

## Case Report

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# A Diagnostic Dilemma of Lateral Neck Cyst: A Lesson Learnt

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### Abstract:

*Large cystic mass is an unusual presentation of papillary thyroid carcinoma, accounting for less than 10% of cases. To make a diagnosis of papillary thyroid carcinoma is challenging since the tumour can mimic a benign lateral neck mass. Therefore, a systematical approach to a patient with neck lump is required so that accurate diagnosis and appropriate treatment can be made. We present a case of a 25-year-old female presenting with an asymptomatic left neck cystic mass diagnosed as a metastatic lymph node of papillary thyroid carcinoma only after surgery.*

**Keywords:** Cystic neck mass, Papillary thyroid carcinoma, lateral neck mass, metastasis

### Introduction:

Neck swelling is one of the most common chief complaint in otolaryngology department and may represent a diagnostic challenge. Most of the lateral neck cystic swelling are proven to be benign in 90% of patients in the young adult age<sup>1</sup>. However, in older adults with this presentation, it is crucial to exclude metastatic tumour especially of head and neck region. Papillary thyroid carcinoma is the most common form of thyroid cancer and it can appear as a solid or cystic neck mass. Even though, only 6.2% of all the lymph node

metastasis were purely cystic<sup>2</sup>, it is crucial to include cystic nodal metastasis in the diagnosis of neck mass so that it would not be missed and appropriate management can be carried out to the patient.

### Case Report:

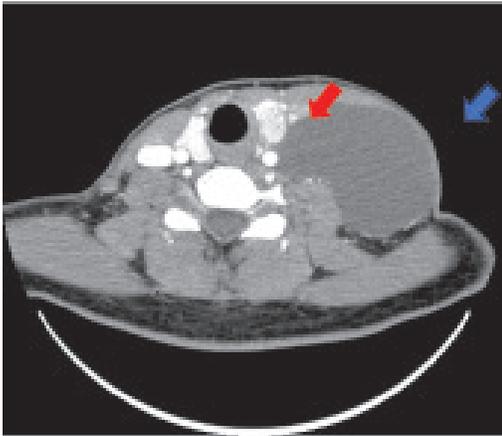
A 25-year-old female patient presented with a painless left sided neck swelling, progressing slowly over the past 4 years. She has no constitutional symptom or local compressive symptom. Clinically, patient was euthyroid. There was an 8x10cm soft, non-tender cystic mass at her left lateral of the neck. The overlying skin was normal. Cervical lymph nodes were not enlarged. Laryngoscopy was performed, no abnormality was seen.

Thyroid function test was normal. In view of the above findings, a clinical diagnosis of left brachial cyst was made. Contrast-enhanced computed tomography (CT) scan of the neck showed multiloculated thin-walled, hypodense

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cystic mass predominantly at posterior triangle of the left neck, deep to the sternocleidomastoid muscle, measuring 5.5 x 6.1 x 10.4cm in size. There was presence of enhancing septa within, no calcification or enhancing solid component seen. There was also a solid nodule in the left thyroid lobe, measuring 1.2 x 0.8 x 1.2 cm with multiple enlarged cervical lymph nodes bilaterally, largest at left neck (Figures 1).



**Figure 1:** Axial contrast-enhanced CT image shows large hypodense cystic mass at left side of the neck (blue arrow) with nodule in the left thyroid lobe (red arrow).

Fine needle aspiration and cytology of the swelling revealed smears of abundant macrophages against a background of watery colloid and blood. No ductal follicular cells were seen. No atypical or malignant cells. Attempts made to reach the left thyroid nodule for aspiration and cytology however failed.

The patient underwent surgical exploration. Intra-operatively, multiple lobulated blackish left neck cysts resembling cystic degenerative lymph nodes were visualised, largest at level III measuring 5x6cm (Figure 2). There were few satellite lesions at left level II, III and IV seen and excised. Incisional biopsy of left thyroid

nodule was also performed as there was a strong suspicion of malignancy.



**Figure 2:** Intraoperative photo showing large lobulated mass at left level III, measuring 5x6cm (red arrow) and satellite lesion (blue arrow).

