

An unusual presentation of papillary thyroid carcinoma in the lateral aspect of the neck

Ghassan Almainani, Frank Forst, Thomas Zoedler, Bayan Almainani

ABSTRACT

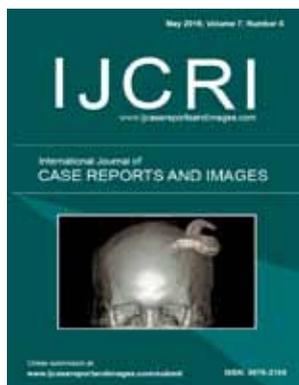
Introduction: Papillary thyroid carcinoma (PTC) is the most common thyroid cancer. Papillary thyroid carcinoma presenting as a lateral neck mass in the presence of a normal thyroid is extremely rare. Ectopic thyroid tissue can arise in the lateral aspect of the neck, and, therefore, PTC may arise at this site in ectopic tissue. Alternatively, cervical cystic lymph node metastasis may be a first presentation of occult PTC.

Case Report: A case of a 28-year-old male was referred for investigation of a painless left-sided neck swelling. Excisional biopsy revealed PTC, and completion surgery revealed papillary microcarcinoma and a further lymph node metastasis in the definitive resection specimen.

Conclusion: This case highlights that PTC always needs to be considered in the differential diagnosis of lateral neck swellings even in presence of a normal thyroid. Establishing the exact etiology of lateral cystic PTC can be challenging.



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Introduction: Papillary thyroid carcinoma (PTC) is the most common thyroid cancer. Papillary thyroid carcinoma presenting as a lateral neck mass in the presence of a normal thyroid is extremely rare. Ectopic thyroid tissue can arise in the lateral aspect of the neck, and, therefore, PTC may arise at this site in ectopic tissue. Alternatively, cervical cystic lymph node metastasis may be a first presentation of occult PTC. **Case Report:** A case of a 28-year-old male was referred for investigation of a painless left-sided neck swelling. Excisional biopsy revealed PTC, and completion surgery revealed papillary microcarcinoma and a further lymph node metastasis in the definitive resection specimen. **Conclusion:** This case highlights that PTC always needs to be considered in the differential diagnosis of lateral neck swellings even in presence of a normal thyroid. Establishing the exact etiology of lateral cystic PTC can be challenging.

Keywords: Cervical lymph node, Lateral neck, Metastasis, Papillary thyroid cancer

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INTRODUCTION

Almost 80% of all thyroid cancers are papillary thyroid carcinomas (PTCs), which most commonly present as solitary thyroid nodules [1]. However, PTCs can extremely uncommonly present as lateral neck masses in the absence of thyroid swelling. Here we report a case of PTC presenting as a left-sided neck swelling. Although evaluation of neck swellings usually include ultrasonography, fine-needle aspiration cytology (FNAC), and computed tomography (CT) scan or magnetic resonance imaging (MRI) scan and radionuclide scanning, excisional biopsy of a neck cyst is essential for early diagnosis and management if these results are inconclusive [2]. Our case was diagnosed by histopathological examination after surgical excision of the neck lesion.

CASE REPORT

A 28-year-old male presented with a painless left-sided neck swelling that had gradually increased in size

over the preceding few months. The swelling was sudden in onset and there was no history of preceding infection or trauma. There was no dysphagia, dyspnea, or hoarseness, and the patient had no other medical history of note and a negative family history of thyroid cancer. Neck examination revealed a normal thyroid gland and no cervical lymphadenopathy. However, a 5x3 cm non-tender mass was present in the left posterior triangle. Thyroid function tests were within normal limits. There were no suspicious features such as microcalcifications or solid components on ultrasound examination. Neck MRI scan with contrast revealed a fluid-filled cystic mass measuring 7.6x4.9 cm between the left sternocleidomastoid muscle and anterior scalene muscle, separate from the left lobe of the thyroid (Figure 1). The imaging features were highly suggestive of cystic hygroma. The decision was made to perform excisional biopsy without prior fine-needle aspiration biopsy (FNAB) due to its location close to vascular structures and to establish a definitive diagnosis.

Histopathological examination of the specimen showed features of PTC (Figure 2A). The patient was informed about the need for further surgery and subsequently underwent total thyroidectomy with central compartment neck dissection and a left modified radical neck dissection (MRND). Histopathological analysis of the resection specimen showed a focus of papillary microcarcinoma in the left lobe of thyroid measuring 0.7 cm (Figure 2B–C) and further single lymph node metastasis in a left neck node (Figure 2D).

