Cystic neck metastases in a silent papillary thyroid carcinoma mimicking benign lesion: an unusual presentation

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ABSTRACT

Papillary thyroid carcinoma (PTC) is the most common thyroid malignancy worldwide. It accounts for more than 80% of all thyroid malignancies. Women in the age group of 40 to 50 years old are most commonly affected. Patients with PTC usually present with goitre. However there are increasing reports of microcarcinoma of PTC. Fine needle aspiration cytology is considered the best investigation to diagnose a thyroid nodule pre-operatively. A non-goitre thyroid lesion is challenging to diagnose. We report an unusual presentation of PTC in a young female presenting with a lateral cystic neck mass. This reported incidence of this manifestation is less than 2%.

Keywords: papillary thyroid carcinoma, cystic neck mass, goitre, lymphangioma

INTRODUCTION

Papillary thyroid carcinoma (PTC) is the most common type of thyroid malignancy. [1] The presentation of papillary thyroid malignancy varies. PTC is more common in female with a ratio 3:1. [2] It predominantly affects middle-aged group, usually in the range of 40 to 50 years old. [3] A solitary thyroid nodule especially in the elderly or male patients is regarded as malignancy until proven otherwise. A cystic mass is most likely a presentation of a benign lesion. PTC presenting with a cystic mass is uncommon. [4]

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CASE REPORT

A 20-year-old Malay lady presented with a history of a slowly progressive painless neck swelling of a year duration. There was no dysphagia, difficulty in breathing, hoarseness, hyperthyroidism, hypothyroidism symptom or other constitutional symptoms. There was also no family history of thyroid or head and

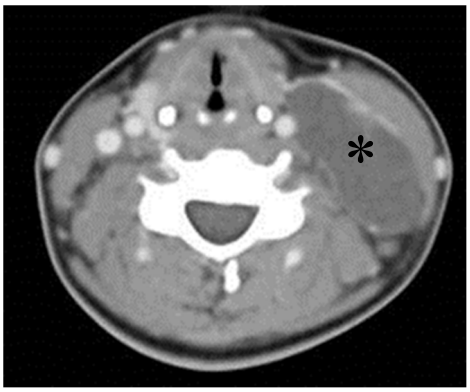


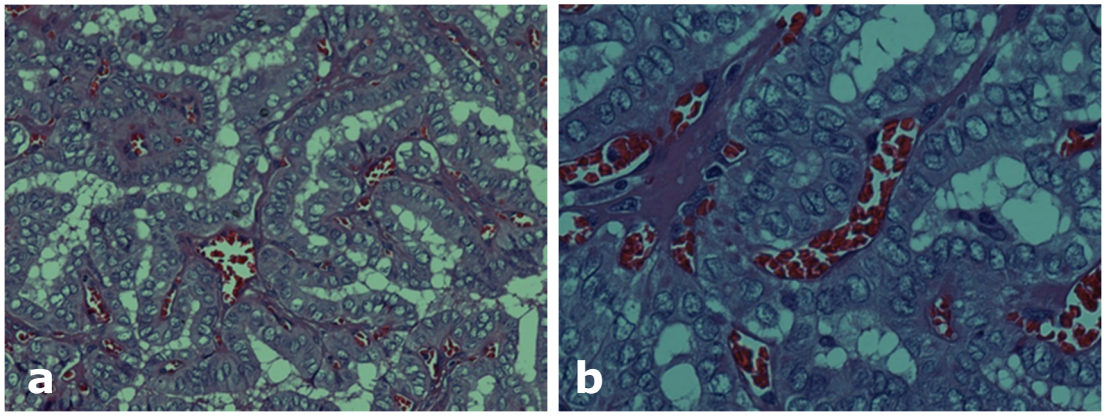
Fig. 1: Axial computed tomography scan showing multilocular, thin wall-enhancing hypodense lesion (asterix) located deep to the left sternocleidomastoid muscle and posterior to the left submandibular gland. The lesion insinuates in between the left carotid artery and internal jugular vein.

neck cancers**.** On examination, a soft, non-pulsatile smooth-surfaced cystic mass was noted on the left neck measuring 6cm x 4cm. The overlying skin was normal and the trans-illumination test was negative. The mass did not move with swallowing or tongue protrusion. There was no change in size during Valsalva maneouver. The mass was firmly attached to the underlying structure. The thyroid gland was not enlarged. There was no palpable cervical lymph node. The 70 degree laryngoscopy showed symmetrical vocal folds with normal movement.

Thyroid function test was normal, and subsequent computer tomography (CT) scan of neck was performed to determine the nature and extent of the mass. CT scan revealed a multiloculated thin-walled enhancing hypodensed lesion seen located deep to the left sternocleidomastoid muscle and posterior to the left submandibular gland (Fig. 1). The lesion insinuates medially to involve the left parapaharyngeal space. The mass slightly compressed the internal jugular vein but the internal carotid artery was normal. There was no enlarged cervical lymphadenopathy and the trachea was central. The thyroid gland was normal with small nodule in the left lobe. Both the parotid glands as well as the lung apices were normal. The CT scan findings were more suggestive of a lymphangioma or second branchial cleft cyst. Fine needle aspiration cytology (FNAC) was performed and reported as clear fluid with only inflammatory cells seen. No malignant cells were present.

The patient underwent excision of the mass under general anaesthesia with a diagnosis of a second branchial cleft cyst. Intraoperatively, a multilobulated cystic well-encapsulated lesion was noted in the left neck, bluish in color and closely attached to internal jugular vein but separable from it. It was located deep and postero-inferior to the sternocleidomastoid muscle. Intraoperative findings were consistent with the preoperative diagnosis. The patient recovered well and was discharged three days post surgery.

