

# Papillary Thyroid Carcinoma Metastasis Presenting As A Purely Cystic Lesion In The Neck

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## Citation

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## Abstract

Local lymphatic spread is common in patients with papillary thyroid carcinoma (PTC). Lymph node metastasis to the neck may undergo cystic degeneration which consequently delays the diagnosis and the treatment of underlying thyroid malignancy. In this study we presented 3 PTC patients with a cystic lesion in the neck as the only finding on physical examination. A benign etiology was considered initially, but papillary thyroid cancer was reported after surgical excision of the lesions. All patients underwent thyroid surgery and cervical lymph node dissection subsequently.

## INTRODUCTION

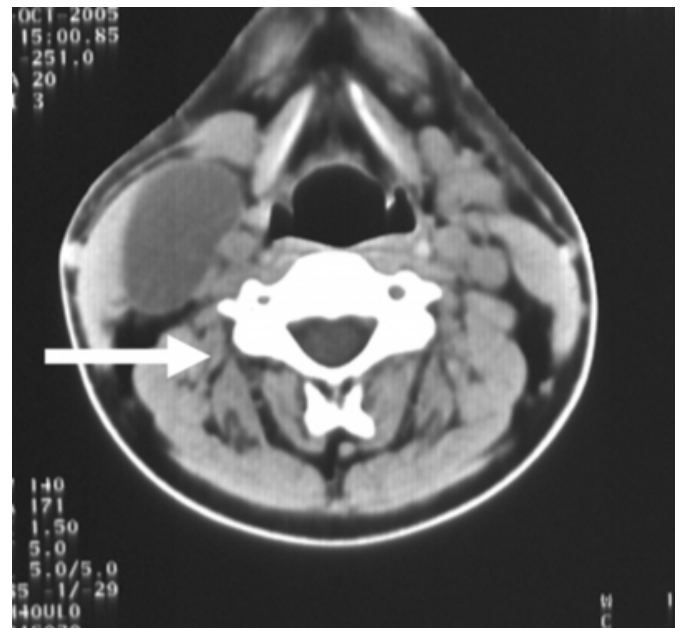
Papillary thyroid carcinoma (PTC) is the most common type of endocrine tumors and constitutes approximately 1% of all malignancies. It usually presents as a mass in the thyroid gland but presentation as a lump in the neck is not rare (1). Lymph node metastasis from PTC may rarely undergo cystic transformation (2). It may be indolent and mimic the clinical course of a benign lesion which consequently delays the diagnosis and treatment of the underlying malignancy. In this study we described three PTC patients presenting with a cervical cyst as the initial finding.

## CASES

**Patient 1:** A 21-year old male noticed a slow growing painless cervical mass 5 months ago. On computerized tomography (CT), a purely cystic solitary lesion which is 25X20X15 mm in size was detected in the right lateral neck (Figure 1).

## Figure 1

Figure 1: A purely cystic lesion (white arrow) was detected on CT of the neck. The lesion was removed by surgery and metastatic papillary carcinoma was reported.



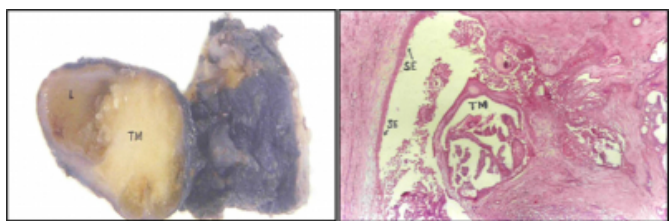
The thyroid scan was normal but a hyper-echoic area suspicious for a nodule in the very upper pole of right thyroid lobe was reported in ultrasonography (US). Fine needle aspiration was performed from the cystic lesion but no malignancy was reported. Metastatic papillary thyroid carcinoma was detected when the lesion was removed by surgery. The patient underwent a second cervical dissection and total thyroidectomy. The tumor was 1.1 cm in size adjacent to the upper pole of the right thyroid lobe.

Patient 2: A painless mass in the right lateral neck was detected in a 28-year old male during a routine check-up. On MRI, a cystic lesion 70X45X20 mm in size on the left lateral neck and a semisolid lesion 40X35X20 mm in size on the right lateral neck were detected. The patient noted no enlargement or pain and did not refer to a physician visit for the following 2 years. A hypoactive lesion in thyroid scan, approximately 15 mm in size was detected in right lobe of the thyroid. Fine needle aspiration was performed to both cervical lesions and the nodule in the thyroid however no malignancy was reported in cytology. The semisolid mass on the right lateral neck was removed surgically and metastatic papillary carcinoma was reported. The patient had total thyroidectomy and bilateral cervical lymph node dissection. The histopathology revealed lymph node metastasis in both of the cervical lesions with a multi-focal tumor sites the greatest 3 mm in size in the thyroid.

Patient 3: A 25-year old female presented with a painless mass in the neck. A cystic lesion 2.1X1.5X0.5 mm in size in the midline in the neck overlying the hyoid bone and moving with swallowing was detected in US. The thyroid gland was normal. A fine needle aspiration biopsy was performed with US-guidance from the solid part of the cystic lesion and papillary thyroid carcinoma was reported with cytology. The cyst and the tract extending to the foramen caecum at the base of the tongue were resected with Sistrunk procedure in addition to total thyroidectomy. Papillary thyroid carcinoma arising from the thyroglossal duct cyst 1 cm in size was noted histologically (Figure 2).