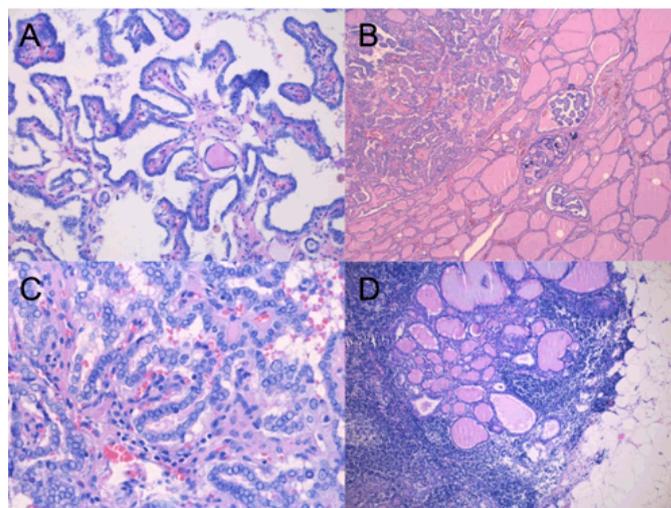


Figure 2: Histopathology of the lesion and resection specimen (A) Photomicrograph showing tumor tissue arranged in papillae and showing the characteristic pathological features of PTC of nuclear clearing and overlapping and psammomatous calcifications (magnification: x20). (B, C) Histological examination of the surgical specimen revealed a 7 mm papillary thyroid microcarcinoma in the left lobe. (B) magnification: x10 and (C) magnification: x40. (D) Photomicrograph of metastatic PTC in a lymph node (magnification: x20). The remaining lymph nodes were normal.



Figure 1: Coronal T2-weighted magnetic resonance imaging scan of the neck showing a large, hyper-intense mass on the left side of the neck.

The patient was counseled with respect to the need for radioactive iodine therapy after surgery. He subsequently underwent radioactive iodine therapy postoperatively, and a radioactive iodine scan six weeks later revealed no residual thyroid. The patient remains on thyroxine supplementation and regular follow-up.

DISCUSSION

Papillary thyroid cancers (PTCs) are most common in adult women (mean age of presentation 30 years; F:M 3:1). Cervical metastases are present in 50-75% of patients, depending on the cancer size. Distant metastases are uncommon, but, when metastases occur, lung and bone are the most common sites [1].

Cystic neck masses appearing in the anterior or posterior neck triangles are usually benign but occasionally harbor cancers. Some studies have reported thyroid malignancy in 11% of patients with lateral cervical cysts [2]. However, a solitary cervical cystic mass is an uncommon presentation of PTC with less than 25 reported cases worldwide in the literature.

The thyroid gland is embryologically derived from two anlagen: a large median endodermal anlage and two lateral anlagen. The median anlage produces most of the thyroid parenchyma, while the lateral anlage is derived from the fourth pharyngeal pouch [3]. Not uncommonly, a failure in descent of the median anlage results in a lingual

thyroid gland. In much rarer cases, failure of fusion of the lateral and median anlagen can result in a lateral ectopic thyroid gland [4]. When cancers do arise in the lateral cervical location, some authors consider this to be more likely due to secondary metastatic spread of papillary microcarcinoma to a lymph node that undergoes central liquefaction and cyst formation, while other studies regard these lesions as malignant transformations of ectopic thyroid tissue [5, 6].

With respect to this diagnostic difficulty, Cabibi et al. [7] concluded that the presence of morphologically and immunohistochemically normal-looking follicles in lateral cervical masses without coexisting intrathyroid tumor strongly suggest malignant transformation of ectopic thyroid tissue. Conversely, even if the immunohistochemical pattern in thyroid follicles in lateral cervical masses indicates differentiation resembling normal thyroid parenchyma but there is coexisting intrathyroid tumor, these masses should be considered metastatic in nature.

Verge et al. [8] and Al-Ashaa et al. [9] together reported the largest series of twelve cases of cervical cystic lymph node metastases as the first manifestation of occult PTC. In their reports, in all cases the thyroid tumors were not palpable on physical examination and no abnormalities of the thyroid gland were shown by other diagnostic procedures.

In our case, and based on the histological findings of the presence of another definitive lymph node metastasis and the presence of a focus of papillary microcarcinoma in the left lobe, we consider this lesion to be metastatic in nature. The metastasis is likely to have undergone cystic degeneration to produce the palpable lesion. An *in vivo* diagnostic method capable of differentiating between ectopic thyroid tissue and metastatic thyroid cancer would be useful to enable accurate preoperative assessment and to guide and refine the decision regarding the extent of the operation required.

We did not consider FNA for investigation of the mass even though the overall sensitivity and specificity of FNA in the diagnosis of neck lesions is approximately 85–90%. This was because: (i) the diagnostic accuracy of cystic mass aspirates may be especially poor due to the likelihood of aspirating acellular material [10]; and (ii) the lesion was in proximity to vascular structures and the risk of post-aspiration hemorrhage was deemed to outweigh the risk and diagnostic benefit of performing excisional biopsy in this case.

CONCLUSION

Literature reports only a few cases of lateral neck swelling as the only manifestation of papillary thyroid carcinoma (PTC). It must always be considered in the differential diagnosis of lateral neck swellings presenting in adult patients. Establishing the exact etiology of these lesions can be difficult and requires

systematic histopathological assessment in the absence of appropriate *in vivo* diagnostic modalities.

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Author Contributions

Ghassan Almaimani – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Frank Forst – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published

Thomas Zoedler – Substantial contributions to conception and design, Revising it critically for important intellectual content, Final approval of the version to be published

Bayan Almaimani – Substantial contributions to conception and design, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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