Histopathological report showed papillary thyroid carcinoma. Thus, total thyroidectomy with left modified radical neck dissection was performed. 3 cystic degenerative lymph nodes over supraclavicular region attached to left internal jugular vein and fibrofatty tissue were removed together with the other lymph nodes. The final histopathological examination of the specimen reported, papillary thyroid carcinoma with metastatic nodes obtained from paratracheal and supraclavicular region. The patient made an uneventful recovery. 3 months post-surgery, the patient received radioactive iodine therapy and suppressive thyroxin therapy.

#### Discussion:

Most of the lateral neck cystic swellings are proven to be benign in 90% of patients in the young adult age<sup>1</sup> and the most common differential diagnosis of a cystic lateral neck mass is brachial cleft cyst<sup>3</sup>. They are usually unilateral, typically seen in the lateral part of

the neck and clinically apparent in late childhood or early adulthood.<sup>4</sup> Conversely, more than 75% of lateral neck masses in population older than 40 years old are caused by malignant tumour and the incidence of neoplastic cervical lymphadenopathy continues to increase with age<sup>5</sup>. Therefore, in older adults with this presentation, it is crucial to exclude metastatic tumour especially of head and neck region.

In this case report, we described a case of young adult female with a slow growing mass on the lateral part of the neck with uncertain radiological and histopathological findings. She was being diagnosed with metastasis lymph node of papillary thyroid carcinoma only after surgery. Papillary thyroid carcinoma with nodal cystic metastasis is rare, accounting only 6.2% of all the lymph node metastasis.<sup>6</sup> Because of the rarity of this cystic presentation, and it can mimic benign cyst clinically, the diagnosis may be missed and subsequently affecting the management.

Through this case report, we would like to point out that correct diagnosis during pre-operative workup is challenging yet crucial because unnecessary surgery or complication can be avoided. A systematic approach should be followed when dealing with neck mass as it can be a common clinical presentation with broad differential diagnosis including malignant disease. A detailed history and proper physical examination help to categorize the mass to be of infective, inflammatory, autoimmune, or neoplastic in nature and this information can aid in narrowing down the diagnosis.

Besides that, the role of imaging is also important as it can enhance the accuracy of preoperative diagnosis. Ultrasound is regularly used initially to confirm the cystic nature of the lesion.<sup>2</sup> Meanwhile, complementary imaging modalities such as CT scan and magnetic resonance imaging

(MRI) can provide information on the cyst location and the extension, co-existing thyroid nodule, presence of solid components, calcification and cervical lymphadenopathy that allows optimal preoperative planning. The advantages of MRI over CT scan include better soft tissue resolution, safer contrast agents and lack of ionizing radiation.<sup>2</sup> By comparison CT scan offer the advantages of superior assessment of bony structures, shorter examination time, wider patient access and lower cost.<sup>2</sup> Calcification is the hallmark of papillary thyroid carcinoma. In this case, apart from the cystic lesion demonstrated in the CT, there was also small thyroid nodule with cervical lymphadenopathy but there was no calcification or enhancing solid components seen. These appearances were not consistent of papillary thyroid carcinoma.

Hence, we faced a shadow of doubt in making the diagnosis. We continue the investigation by performing fine needle aspiration and cytology (FNAC). However, our diagnosis remains unclear as the FNAC reported as colloid fluid only. A study showed FNAC is less sensitive in diagnosing cystic neck masses compared with solid masses with a false negative rate of 50-67% but the accuracy can be increased if it is done sonographically because we can obtain material from both wall and solid part of the cyst<sup>7</sup>. On the other hand, based on consensus guidelines by Society of Radiologist in Ultrasound (SRU) on the management of thyroid nodules detected on sonography, nodule should undergo ultrasound guided FNA. Ideally, in this case we should perform ultrasound guided FNA of the cystic mass and thyroid nodule as this can help in establishing a diagnosis.

Our patient underwent surgical exploration after all the investigations were inconclusive and she was diagnosed with papillary thyroid

surgery postoperatively. Thus, another operation which was, thyroidectomy with left modified neck dissection was performed 2 months later. In relation to this, intraoperative frozen section can be done if there is high index of suspicion of malignancy to avoid multiple surgeries.

In conclusion, this case draws our attention to the importance of systematic approach in dealing with lateral neck cyst cases so that diagnostic dilemma can be improved. A systematic approach is crucial to ensure that the diagnosis of papillary thyroid carcinoma would not be missed as the course of management can be vary from another benign cyst of the neck.

**Conflict of Interest:**

The authors declare no conflicts of interest.

**Acknowledgement:**

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