# Primary Squamous Cell Carcinoma of Thyroid – A Rare Case Report

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## INTRODUCTION

Primary squamous cell carcinoma (SCC) of thyroid is extremely rare & represents less than 1 % of all primary thyroid malignancies. Their diagnosis and management pose a challenge and their prognosis is very poor with a median survival rate of less than 6 months due to their aggressive local manifestations & distant metastasis. One should exclude the possibilities / presence of other primary focuses of squamous cell carcinoma, which could metastasize to thyroid.

## PRESENTATION OF CASE

A 61 years old woman, resident of Mukundapur, Kolkata, presented at H & N outpatient department (OPD) of SGCCRI on 29 July 2017, with complaints of lump in front of neck since the past one year, which was initially small. The lump gradually increased in size but it followed rapid progression in size within the next 5 to 6 months. Initially, it was not associated with pain, but she started experiencing pain at anterior neck since the last 3 months, dull aching, radiating to the back and chest. The pain aggravates on swallowing solid foods. She then had change of voice since the last 2 months followed by difficulty in breathing & swallowing for the past 2 weeks. She had an apparent weight loss of approx. 10 kgs since the last 1 year.

On examination, her general survey was essentially normal. On local examination of the neck, there was a 7 cm x 6 cm ovoid, firm to hard, solitary lump at anterior neck (left side), involving the thyroid region, extending laterally up to anterior border of left sternocleidomastoid (SCM) muscle; above up to the lower border of the thyroid cartilage & below at the level of supra sternal notch, but no retrosternal extension. Medially, it crosses the midline of neck, involving the right lobe of thyroid. The surface of the tumour is smooth at periphery & roughness at the center with diffuse inferior margin. The skin over the lump pigmented with purulent discharge. The local temperature was raised with severe tenderness. There is fixity of overlying skin to the lump. The mobility of the lump is restricted with slight movement on deglutition. There are no palpable cervical lymph nodes, no signs of thyrotoxicosis. The patient had hoarseness of voice and odynophagia on solid foods. Prior to attending SGCCRI, she took consultation at another multispecialty hospital in Kolkata, where she underwent ultrasonography (USG) of neck (heterogeneous right lobe of thyroid measuring 1.36 x 1.11 cm. Isthmus heterogeneous. Complex, heterogeneous space occupying lesion (SOL) occupying entire left thyroid fossa encroaching the surrounding soft tissues, measuring 3.95 x 2.87 cm. No significantly enlarged neck nodes. Thyroid imaging reporting and data systems (TIRADS) 5. Common carotid artery (CCA) & internal jugular vein (IJV) of both sides look normal.); Fine needle aspiration cytology (FNAC) (in addition to routine test).

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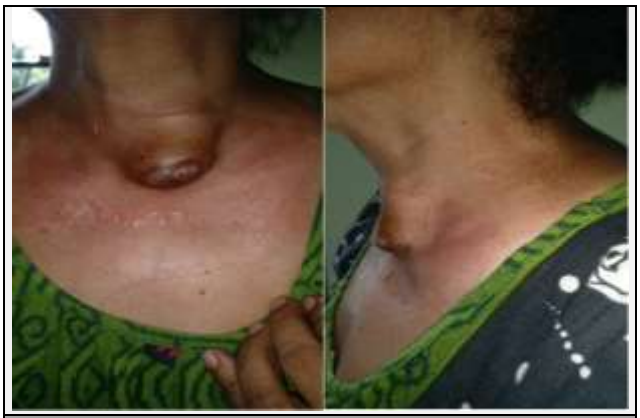

***Figure 1. Tissue Blocks of Thyroid Nodule Biopsy were Reviewed and IHC Done at SGCCRI***

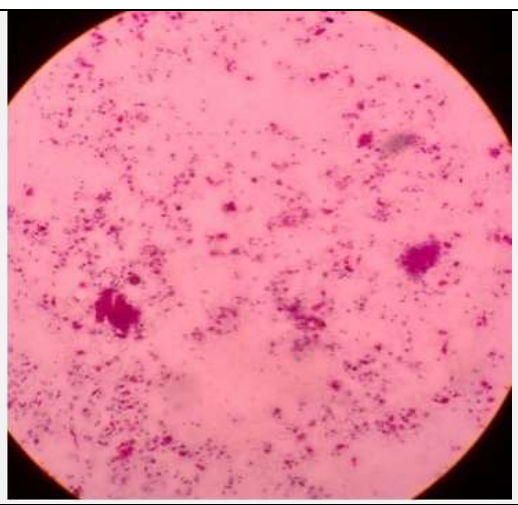

***Figure 2. Sheets of Atypical Cells with Orangeophilic Cytoplasm and Dysplastic Squamous Cells in a Necro Inflammatory Background Suggestive of Squamous Cell Carcinoma (PAP 10X). Thyroid Follicular Epithelial Cells Not Seen***

