

Occult papillary thyroid cancer presenting as cystic metastasis of the lateral neck

A case report

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Abstract

Rationale: Papillary thyroid cancer accounts for up to 85% of all cases of thyroid carcinoma. This disease entity is notorious for metastatic invasion of adjacent lymph nodes, including the cervical lymph nodes, potentially presenting as a growing lateral neck mass. However, these lesions tend to be recognized and diagnosed soon due to the palpable mass.

Patient concerns: This report describes a very rare case of a huge slow-growing neck metastasis based on a 6 mm papillary thyroid microcarcinoma. This patient presented with a painless, but continuously growing right lateral neck mass. Aside from that, no specific complaints were mentioned.

Diagnosis: The underlying cause of this patient's neck mass turned out to be an occult papillary thyroid microcarcinoma (Ø 6 mm) with metastatic invasion and subsequent cystic degeneration of cervical lymph nodes. Accurate diagnosis was made after surgical intervention through histopathological analysis.

Interventions: The patient underwent complete resection of the cervical mass in conjunction with total thyroidectomy and right cervical neck dissection, followed by adjuvant iodine- and chemotherapy.

Outcome: Margin free surgical resection without any postoperative complications could be achieved. The patient received iodine supplementation and remained free of recurrence during regular clinical follow-ups for 2 years. The therapy was curative.

Lessons: This case report emphasizes the importance of a thorough diagnostic work-up including preoperative tissue sampling of any cervical neck mass, since a benign appearance on imaging does not exclude a malignant process.

Abbreviations: FNA = fine needle aspiration, MRI = magnet resonance imaging.

Keywords: lateral neck mass, neck cyst, papillary thyroid cancer, thyroid cancer

1. Introduction

Papillary thyroid cancer is the most common form of thyroid carcinoma and accounts for up to 85% of all cases. Early metastasis to adjacent lymph nodes, possibly presenting as solid or cystic cervical mass, has been well described by several studies.^[1–5]

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However, these lesions tend to be recognized and diagnosed soon due to a palpable mass. The incidence of metastatic disease at the time of diagnosis approaches 50% according to current literature.^[3] Affected lymph nodes may undergo nearly complete cystic degeneration which impedes the differentiation between benign cervical cysts and malignant metastatic disease.^[6] A cervical neck mass presenting as initial sign of metastatic papillary thyroid carcinoma, as described for the patient presented in this case, is considered extremely rare, though.

2. Case

We report the case of a 40-year old male patient who was referred to our department complaining of a slowly growing mass of the right neck. Previous medical history was nonrevealing except from a trauma to the right neck about 9 years ago. At that point, the patient had noticed the swelling for the first time. However, he did not seek further medical attention since the mass did not cause any symptoms. Thorough physical examination was unremarkable besides the substantial mass of the right lateral neck (Fig. 1). Subsequent imaging with ultrasound revealed a septate, cystic formation comprising the entire right cervical region. The septa were partly calcified and showed moderate blood perfusion. Based on these ultrasound findings, a diagnosis of lymphangioma was considered. However, an additional magnet resonance imaging (MRI) was recommended for appropriate assessment of the masses' size and potential invasion of the surrounding tissue.



Figure 1. Preoperative view, patient with a slowly progressive swelling mass at the right lateral neck.

MRI revealed a massive, polycystic formation located right beneath the sternocleidomastoid muscle. The mass had a craniocaudal diameter of 13cm with a maximum width and depth of 10cm and 5cm, respectively. The caudal part surrounded the brachiocephalic trunk and extended down to the upper mediastinum as well as the thyroid isthmus. However, direct communication with the thyroid gland was not reported. Distinct septa displayed slight contrast enhancement, abnormal lymph nodes were not found. These MRI findings were also considered consistent with a lymphangioma.

Consequently, surgical resection of the presumed lymphangioma was pursued. While the major part of the mass could be successfully resected, intraoperatively (Fig. 2), the decision was



Figure 2. Intraoperative view, cystic well-encapsulated mass.

made to leave the masses' segment which surrounded the brachiocephalic trunk to avoid potentially fatal injuries.