Interestingly, histopathological examination (HPE) of the mass later revealed presence of solid area and papillary projection on cut section. Microscopically, the cyst wall lining showed papillary tumour lined by elongated, overlapping crowded nuclei with nuclear clearing, grooving and few pseudo-inclusion. In some area the cyst wall is lined by single layer of cuboidal epithelium. Lymphocytic aggregates with occasional germinal center are also seen within the wall. No capsular breach was seen (Fig. 2a). In view of the histopathological report of papillary thyroid tumour based on microscopic features of nuclear changes of PTC which includes nuclear clearing and overlapping, she underwent a total



Figs. 2: a) presence of solid area and papillary projection in microscopic cut section and b) microscopic appearance of papillary thyroid carcinoma with elongated, overlapping crowded nuclei with nuclear clearing, grooving and few pseudo-inclusion.

thyroidectomy (Fig. 2b). Intra-operatively, we found left thyroid lobe showed multiple whitish nodular. The right lobe appeared normal. Histopathological examination then confirmed the diagnosis of PTC involving both lobes of thyroid gland plus follicular adenoma of the right lobe. This patient was then referred for radioactive iodine (RAI) ablation therapy. During her last follow up which was nine months after completion thyroidectomy, patient was well and there was no recurrence noted.

DISCUSSION

PTC is the commonest type of thyroid malignancy. [5] Prognosis of PTC is good with 20-year survival rate of 80% to 90% after surgery and RAI ablation therapy. [7] However other factors which also contribute to the prognosis of the disease include age, underlying disease and stage of the tumour at initial presentation.

Clinical examination of the neck in patient with PTC depends on the presentation of thyroid mass. Presentation varies from diffuse goiter, solitary nodule or cystic mass. CT scan sometimes is helpful in evaluating the nature of the lesion, extension of the mass, relationship to the adjacent structures and presence of cervical nodes. FNAC is not an exclusive gold standard to diagnose thyroid malignancy but fine needle aspiration biopsy (FNAB) is the best first-line diagnostic procedure especially in follicular thyroid malignancy. [8] FNAB has higher accuracy rate but is less sensitive compared to FNAC. FNAC provide information on the cellularity of a cell but cannot differentiate between follicular adenoma or carcinoma on the basis of cytomorphology. Therefore, FNAB has a high overall diagnostic accuracy of 95% for all head and neck masses, 95% for benign lesions, and 87% for malignant ones. [9] Therefore partial or total thyroidectomy is the best surgical approach to get confirmatory HPE diagnosis.

Common causes of cystic neck lesion in adults are sebaceous cyst, second branchial cleft cyst and lymphangioma, however a rare case of cystic metastatic neck disease should be considered as differential diagnosis. [10] PTC may manifest with various clinical presentations that initially may mimics benign features

of thyroid mass. Therefore, early and accurate diagnosis is important. PTC usually appear solid, but those with predominant cystic changes which are more than half of the nodule of thyroid mass can be observed in 2.5%-6%, but fortunately, the proportion of the cystic component in PTC did not affect the prognosis of the patient. [11] Although cystic thyroid mass is an uncommon presentation of PTC, exclusion of malignancy is required.The prevalence of malignancy in a thyroid nodule was 2.6-12.9% in children and young adolescents in which PTC accounts for 95-98%. [12] In our patient, the diagnosis of PTC was only achieved after the excision of cystic neck mass through HPE, rendering the patient to undergo total thyroidectomy for excision of the primary tumour.

In some suspicious thyroid case, it is beneficial for the surgeon to make a decision for frozen section microscopy (FSM) in areas that are highly suspicious of malignancy to avoid revision surgery. [11] The sensitivity and specificity were 13.0% and 97.3% for FNAC respectively. The sensitivity and specificity for FSM were 17.4% and almost 100% respectively. On the contrary, the combination of FNAC plus FSM did not significantly improve the results. Although the combination for FNAC and FSM are highly specific tests, their sensitivity is low depending on the centre. However, FSM has its limitation depending on the centre with adequate facilities and an experienced technologist and pathologist.

Treatment of PTC generally involves completion total thyroidectomy with or without neck dissection followed by RAI ablation therapy. This usually takes a course of four to six weeks post-surgery to detect and remove any metastasis and residual thyroid tissue. The decision for RAI ablation therapy is based on the presence of risk factors including tumour size more than 1 cm, lymph nodes metastasis, and age more than 45 years old, extra-thyroidal extension, macroscopic postoperative residual disease in the neck or presence of distant metastasis. [13] Our patient underwent RAI ablation therapy and was successfully cleared from the tumour. PTC has a propensity to invade the lymphatic but is less likely to invade blood vessels. Between 10% and 11% of PTC tends to metastasise outside the neck and mediastinum. [14] There were many studies that reported surgery of PTC is sufficient by total thyroidectomy with RAI ablation therapy although a few studies report prophylactic neck dissection is needed. [15] The prognosis following surgery and RAI ablation therapy for PTC is good which account 80% to 95% of 5 years survival rate. However the prognosis is better in younger age compared to patient of more than 45 years old.

In conclusion, in view of variety of presentation of thyroid malignancy, a PTC presenting with lateral cystic neck mass can be easily missed. Thus it is very important to follow up the patient and review each and every HPE report of specimen sent from any procedure.

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