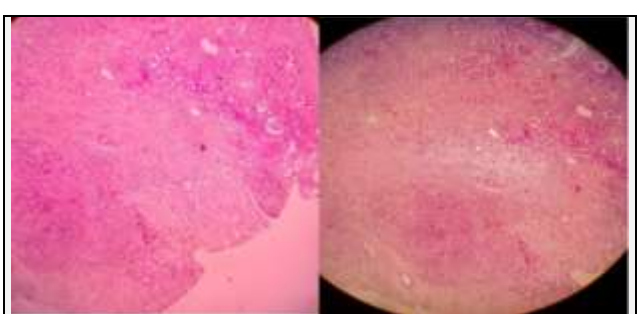

***Figure 3. Photomicrograph of Thyroid Nodule Showing Infiltration of Normal Thyroid Follicles by a Carcinoma. (H & E 10X)***

Contrast enhanced computed tomography (CECT) neck & thorax of this patient were also done and the computerised tomography (CT) neck findings were corroborating with USG neck findings with tracheal infiltration and CECT thorax revealed suspicious lung metastasis. A whole-body positron emission tomography (PET) CT scan was done (as per discussion at tumour board), which revealed metabolically active large nodular lesion at left lobe of thyroid with left cervical lymphadenopathy (SUV max – 26.07).

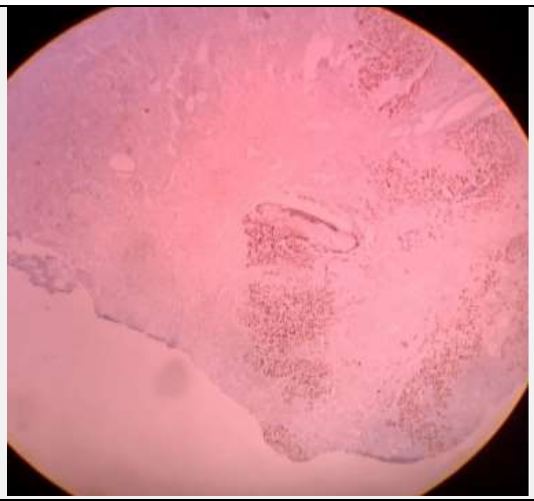

***Figure 4. Photomicrograph of IHC by p63, Which is Immunoreactive in Infiltrating Carcinoma (IHC p63 10X)***

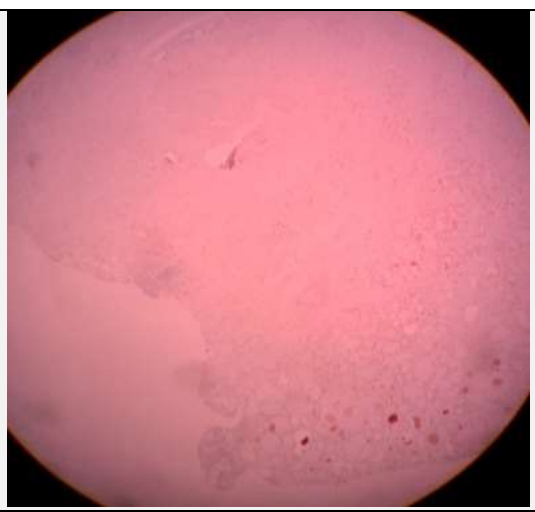

***Figure 5. Photomicrograph of IHC by PAX8, Which is also Reactive in the Resident Thyroid Follicles. (IHC PAX8 10X). The Importance of PAX8 is PAX8 is Positive in Anaplastic Cell Carcinoma, Which is the First Differential Diagnosis of Squamous Cell Carcinoma***

