

A RARE CASE OF ANAPLASTIC THYROID CARCINOMA IN A TERTIARY CARE CENTRE, ASSAM

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ABSTRACT:

Background: Thyroid carcinoma is an uncommon malignancy that accounts for roughly 1% of all new cancer. Anaplastic thyroid carcinoma constitutes less than 1% of thyroid carcinoma, they represent over half of thyroid cancer related deaths. **Case Report:** 45-year-old female presented with chief complaint of left sided neck swelling, dysphagia, heat intolerance, decreased appetite and weight loss. Swelling was insidious in onset, gradually progressive associated with pain. USG - solid cystic lesion in the left lobe of thyroid having TIRADS IV lesion. CECT-neoplastic growth involving left lobe of thyroid gland. On FNAC- Anaplastic carcinoma of thyroid, The Bethesda System for Reporting Thyroid Gland Cytopathology – Category VI (Malignant). Patient underwent total thyroidectomy with central compartment neck dissection. Histopathology- Undifferentiated (Anaplastic) carcinoma NOS. **Conclusion:** Anaplastic thyroid carcinoma is most aggressive of all thyroid cancers. Median survival is 4 months and 1 year survival rate is 10 - 20%. Usually presents at around 60 years of age with female predominance.

BACKGROUND:

The incidence of thyroid cancer has been on an increase around the world in the last three decades. The majority of the newly diagnosed cases are of differentiated thyroid cancers (DTC), with papillary thyroid cancer being the most common. Less than 1% of these newly diagnosed cancers are reported as anaplastic thyroid carcinomas^{1,2,3}. Anaplastic thyroid cancer (ATC) is the most aggressive form of cancer of the thyroid, they represent over half of thyroid cancer related deaths. Median survival is 5 months and 1 year survival rate is 20%.⁴

Globocan 2020 data showed that 20,432 new cases of Thyroid cancer were diagnosed in India in 2020, with Crude rate of 1.5 per million population.^{5,6} The last population-based cancer registry from India projects that 38,574 new cases of thyroid cancer would be seen in India in 2025.⁷

Fine-needle aspiration cytology (FNAC) is the first investigation for any thyroid swelling to reach a diagnosis.^{1,8,9} Some time, core biopsy (preferably ultrasound guided) is required to reach a definitive diagnosis.¹⁰ ATC has many histopathological variants.¹¹ Histopathological diagnosis still remains the gold standard of diagnosis.

CASE HISTORY:

45-Year-Old Female complains of anterior neck swelling since 3 months along with dysphagia, heat intolerance, decreased appetite & weight loss. Swelling was insidious in onset, gradually progressive, associated with dull aching pain, moderate in intensity with tingling sensation. On Local Examination, regular, firm to hard swelling of size 4cm x 4cm present in the anterior aspect of the neck which moves with deglutition. Video Laryngoscopy within normal limits. Thyroid Profile: TSH – 2.041 μ lU/ml, Free T4 – 1.34 ng/dl, Free T3 – 2.69 pg /ml. USG of neck reveals a well-defined taller than wider solid cystic lesion measuring 3.9 x 4.6 is noted in left lobe of thyroid, not taking vascularity on colour doppler study. Impression: features suggestive of TIRADS IV lesion in left lobe of thyroid. CECT base of skull to root of neck: a large solid cystic lesion with enhancing wall and septa is noted involving left lobe of thyroid gland, measuring approximately 4.8(AP)x5.3(TR)x4.5(CC) cm. Few coarse calcifications were noted within the lesion. The lesion pushes the trachea and oesophagus to the left side. Impression: Features suggestive of neoplastic growth involving left lobe of thyroid gland. (Fig.1)



Fig 1: Photograph of patient and CECT film.

CYTOLOGICAL EXAMINATION:

Fine needle aspiration cytology (FNAC) showed large, atypical, pleomorphic, bizarre tumor cells having binucleation with hyperchromatic nuclei, irregular nuclear membrane, coarse chromatin & prominent nucleoli. Occasionally Intranuclear cytoplasmic inclusion noted. Few multinucleated (tumor) giant cells noted in a background of extensive necrosis and scant colloid. Impression: **Anaplastic carcinoma of thyroid Bethesda System for Reporting Thyroid Gland Cytopathology:¹² Category VI (Malignant).** (Fig.2)

TREATMENT:

Patient underwent total thyroidectomy with central and level II and IV neck dissection at Head and neck oncosurgery department, Dibrugarh cancer centre. Specimen has been sent to Pathology department for histopathological examination.

HISTOPATHOLOGICAL EXAMINATION:

Grossly: left lobe of thyroid shows a mass measuring 8x7x4 cm, external surface smooth. On serial slicing, the entire lobe is replaced by a solid cystic tumor with areas of blood mixed colloid. Right lobe and isthmus grossly unremarkable.

