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## Metastatic papillary thyroid carcinoma with absence of tumor focus in thyroid gland

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### Summary

**Background:**

Papillary thyroid carcinoma presenting as isolated cervical lymphadenopathy with clinically and histologically normal thyroid gland is rarely reported.

**Case Report:**

We report a case of 31 years old female who presented with a left cervical mass and clinically normal thyroid gland. After inconclusive FANC, excision biopsy of her cervical lymph nodes revealed metastatic papillary thyroid carcinoma. The patient subsequently underwent total thyroidectomy with bilateral lymph node dissection. Interestingly pathological examination showed no primary carcinoma in the gland. Postoperative radioactive iodine scan revealed no other metastasis.

**Conclusions:**

Total thyroidectomy is the next best step despite clinically and radiologically normal appearing thyroid gland once cervical lymph nodes are proven to be metastatic in nature followed by a RAI therapy to treat occult foci of PTC.

**key words:**

**papillary thyroid micro carcinoma (PTMC) • fine needle aspiration cytology (FNAC) • computed tomography (CT) • papillary thyroid carcinoma (PTC)**

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## BACKGROUND

Papillary thyroid cancer is the most common among other types of thyroid malignancies. It usually presents as palpable thyroid mass or nodule. It is sometimes associated with hoarseness, dysphagia, stridor or pain. Isolated cervical lymphadenopathy in such cases is rare and hence poses a diagnostic challenge.

## CASE REPORT

HZ is a 31 year female with no past medical problems who recently has emigrated from Afghanistan and was referred to ENT clinic by primary care physician for painless left neck mass which has been gradually increasing in size since nine months. She had no associated fever, weight loss, night sweats. Physical exam showed left, mobile mass of two centimeter with firm consistency anterior to scalene muscle at level 3. Family and social history was unremarkable. Computed tomography (CT) scan neck revealed two enlarged LNs along the left carotid space with predominant central attenuation along with multiple sub centimeter bilateral submandibular LNs. Incidentally Left upper lobe nodule was also seen without any associated intrathoracic lymphadenopathy.

Patient underwent FNA of the left cervical LN twice, both were inconclusive and hence excision biopsy was performed under general anesthesia. LNs were dissected from level 2 and level 3 and sent for frozen section analysis, bacterial, mycobacterial and fungal cultures. The LN at level 3 revealed finding consistent with metastatic papillary carcinoma. The immunohistochemical study of tumor cells was positive for thyroglobulin hence confirming the diagnosis. PPD and serum quantiferon-TB Gold were negative. Three Sputum samples for acid fast bacillus were negative as well. The detailed examination of head and neck along with Flexible fiberoptic laryngoscopy was negative for any suspicious lesions.

PET scan showed multicentric hyper metabolic areas in bilateral neck. Subsequently patient underwent total thyroidectomy, central compartment neck dissection, bilateral levels 2 to 4 neck dissection, parathyroid auto transplantation. RAI therapy was instituted postoperatively to treat occult foci of PTC. Careful pathologic examination of thyroid gland however was surprisingly negative for the presence of primary carcinoma.

Radio iodine nuclear scan performed three months later, did not showed any uptake at left upper lobe nodule. Serial CT scans chest failed to reveal any change in size or shape and hence was deemed benign per fleischner criteria. Patient was started on lifelong thyroxine supplement and currently following in pulmonary clinic with no new symptoms.

## DISCUSSION

The most common presentation of thyroid cancers is a palpable thyroid nodule. Less frequently it can present as recurrent laryngeal nerve palsy, cervical cyst, parapharyngeal mass, distant metastasis and isolated cervical lymphadenopathy, as in our patient. The majority of palpable cervical lymph nodes is located at the mid jugular (48%) and lower

jugular lymph node (29%), posterior triangle (9%), upper jugular lymph nodes (9.7%) and submandibular lymph nodes (3.2%) [1,2]. Even though cervical lymphadenopathy as a sole presenting sign of metastatic thyroid carcinoma has been reported as much as 13.4% by some series [1], it is usually uncommon. In other case series the incidence of clinical and/or radiological lymphadenopathy at the time of cancer diagnosis is estimated at 20 to 25% for all sizes of thyroid tumors combined [3,4]. Metastatic thyroid cancer should be considered in patients presenting primarily with cervical lymphadenopathy despite clinically normal thyroid gland. Further evaluation is also necessary to exclude other primary malignancies of head and neck region.

Diagnostic options to evaluate these enlarged cervical lymph nodes include ultrasound, radionuclide scans, Computed tomography (CT) scan, magnetic resonance imaging (MRI) and Fine needle aspiration (FNA). Twenty five percent of patient with thyroid malignancy may have normal thyroid imaging which poses a diagnostic challenge. High index of suspicion is necessary to rule out papillary thyroid cancer in these patients [1,2]. One plausible reason to evade detection by clinical and radiological exam is the size of tumor particularly micro carcinomas. Papillary thyroid micro carcinomas (PTMCs) are small (<10 mm) thyroid cancers. In the past, many PTMCs were found on pathology specimens from thyroid removed for benign diseases, such as multinodular goiter, follicular adenoma, and Graves' disease.

The ultrasonographic features which suggest presence of metastatic papillary carcinoma in cervical lymph nodes include cystic masses with thickened and irregular inner lining [5]. Fine needle aspiration cytology (FNAC) from accessible lymph nodes should be performed as initial step as it has a high diagnostic accuracy of thyroid cancer [6]. In the event of inconclusive FNAC, careful neck incision may be placed for open biopsy without jeopardizing the future outcome of neck dissection [1]. Similarly CT scan and MRI can be utilized to further localize lymphadenopathy at retropharyngeal and parapharyngeal spaces.

The recommended treatment of patients with thyroid cancer presenting with cervical lymphadenopathy is total thyroidectomy with appropriate ipsilateral and/or modified contra lateral modified radical neck dissection. The prognosis is usually good when surgery is followed by radionuclide scanning and lifelong thyroid supplementation [7,8].

## CONCLUSIONS

Papillary thyroid cancer presenting as isolated cervical lymphadenopathy is a rare occurrence. Despite clinically and radiologically normal appearing thyroid gland, the appropriate next best step is total thyroidectomy once these lymph nodes are proven to be metastatic in nature. When it is followed up by postoperative radionuclide scan and lifelong suppressive thyroxine, outcome is usually favorable. The interesting observation in our patient was the total absence of tumor foci during microscopic examination of postoperative thyroid specimen. Ectopic thyroid gland in cervical region is always a possibility as well as missed microscopic tumor focus during histological examination.

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