it can dedifferentiate into more aggressive and less treatable anaplastic thyroid cancer. Rarely, differentiated papillary cancer metastasizes to the lungs and very rarely to the

Fig. 1. **a** Posttreatment ^{131}I scan showing iodine activity in the neck, minimal faint activity in the lungs, but no activity in the right inguinal region. **b** 3D MIP image from the FDG-PET/CT exam prior to iodine treatment showing mild FDG activity in the thyroid bed, multiple intensely hypermetabolic lung nodules and a single hypermetabolic right inguinal lymph node. **c** Axial FDG image showing high FDG activity in the right inguinal lymph node. **d** Same axial cut CT image for anatomic localization showing an enlarged right inguinal lymph node. **e** FDG-PET/CT hybrid image showing hypermetabolic activity in the enlarged right inguinal lymph node.

skeleton and brain. Likewise nonlocal lymph node metastasis is very unusual. We report a unique case of papillary thyroid carcinoma with pathology-proven metastasis to an inguinal lymph node.

Case Presentation

The patient, a 55-year-old man, had an X-ray because of a painful shoulder. The X-ray was suspicious for pulmonary nodules and this was confirmed by dedicated CT imaging of the chest, which also demonstrated a multinodular goiter. Thyroid ultrasound showed multiple nodules and a fine-needle aspiration of one of the dominant thyroid nodules showed papillary thyroid cancer. At the time of total thyroidectomy there were extracapsular extensions of the cancer with invasion into the esophagus and trachea. The cancer also extended to the mediastinum and a thoracotomy was required. The recurrent laryngeal nerve had to be sacrificed. A significant amount of tissue was left behind. Pathology showed differentiated papillary thyroid cancer.

An ^{18}F -FDG-PET/CT after the surgery demonstrated mild uptake in the anterior neck consistent with postsurgical changes and residual disease. There was high FDG activity in multiple lung nodules and a single 1.2-cm right inguinal lymph node, with a maxSUV of 7. The findings were consistent with poorly differentiated papillary thyroid cancer and lung metastases. The activity in

the isolated inguinal lymph node was favored to represent an inflammatory/infectious process rather than metastasis. A ^{123}I -SPECT/CT scan showed high uptake in the neck, minimum activity in the lungs and no activity in the inguinal node. The largest lung nodule was biopsied and confirmed to be differentiated papillary thyroid cancer. The patient was then treated with ^{131}I without complications and a posttreatment scan showed no stunning or additional metastatic sites. A follow-up ^{123}I scan at 3 months showed no residual iodine activity in the neck, minimal activity in the lungs and none in the right inguinal lymph node. An FDG-PET/CT showed no persistent activity in the neck, again high FDG activity in the lung nodules and in the right inguinal lymph node. The lung nodules were stable or slightly decreased in size. No change in size or activity of the inguinal node was observed. The inguinal lymph node was biopsied and showed metastatic papillary thyroid cancer.

Discussion

Inguinal node metastasis from papillary thyroid cancer is an extremely rare finding. Distant metastases of differentiated thyroid cancers are rare and usually localized in the lung, rarely in bone. Even less common are metastases to the brain, liver and skin [1]. We were only able to

find 2 cases of inguinal lymph nodes from thyroid cancer in the literature. One was a case report from 1986 published in Russian (which we were not able to read) [2]. A more recent case of inguinal node metastasis was reported by Damle et al. [3] in English. In that report, a woman with follicular (not papillary) thyroid cancer and a large bone metastases to the right iliac pelvic bone with considerable local soft tissue infiltration into surrounding gluteal musculature was diagnosed with an ipsilateral inguinal lymph node metastasis.

Though Damle's case and our case both demonstrate that thyroid cancer can metastasize to the inguinal lymph nodes, the cases have significant differences. First, Damle's case showed follicular not papillary cancer, and second the case was in a woman not a man. Therefore, there was no possibility of struma ovarii in our patient [4, 5]. Finally, our patient had no metastases below the diaphragm in contrast to the patient of Damle et al. [3] who had a large metastatic lesion on the ileum with considerable local soft tissue infiltration into the surrounding glu-

teal musculature, which could have spread to the ipsilateral local inguinal lymph node.

Damle et al. [3] discussed in their case report the possibility of a malignant degeneration of ectopic thyroid tissue in the inguinal node. But, although malignant transformation of ectopic thyroid has been described, it is difficult to understand how ectopic thyroid could get to the inguinal region. None of the cases described have been in the subdiaphragmatic location.

Based on the experience from our patient, we propose the possibility of papillary thyroid cancer metastasis to the inguinal lymph nodes, presumably via lymphatic spread. We advocate tissue diagnosis of a suspicious node.

Disclosure Statement

All authors declare that they have no conflict of interests.

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