

# Small Cell Carcinoma of Thyroid with Subglottic Extension - An Undifferentiated Variety and a Rare Case Report

Shwetima Chaudhary<sup>1</sup>, Vinay Sagar<sup>2</sup>, Rajendra Kumar<sup>3</sup>

<sup>1</sup>Junior resident, Department of Radiation Oncology, King George's Medical University, Lucknow, India

<sup>2</sup>Consultant, Department of Internal Medicine, Max Super Speciality Hospital, Dehradun, India

<sup>3</sup>Professor, Department of Radiation Oncology, King Georges Medical University, Lucknow, India

**Abstract:** A case of rare variety of undifferentiated small cell carcinoma of thyroid. The index patient is 55 years old male presented to us with huge neck swelling on both sides of neck and biopsy from subglottic region suggested small cell carcinoma of thyroid gland. Histopathological and its immunohistochemistry reports were consistent with this rare variant. Patient was investigated for metastasis and was inconclusive. This is a rare variant of thyroid carcinoma which should be treated aggressively keeping in mind its potential for metastatic spread.

**Keywords:** Thyroid, small cell carcinoma, subglottic region, rare variant

## 1. Introduction

Anaplastic thyroid carcinoma (ATC) is the most aggressive form of thyroid carcinoma and usually diagnosed at the age of 65 years or older. ATC originates from the thyroid follicular epithelium with little to no evidence of histologic differentiation. This tumor reflects its clinical behavior similar to its histological appearance. When diagnosed, most of the ATCs are extensively invaded, replacing most of the normal-appearing gland, and extending freely to perithyroidal tissues. They are usually accompanied by bulky metastatic lymphadenopathy and distant metastatic spread. Gross pathologic examination is characterized by widely infiltrative disease with areas of necrosis and hemorrhage. Various microscopic patterns have been described, including small cell, spindle cell, giant cell, squamoid cell, and pleomorphic cell. They are believed to be lesions that have dedifferentiated from more benign differentiated follicular neoplasms. We present this case due to its rarity, paucity of literature, and also to discuss the importance of serum tumor markers.

## 2. Case report

This is a 55 years old gentleman who hails from a district Hardoi in Uttar Pradesh presented to us with huge neck swelling from last six months. The swelling was initially small but within last 3 months these have enlarged to present size of 5x6 cm on the right side and 6x7 cm on the left side of neck. On examination swelling moves on deglutition, hard in consistency

without venous engorgement, and reaching just above the suprasternal notch. High resolution ultrasound of neck revealed enlarged right lobe of thyroid and a presence of nodule with heterogeneous echo-texture measuring 4x2.7cm, left lobe of thyroid is enlarged in size with heterogeneous echo-texture nodule measuring 4.2x2.2 cm, and isthmus is thickened 2.2 cm in size with heterogeneous echo-texture. In addition, ultrasound also showed few enlarged deep cervical lymph nodes on left side of neck of size 2x1.8 cm and a heterogeneous echotexture space occupying lesion measuring 3.6x3cm was also noted in neck region on the right side with another heterogeneous echotexture space occupying lesion measuring 3.7x2.6cm on left side of neck. CECT neck with thorax suggested ill-defined poorly enhancing soft tissue lesion measuring 6.4x3cm seen involving both lobes of thyroid gland and isthmus. Lesion showed ill-defined interface with adjacent tracheal wall causing mild narrowing of trachea and also with adjacent esophageal wall anteriorly. Heterogeneously enhancing soft tissue lesion 2.36x3.8 cm was seen in lower cervical region invading adjacent part of internal and external jugular vein and focally abutting carotid artery. Lesion was infiltrating overlying subcutaneous fat plane. Similar type of heterogeneously enhancing soft tissue lesion is seen in the left lower cervical region measuring 1.9x2.35x3.39 cm and this was abutting common carotid artery and invading left internal jugular vein.

## 3. Discussion

Small cell carcinoma of thyroid is a histological entity. We report this case as it has raised a diagnostic dilemma, and enough literature was not available on this condition. Hence, abundant reports and studies are necessary to know more about the biological behavior and genetic mutations. Such cases must be investigated appropriately, treated aggressively, and use CEA as a tumor marker for diagnosis and surveillance if calcitonin is not elevated.



Fig. 1. Showing clinical presentation of patient

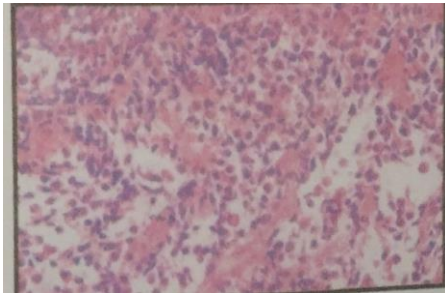


Fig. 2. Section examined shows diminutive biopsy comprising of a poorly differentiated carcinoma with brisk mitotic activity.

