

## An Interesting Case of Retropharyngeal Lymph Nodal Metastases in a Case of Iodine-Refractory Thyroid Cancer

### Abstract

Metastases to cervical lymph node are fairly common in differentiated thyroid cancer. In iodine-refractory disease, the disease may persist in the thyroid bed, cervical lymph nodes, lungs, or the bones commonly. Retropharyngeal lymph nodal involvement in thyroid cancer is unusual and may even be the presenting complaint. We represent a case of iodine-refractory thyroid cancer with retropharyngeal lymph nodal involvement in addition to lung metastases.

**Keywords:** Fluorodeoxyglucose Positron emission tomography, papillary thyroid cancer, TENIS retropharyngeal node

### Introduction

Papillary thyroid cancer (PTC) spreads commonly to the cervical central and lateral compartmental lymph nodes. Retropharyngeal lymph nodal involvement is unusual in thyroid cancer. Some patients develop iodine-refractory disease during the course of treatment. We present a case of retropharyngeal lymph nodal metastases in a patient with iodine-refractory thyroid cancer.

### Case Report

A 65-year-old female was referred to the nuclear medicine department for management of recurrent thyroid cancer. The patient gave a history of total thyroidectomy 15 months before at a different hospital. Histopathology revealed PTC. The tumor size, lymphovascular invasion, and capsular invasion status were not known. No further evaluation or radioiodine treatment was performed.

The patient now presented with a swelling in the neck and was referred to a surgical oncologist for possibility of repeat surgery. After thorough evaluation, the patient underwent excision of recurrent thyroid bed lesion, left modified radical neck dissection, and central compartment neck dissection. Histo-pathological examination showed recurrent PTC, with 12 of the 18 excised nodes showing evidence of metastases from PTC.

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Postoperative whole-body iodine scan (WBS) was performed which showed remnant thyroid tissue. Her stimulated thyroglobulin was 131.04 ng/ml and antithyroglobulin level was 0.6 IU/ml (at thyroid-stimulating hormone [TSH] level of 56 microU/ml).

In view of the lateral compartmental lymph nodal disease and high stimulated thyroglobulin levels, she was administered 5.55 GBq (150 mCi) of 131-iodine. Posttherapy scan showed uptake in the thyroid bed and another suspicious focus of tracer uptake in the thorax which was suspected to be lung metastases.

She was started on a suppressive dose of thyroxine and her unstimulated thyroglobulin level at 3 months of radioiodine therapy was 21.9 ng/ml. At 6 months, after thyroxine withdrawal, WBS was performed which was negative. However, her stimulated thyroglobulin had increased to 250.92 ng/ml (at TSH 65.9 microU/ml).

In view of negative WBS and rising thyroglobulin levels, a whole-body fluorodeoxyglucose (FDG) positron emission tomography-intravenous contrast-enhanced computed tomography (PET-ceCT) was performed within a week of WBS before commencing thyroxine.

FDG PET-ceCT showed intense FDG uptake in the thyroid bed with superior

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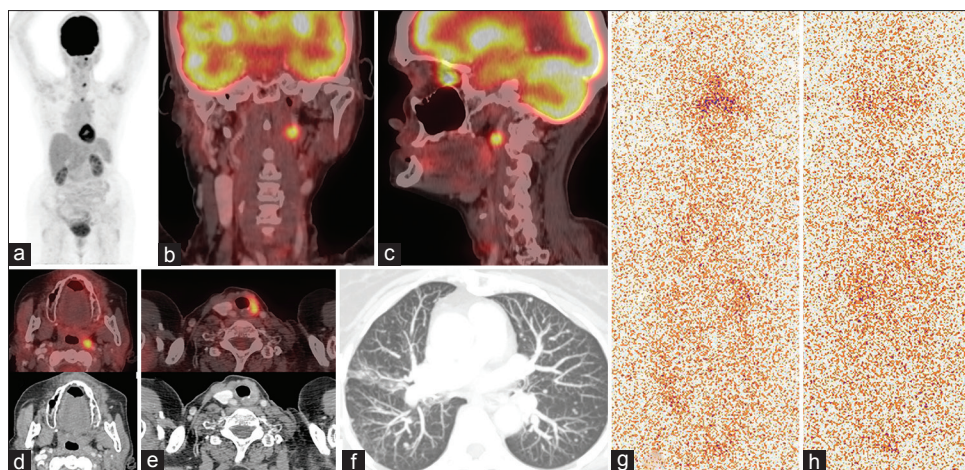
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**Figure 1:** Whole-body fluoro-deoxy glucose Positron emission tomography-intravenous contrast-enhanced computed tomography of a patient with rising thyroglobulin despite adequate treatment with radioiodine. Whole-body MIP (a) showed intensely fluoro-deoxy glucose avid foci in the upper neck, thyroid bed, and superior mediastinum. The focal lesions were localized to the left retropharyngeal lymph node (b-d), thyroid bed (e), and mediastinal node (not shown). In addition, there were tiny lung nodules (f). Whole-body iodine scan performed earlier was negative (g and h)

mediastinal and retropharyngeal lymph nodal metastases [Figure 1]. In addition, there were multiple tiny lung nodules. Hence, a diagnosis of residual thyroid with cervical and retropharyngeal lymph nodal and lung metastases was made.

The patient was offered treatment with sorafenib, but the patient did not agree for the same. The patient is on thyroxine suppression and asymptomatic as on the last follow-up.

## Discussion

PTC comprises 70%–80% of differentiated thyroid carcinomas. Lymph nodal involvement can be noted in approximately 40%–50% of cases.<sup>[1]</sup> Lymph nodal involvement is common in the cervical central and lateral compartmental lymph nodes. Retropharyngeal lymph nodal metastases are extremely rare. Till 2011, only 39 cases of histologically proven retropharyngeal nodal metastases have been published.<sup>[2]</sup>

Metastases to the retropharyngeal lymph nodal group are through two pathways: retrograde lymphatics from the jugular chain lymphatics and direct pathway through superior thyroid pole by posterior lymphatic trunks. Direct pathway is reported to exist in 20% of the patients.<sup>[3]</sup>

Retropharyngeal lymph nodal metastases may present at initial presentation<sup>[4,5]</sup> or during follow-up after initial therapy as in our index case. Rarely, the retropharyngeal lymph nodal involvement may also be bilateral.<sup>[2]</sup> Retropharyngeal lymph nodal involvement in PET scan may also be due to metastases from head-and-neck squamous cell carcinoma, which is also easily identified on PET. In our index case, there was no evidence of any primary head-and-neck squamous cell carcinoma.

Surgical resection can be attempted when the retropharyngeal lymph nodal metastases is resectable

without evidence of distant metastases. Complications such as hematoma, paralysis of soft palate, temporary aspiration and difficulty in swallowing, and dysphagia are documented after surgery.<sup>[6]</sup>

For patients who are not amenable to surgery, the therapeutic options include radioiodine therapy if the lesion is iodine avid, external beam radiotherapy, and tyrosine kinase inhibitors.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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