The specimen was sent for histologic assessment to verify the presumptive diagnosis. Microscopic evaluation revealed psammoma body-like calcifications and expression of thyroglobulin 1 and thyroid transcription factor 1, features which are inconsistent with a diagnosis of lymphangioma and confirmed that the resected mass was a cystic metastasis of an occult papillary thyroid carcinoma.

A postoperative MRI showed extensive remnants of the mass located along the internal jugular vein, the common carotid artery, and the jaw angle. Consequently, surgical resection of the remaining tumor in combination with total thyroidectomy and right cervical neck dissection was conducted at a center specialized for thyroid surgery. Additionally, the patient received adjuvant chemotherapy. Subsequent histologic evaluation of the resected thyroid gland revealed a papillary microcarcinoma (diameter: 6 mm), located in the right thyroid lobe and could be confirmed as the underlying source of the cervical mass. The whole tumor mass could be resected, postoperative radioiodine therapy was given. The therapy was curative. Follow up of the patient was done for 2 years at the time of manuscript preparation.

3. Discussion

This report highlights the possibility of an underlying occult papillary thyroid carcinoma in patients presenting with a cystic cervical mass despite an unremarkable previous medical history. Interestingly, this patient's right cervical mass had been growing to tremendous size without causing any symptoms.

Batori et al reported a case of a patient who had presented with a cervical mass for 15 months, but had already suffered from dysphagia and dysphonia despite a mere diameter of 5 cm.^[3] Therefore, it appears that size and duration of the mass alone do not essentially correspond to its debilitating potential.

In a series of 7 cases of solitary lateral neck mass due to occult underlying thyroid carcinoma, the mean time of mass presence was 5.1 months with a maximum of 12 months.^[5] That is far less than the 9 years of slow but continuous growth this patient had experienced.

To the best of our knowledge, this is the first case of metastatic papillary thyroid microcarcinoma which had remained asymptomatic over the course of 9 years.

Cervical masses pose a substantial diagnostic challenge to clinicians owing to the highly variable underlying etiology, both benign and malignant. Diagnostic work-up includes ultrasound, possible supplemented by MRI, both of which constitute a highly sensitive modality for lateral neck masses. Based on several reports investigating isolated cervical cystic masses related to papillary thyroid cancer, preoperative tissue sampling through fine needle aspiration (FNA) may aid in the differential diagnosis of cervical masses.^[1,2] However, mere microscopic evaluation of fine-needle aspirates might not be sufficient for adequate diagnosis since they are commonly false negative.^[3] Instead, thyroglobulin measurements in the specimen have been proven helpful for accurate diagnosis of cystic lesions as thyroid metastases.^[2]

According to current literature, ultrasound is the gold standard of thyroid imaging and allows for identification of lesions up to a mere size of 3 mm.^[7] Suspicious nodules should then be assessed by FNA to guide further management.^[8] Since, this patient's medical history, TSH and initial thyroid ultrasound scans were all negative for potentially malignant thyroid disease, further

diagnostic work-up of the thyroid gland was not pursued. The MRI was primarily done to assess the extent of the solitary neck lesion, not to look for thyroid nodules. Since both, ultrasound and MRI implicated a lymphangioma as underlying cause of the mass in this patient, preoperative histologic assessment by open biopsy or FNA were not performed. However, this case highlights that FNA should be performed in all cases despite a relatively obvious diagnosis based on imaging as histologic assessment of the resected mass eventually led to the true diagnosis of cystic metastasis from occult papillary thyroid cancer.

In conclusion, benign conditions, particularly branchial cysts,^[9] constitute the underlying cause in the majority of patients with cervical masses. Nonetheless, malignant conditions such as occult papillary thyroid carcinoma must be taken into consideration. This case report emphasizes that a strong clinical suspicion is essential in the work-up of solitary neck masses despite an apparently benign course. This also applies to patients with no apparent history or risk factors of malignant disease. Also, FNA should be performed in all patients with cervical masses to prevent misdiagnosis solely based on imaging and allow for adequate surgical planning.

Author contributions

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