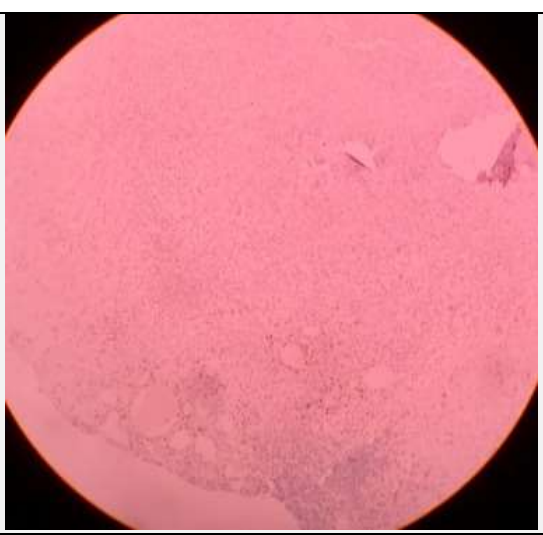

***Figure 6. Photomicrograph of IHC by TTF1 Which is Reactive in the Residual Thyroid Follicles (IHC TTF1 10X)***

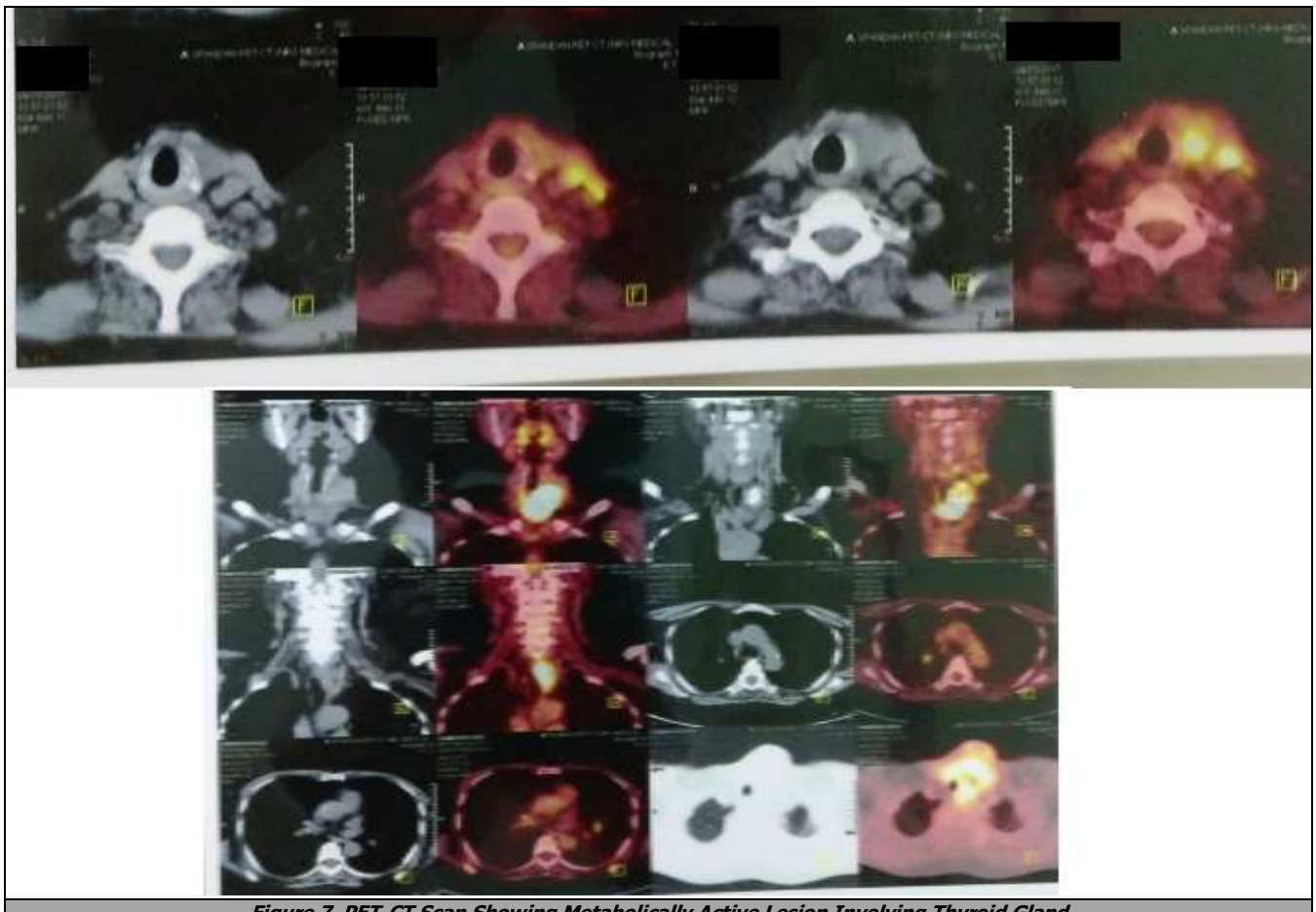

***Figure 7. PET-CT Scan Showing Metabolically Active Lesion Involving Thyroid Gland***

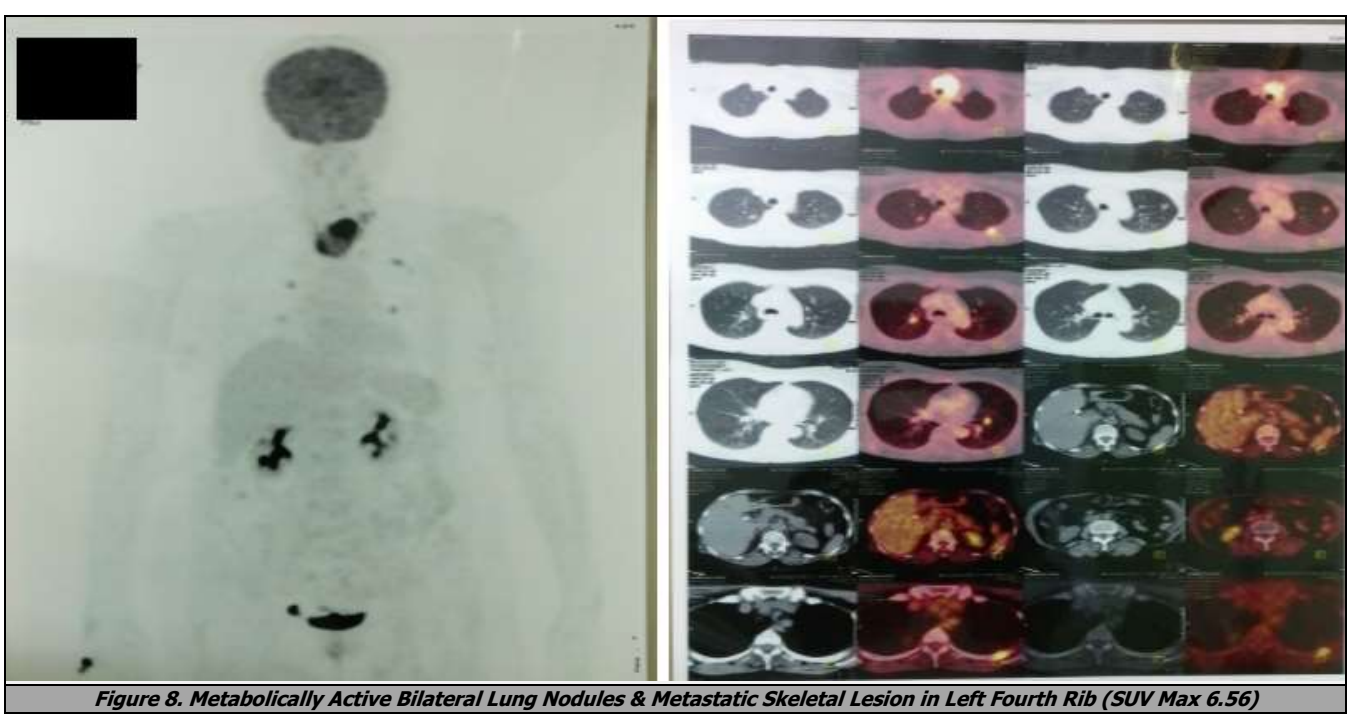

***Figure 8. Metabolically Active Bilateral Lung Nodules & Metastatic Skeletal Lesion in Left Fourth Rib (SUV Max 6.56)***

This rare case was discussed on MDT meeting. Surgery was not advised due to evidence of distant metastasis. On assessing patient's eastern cooperative oncology group (ECOG) status & all relevant investigation reports and in view of metastasis, palliative radiotherapy to the neck was advised.

