

Axillary Lymph Node Metastasis in Papillary Thyroid Carcinoma at Early Perioperative Period: Report of a Case and Review of the Literature

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ABSTRACT

A 36-year-old woman with a history of neck swelling was diagnosed with papillary thyroid carcinoma, a common but typically slow-growing thyroid cancer with a good prognosis. Despite frequent lymph node metastasis, mortality rates are low. This cancer can rarely spread to unusual areas like the axillary region. The patient had multiple nodules in her thyroid and metastasis to cervical lymph nodes. After a total thyroidectomy and neck dissection, 14 metastatic lymph nodes were found. Post-surgery, radioactive iodine treatment and a whole-body scan revealed axillary lymph node involvement, confirmed as metastasis from the thyroid cancer.

Papillary thyroid carcinomas usually have an excellent survival rate, but some can be aggressive. Risk factors for poor outcomes include larger tumors, extracapsular spread, older age, specific variants, and distant metastasis. Surgical removal is the primary treatment, aiming to eliminate local and regional spread. However, metastasis to atypical regions like the axilla is rare and not well understood due to limited data. It's thought to spread retrograde from the neck or due to abnormal lymphatic flow caused by surgery.

Axillary metastasis is often found during or after surgery and may indicate systemic disease. Imaging techniques are used for detection. While it's usually a sign of poor prognosis, isolated cases without distant metastasis exist. Aggressive thyroid cancer treatment should consider the potential for distant metastases.

Keywords: Axillary metastasis, Thyroid cancer

INTRODUCTION

Papillary and follicular carcinomas of the thyroid, although the most common malignant neoplasms, typically exhibit slow growth and an excellent prognosis.^{1,2} Despite a high incidence of cervical and upper mediastinal lymph node metastasis in papillary thyroid cancer, the mortality rate remains relatively low.^{1,3} It is known that, although rare, papillary thyroid carcinoma can metastasize to ectopic sites such as retropharyngeal, parapharyngeal, retrocarotid, sublingual, axillary, and intraparotid regions.^{2,4} However, due to the limited number of reported

cases, the clinical significance of these metastases remains unclear, with most being associated with recurrent or persistent disease.⁴ The majority of these case series have presented late recurrence metastasis cases.^{3,5} The case presented here is unique in that it involves a simultaneous axillary lymph node metastasis during the perioperative period, without distant metastasis.

CASE ILLUSTRATION

A thirty-six-year-old female patient presented with a three-week history of swelling on the left side of the neck. Physical examination revealed

multiple palpable nodules in the thyroid gland, with the largest measuring 15x10x10 mm on the left, and lymphadenopathies at levels 2-3-4 on the left cervical side. Ultrasonography and fine-needle aspiration biopsy results confirmed metastasis to the left cervical lateral lymph node. Preoperative F18-FDG [fluorodeoxyglucose] positron emission tomography revealed pathological uptake in the thyroid and left cervical chain. The patient underwent total thyroidectomy along with left lateral and central neck dissection. Histopathological evaluation identified a classic type papillary carcinoma measuring 15 mm in the left lobe of the thyroid, conglomerated, with a total of 14 metastatic lymph nodes, including 3 left lateral, 6 left central, 4 supraclavicular, and 1 Delphian lymph nodes. The tumor was in close proximity to the thyroid capsule with no lymphatic or vascular invasion. According to the TNM staging, the tumor was reported as pT1bN1b. The patient received 150 mCi radioactive iodine treatment followed by whole-body scanning, which revealed focal increased activity consistent with lymph node involvement in the left axillary region. Fine-needle aspiration biopsy confirmed papillary thyroid carcinoma metastasis, leading to left axillary dissection. The histopathological evaluation identified one lymph node (1 metastasis out of 9 total lymph nodes) consistent with metastasis from classic type papillary thyroid carcinoma (**Figure 1**).