**Figure 2**

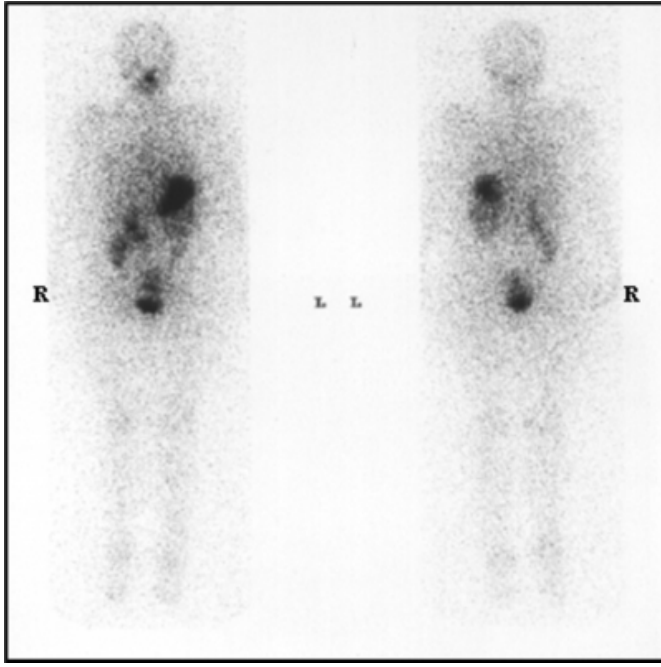
Figure 2: The gross appearance (A) and the primary papillary carcinoma arising in thyroglossal duct cyst (B) (L: Lumen, TM: Papillary tumor).



All patients were evaluated for persistent thyroid malignancy or any residual thyroid tissue and treated with high dose I-131. Routine laboratory tests including the measurement of serum thyroglobulin/anti-thyroglobulin and a low-dose diagnostic radioiodine whole-body scan were performed in the surveillance period (Figure 3). The clinical and pathological findings of the cases are summarized in Table 1.

**Figure 3**

Figure 3: Diagnostic radioiodine scan with no iodine avid residual or metastatic thyroid carcinoma 6 months after radioablation in the patient with papillary thyroid carcinoma arising from thyroglossal duct cyst.



**Figure 4**

Table 1: Clinical Features of the Papillary Thyroid Carcinoma Patients Presenting with a Cystic Lesion in the Neck

No	Age/Gender	Duration	USG	Results of FNA	Pathologic features
1	21/Male	5 months	Cystic lesion in right submandibular area, 25x20x15 mm in size; the thyroid gland was normal in US.	Malignancy negative	Metastatic papillary Ca in the cystic lesion with a primary tumor of 1.1 cm in the thyroid.
2	28/Male	2 Years	Cystic lesion in left supraclavicular area 70x45x20 mm and a semisolid lesion in right submandibular area 40x35x20 mm in size; a nodular lesion 10 mm in size in the right thyroid lobe	Malignancy negative, (from both the cervical lesions and thyroid nodule)	Metastatic papillary carcinoma with multiple foci of tumor the greatest 3 mm in size
3	25/Female	1 year	Cystic lesion in the midline of the neck, 2.1x1.5x0.5 mm in size; the thyroid gland was normal	Papillary Ca	Papillary Ca arising from thyroglossal duct, 1 cm in size

**DISCUSSION**

A cystic lesion in the neck may prove to be a branchial cyst, teratoma, epidermoid cyst, cystic hygroma, squamous cell carcinoma, dermoid cyst, branchiogenic carcinoma or squamous cell carcinoma of the head and neck. Any underlying malignancy must be considered if the patient is 40 years and older while the diagnosis is usually a congenital cervical cyst in the younger patients (3). Papillary thyroid carcinoma spreads to local lymph nodes in approximately 36% to 40% of the patients and it may rarely present as a cystic cervical lesion (4,5). The cystic metastasis may not

progress in size over time and mimic the clinical course of a benign lesion (6). It may be diagnosed as a branchial cyst or cystic hygroma incorrectly thereby the diagnosis and the treatment of the underlying malignancy would be delayed.

Fine needle aspiration biopsy (FNA) is a practical procedure that can be used in evaluating the cervical lumps suspicious for malignancy. However it is of limited importance if performed to semisolid or cystic lesions. The sensitivity and specificity of the procedure can be increased if performed along with US, but, FNA may still fail if the lesion is purely cystic and has no solid part. We had not been able to establish a diagnosis preoperatively with FNA performed to the cystic lesions in 2 of our patients.

The diagnosis of PTC can be even harder in case of an occult primary in the thyroid gland in patients with a cyst in the neck (7). In one of the patients FNA performed to the cervical cyst and the nodule in the thyroid were negative however multi-focal tumor the greatest 3 mm in size were reported histologically. Interestingly a single nodular lesion approximately 15 mm in size was detected in thyroid gland of the same patient.

Thyroid papillary carcinoma may rarely originate from thyroglossal duct remnants located in the midline of the neck. It is seldom diagnosed preoperatively because the majority of the lesions are purely cystic (8). The median age is usually the fourth decade, but we presented a 25-year-old female in our study. Ozturk et al. has also presented an 11-year old boy with papillary carcinoma arising in a thyroglossal duct cyst (13). The primary tumor had already been detected with FNA preoperatively in our patient and a single operation including cervical dissection was

performed. A yellowish-gray solid tumor 1 cm in size was reported histologically. The thyroid gland was also removed by surgery; it was normal completely. The mode of surgical treatment in patients with PTC arising from thyroglossal duct is still controversial. Some authors suggest a Sistrunk procedure in patients with no sign of disseminated disease while others prefer additional neck dissection and thyroidectomy.

### **CONCLUSION**

Any cystic lesion in the neck should be assumed as malignant until proven otherwise. An FNA from the solid part of the cystic lesion would be of great value to establish the diagnosis preoperatively which certainly saves time and avoids unnecessary surgery.

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