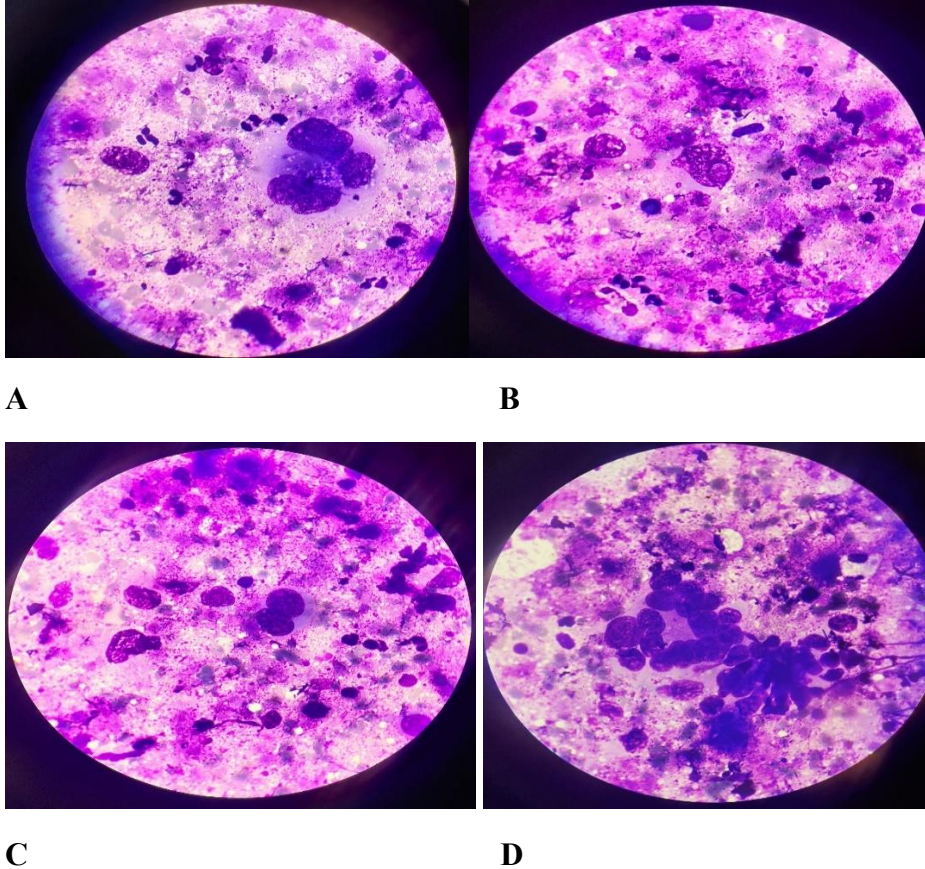


Fig 2: *A. Multinucleated tumor giant cell (Giemsa 40x) B. Intranuclear inclusion, C, D. Large atypical bizarre tumor cell in a necrotic, scant colloid background.*

Microscopy: Tumor cells arranged in sheets, nests and fascicular pattern. Tumor cells are large, spindled, highly pleomorphic, having multiple nuclei and abundant eosinophilic cytoplasm. Areas of angioinvasion noted. (Fig. 3)

Tumor Site: Unifocal

Mitotic Count: 15/10HPF

Angio Invasion: Present

Tumor Necrosis: Present

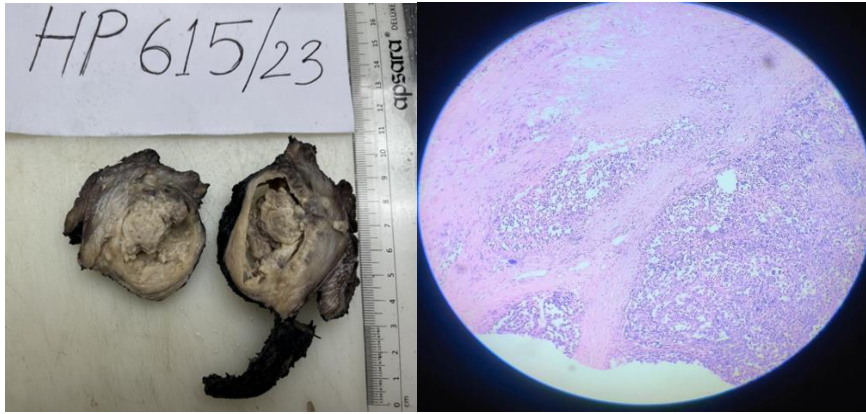
Lymphatic, Perineural and Extra Thyroidal Extension: Not Identified

Total 19 Lymph nodes were evaluated; all negative for metastasis.

Impression: **Anaplastic Thyroid Carcinoma, NOS**

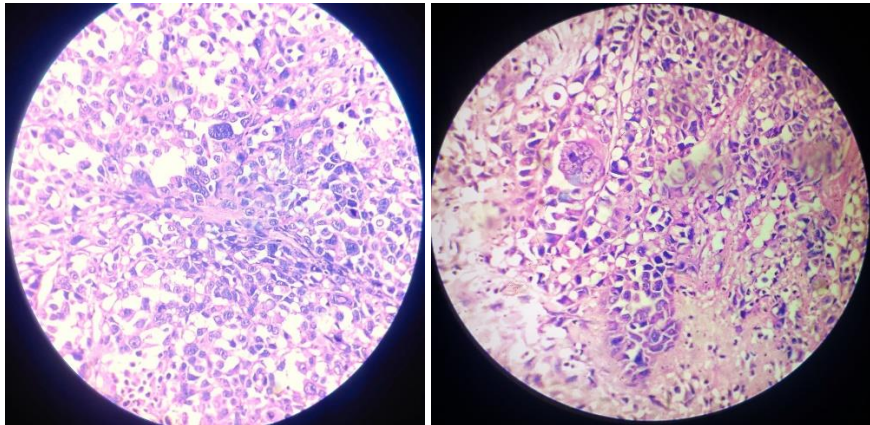
Pathological Staging: pT3a pN0

Immunohistochemistry: Cytokeratin, TTF-1, PAX-8 -Negative. (Fig.4)