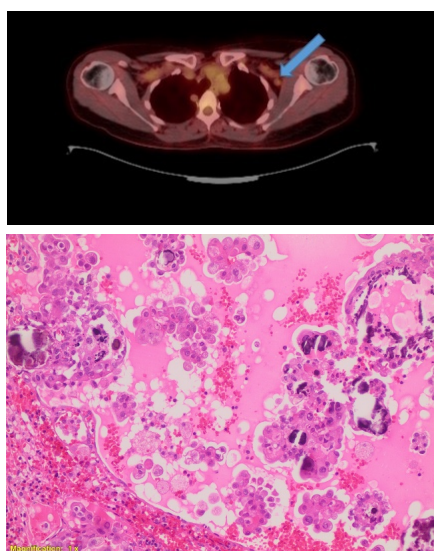


Figure 1. Lymph Node Metastasis of Papillary Thyroid Carcinoma, Focus of Calcification (Psammoma Body). The patient is being monitored under thyroxine suppressive therapy.

DISCUSSION

Papillary thyroid carcinomas typically follow a slow course with excellent long-term survival rates. However, a small subset exhibits aggressive behavior. Larger primary tumor size, extracapsular spread, advanced age, specific histological variants, and distant metastasis have been identified as cumulative risk factors for a worse prognosis.³

Surgical treatment is usually the preferred curative option in thyroid cancer. It plays a crucial role, especially in the management of local invasion or regional lymph node metastasis. Neck dissection, targeting central and lateral cervical nodal metastases, aims to eliminate both clinically evident and potential occult spread. However, if lymph nodes are located in an unusual area in the cervical region or are not included in the dissection, persistent or recurrent disease may continue.

Metastasis to ectopic regions such as retropharyngeal, parapharyngeal, retrocarotid, sublingual, axillary, and intraparotid areas, outside of neck lymph nodes, is known to occur rarely.^{2,4} While axillary lymph node metastasis is not typically expected due to the lack of direct lymphatic communication between the neck and axilla, it has been reported infrequently.¹ In such cases, it is speculated that the disease spreads in a retrograde direction from the supraclavicular region along the transverse cervical lymph nodes to the axilla.⁵ Another hypothesis suggests that fibrosis induced by surgery or microscopic tumor invasion of lymphatics may lead to abnormal lymphatic flow from the cervical region into the axilla.

Although case reports and reviews suggest that certain types of papillary thyroid cancer with high malignant potential are more likely to lead to axillary lymph node metastasis, there is insufficient statistical data.^{1,5} Additionally, publications reporting axillary lymph node metastasis in other types such as medullary thyroid cancer and mucoepidermoid carcinoma are available.⁵ No significant data regarding age and gender have been recorded.^{1,5}

Patients with axillary lymph node metastasis are often detected either simultaneously or in the long-term as recurrences. Case reports

recommend imaging techniques such as whole-body ¹³¹I scan, fluorodeoxyglucose PET/CT, and SPECT-CT for detecting these metastases.^{3,6,7} In patients with axillary lymph node metastasis, distant metastatic lesions, particularly lung metastasis, can also occur more frequently.⁵ Among reported case series, simultaneous axillary lymph node metastasis was found in only 4 cases in the early perioperative period. Out of these, only 1 case did not have distant metastasis, while the others had lung and multisystem distant metastases.^{3,8-10} In another case, axillary metastasis was incidentally detected during the diagnostic examination of calcification detected in the axilla on mammography.¹¹ Our case also represents a simultaneous axillary lymph node metastasis during the perioperative period without distant metastasis.

Although axillary lymph node metastasis is considered an indicator of systemic disease and poor prognosis,⁵ reported case series occasionally include isolated axillary lymph node metastases without distant metastasis. Due to the rarity of these cases, there is no statistically significant data regarding poor prognosis or distant metastasis. However, in cases of aggressive treatment for thyroid cancer resulting in multiple recurrent or simultaneously occurring axillary lymph node metastases, the possibility of distant metastases should also be considered.

CONCLUSION

Axillary metastasis is often found during or after surgery and may indicate systemic disease. Imaging techniques are used for detection. While it's usually a sign of poor prognosis, isolated cases without distant metastasis exist. Aggressive thyroid cancer treatment should consider the potential for distant metastases.

AUTHORS CONTRIBUTION

Cumhur Arıcı: Data collecting, quality control of data and algorithms. Hasan Çalıř: Data curation, planning the study design, writing original draft preparation, reviewing and editing. Kenan Demirbakan: Contributed in data collection and interpretation. Zeki Demirok: Reviewing and editing.

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