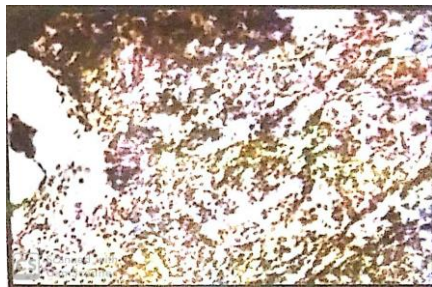


Fig. 3. CEA (2-7(MONO)) positive

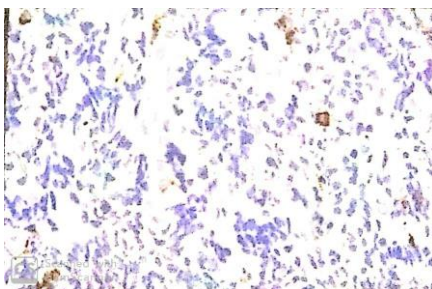


Fig. 4. Calcitonin (EP92) negative

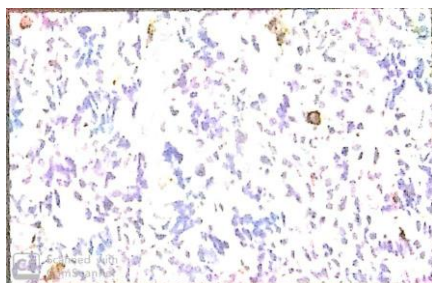


Fig. 5. LCA (CD45) negative

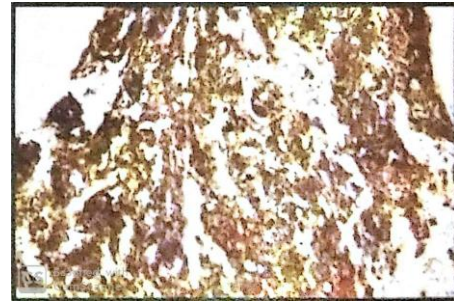


Fig. 6. Chromogranin a (polyclonal) positive

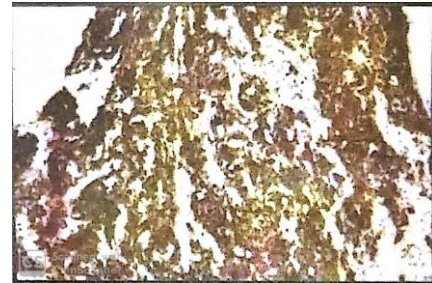


Fig. 7. Synaptophysin GR 007 positive



Fig. 8. KI67 (MIB-1) 90%

#### 4. Conclusion

Patient had been assessed by onco-surgeon since the inception and was declared inoperable. We have started chemotherapy based on histopathology. Patient has received three cycles of chemotherapy (cisplatin and etoposide) and has shown regression in the bulk of disease (non-significant) and relief in symptoms of dyspnea. The main reason to bring this case to notice that this rare variant of thyroid carcinoma needs more studies in term of discovering tumor markers for diagnosis and surveillance and formulating chemotherapy regimen for satisfactory amelioration of disease.

#### References

- [1] Matias-Guiu X, DeLellis R, Moley JF, Gagel RF, Albores-Saavedra J, Bussolati G, et al. Medullary thyroid carcinoma. In: DeLellis R, Lloyd R V, Heitz P U, Eng C, editors. Pathology and Genetics of Tumours of Endocrine Organs. 3rd ed. Lyon: International Agency for Research on Cancer; 2004. p. 86-91.
- [2] Carcangiu ML, Steeper T, Zampi G, Rosai J. Anaplastic thyroid carcinoma. A study of 70 cases. *Am J Clin Pathol* 1985; 83:135-58.
- [3] Rosai J, Saxen EA, Woolner L. Undifferentiated and poorly differentiated carcinoma. *Semin Diagn Pathol* 1985;2:123-36.
- [4] Giovannella L, Crippa S, Cariani L. Serum calcitonin-negative medullary thyroid carcinoma: Role of CgA and CEA as complementary markers. *Int J Biol Markers* 2008;23:129-31.

- [5] Trimboli P, Giovanella L. Serum calcitonin negative medullary thyroid carcinoma: A systematic review of the literature. *Clin Chem Lab Med* 2015;53:1507-14.
- [6] Eusebi V, Damiani S, Riva C, Lloyd RV, Capella C. Calcitonin freeoat-cell carcinoma of the thyroid gland. *Virchows Arch A Pathol Anat Histopathol* 1990; 417:267-71.
- [7] Brutsaert EF, Gersten AJ, Tassler AB, Surks MI. Medullary thyroid cancer with undetectable serum calcitonin. *J Clin Endocrinol Metab* 2015;100:337-41.