A

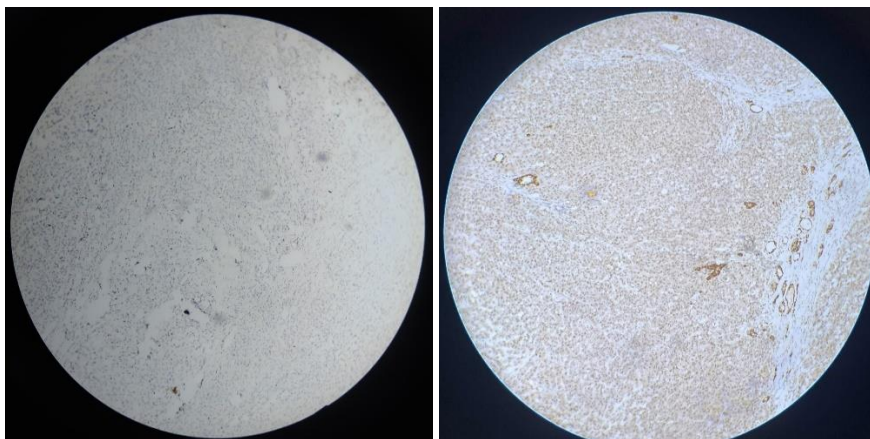
B



C

D

Fig 3 . A. Gross, B. Tumor cells in sheets,nests and fascicles.(H/E scanner view), C,D. large, spindled, highly pleomorphic cells, having multiple nuclei and abundant eosinophilic cytoplasm(H/E 40x).



A

B

Fig 4. IHC A. TTF1 Negative, B. PAX-8 Negative.

DISCUSSION:

ATC is a highly aggressive thyroid malignancy, composed of undifferentiated thyroid follicular cells.¹³ Rapidly enlarging bulky neck mass invading adjacent structures causing hoarseness, dysphagia, dyspnea.¹⁴ It accounts for less than 1% of thyroid carcinoma, but accounting for high mortality.¹ Medium age 60 - 70 years; F:M ratio- 2:1.¹⁵ Regional nodal metastases and vocal cord paralysis present in up to 40% and 30%.¹³ Up to 75% of patients have distant metastases (lung>Bone>Brain)¹³. Three major patterns or combination of patterns with large intervening areas of necrosis: Giant cell pattern, Spindle cell pattern and Squamoid pattern.^{14,16} ATC is associated with a preexisting differentiated thyroid cancer like papillary carcinoma.^{15,16} Immunohistochemistry (IHC): Positive for PAX8 (70-80%), but negative for both thyroglobulin (TG) & TTF-1.¹⁴ ATC is diagnosis of exclusion; hence, complete diagnosis depends on clinical correlation and imaging studies.^{14,15,16} Treatment- unresectable at presentation, some patients may undergo extensive surgery with curative intent along with adjuvant chemotherapy and radiotherapy. In Recent time, EGFR, VEGFR & ALK gene alteration are used as Targeted Therapy in some patients.¹⁴

Our patient was a 45-year-old female presented with chief complaint of left sided neck swelling, which was present for 3 months along with dysphagia, heat intolerance, decreased appetite and weight loss. Swelling was insidious in onset, gradually progressive associated with pain which was dull aching, moderate in intensity and progressive in nature along with tingling sensation. USG - solid cystic lesion in the left lobe of thyroid having TIRADS IV lesion. CECT-neoplastic growth involving left lobe of thyroid gland. On FNAC- Anaplastic carcinoma of thyroid, The Bethesda System for Reporting Thyroid Gland Cytopathology – Category VI (Malignant). Differential diagnosis: Metastatic Carcinomatous Deposits of Squamous Cell Carcinoma; Medullary Thyroid Carcinoma, giant Cell Type; Radioactive Iodine (I131) treatment effects and undifferentiated papillary carcinoma thyroid. Patient underwent total thyroidectomy with central compartment and left level 2, 4 neck dissection. Histopathology- Undifferentiated (Anaplastic) carcinoma NOS. Immunohistochemistry was performed and showed the tumor cells to be negative for TTF1 (clone: SP141), Synaptophysin (clone: SYPP), Chromogranin A (clone: EP38) and PAX-8 (clone: BC12).

CONCLUSION:

ATC highly aggressive malignant tumor,with positive PAX 8 (70-80%) expression and negative TG and TTF1 with median survival of less than 5 months.

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