During the course of radiotherapy, patient had respiratory distress with stridor. Hence, she underwent emergency tracheostomy, following which radiotherapy resumed. However, after 21 fractions of radiotherapy, patient's general condition worsened with severe respiratory distress (even with tracheostomy), probably due to tracheal

infiltration of the growth below the lower end of the tracheostomy tube, eventually resulting in death.

## DISCUSSION

Primary squamous cell carcinoma of thyroid is extremely rare & represents only less than 1 % of all primary thyroid malignancies.[1] Very few literatures regarding primary squamous cell carcinoma of thyroid are available worldwide. Their diagnosis and management pose a challenge and their prognosis is very poor with a median survival rate of less than 6 months[2] due to their aggressive local manifestations & distant metastasis. One should exclude the possibilities / presence of other primary focuses of squamous cell carcinoma, which could metastasize to thyroid.

Primary squamous cell carcinoma thyroid is extremely rare as thyroid gland lacks squamous epithelium, though secondary squamous cell carcinoma may occur (but rare) because of metastasis. It affects usually older female patients between the fifth and sixth decade and with a history of goiter.[2] In the majority of cases, the patients present with a rapidly enlarged anterior neck mass, with features of infiltration and compression of adjacent neck structures (dysphagia / odynophagia / respiratory difficulty / hoarseness). Metastatic cervical lymph nodes may or may not be present. The differential diagnosis, which should be considered, includes anaplastic carcinoma of thyroid, metastatic squamous cell carcinoma, and carcinoma showing thymus like differentiation (castle) but it shows less biological aggressive course along with positive immunoreactivity for CD5.[3,4] Since thyroid gland lacks squamous epithelium, various theories have been suggested regarding its aetiology

- The embryonic nest theory suggests that the squamous cells are derived from the remnants of thyroglossal duct or the epithelium of the thymus.[5]
- Secondly, the metaplasia theory suggests that these cells are present because of environmental stimuli (inflammation and Hashimoto's thyroiditis).[6]
- Thirdly, the de-differentiation theory suggests that existing papillary, follicular, medullary and anaplastic thyroid carcinoma de-differentiate into SCC.[7]

In a rare case report of primary SCC of thyroid by Konstantinos Sapalidis et al. they emphasized that surgical excision of primary SCC of the thyroid gland (total thyroidectomy with neck dissection) when possible is the optimal therapy. This evidence based on the works of chemo and radiotherapy rarely have place in its treatment as this malignancy has a poor response to chemotherapy and in many cases, it is radio-resistant[8]. Median survival of these patients is around 6 months.

Complete surgical resection (Ro) of the tumours is the only significant prognostic factor, whereas the role of adjuvant treatment (chemo and radiotherapy) remains controversial. Median survival rate is 6 months, due its aggressive nature of spread (loco-regional & distant).

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## REFERENCES

[1] Rahulkumar NC, Bhargav C, Cinjini B, et al. Primary squamous cell carcinoma of thyroid: a rare entity. Case Rep Pathol 2015;2015:838079.
[2] Sapalidis K, Anastasiadis I, Panteli N, et al. Primary squamous cell carcinoma of the thyroid gland. Journal of Surgical Case Reports 2014;2014(12):rju133.
[3] Kakudo K, Bai Y, Ozaki T, et al. Intrathyroid epithelial thymoma (ITET) and carcinoma showing thymus-like differentiation (CASTLE): CD5-positive neoplasms mimicking squamous cell carcinoma of themthyroid. Histology and Histopathology 2013;28(5):543-556.
[4] Lui JT, Khalil N, Chandarana SP. Primary squamous cell of the thyroid—an abbreviated clinical presentation. Journal of Otolaryngology—Head & Neck Surgery 2014;43(1):17.
[5] Goldberg HM, Harvey P. Squamous cell cysts of the thyroid with special reference to the etiology of squamous epithelium in the human thyroid. Br J Surg 1956;43(182):565-569.
[6] Chaudhary RK, Barnes EL, Myers EN. Squamous cell carcinoma arising in Hashimoto's thyroiditis. Head Neck 1994;16(6):582-585.
[7] Kebapci N, Efe B, Kabukcuoglu S, et al. Diffuse sclerosing variant of papillary thyroid carcinoma with papillary squamous cell carcinoma. J Endocr Invest 2002;25:730-734.
[8] Syed MI, Stewart M, Syed S, et al. Squamous cell carcinoma of the thyroid gland: primary or secondary disease? J Laryngol Otol 2011;125(1):3-9.