

## Case Report- Cytological Diagnosis of Anaplastic Carcinoma of Thyroid- A Rare Finding

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**Abstract:** Anaplastic thyroid carcinoma [ATC] is one of the most aggressive of all human malignant diseases. It is a rare tumour accounting for 1% to 2% of all thyroid carcinomas. As the tumour presents at very advanced stage ATC is frequently resection is not possible. Rapid and accurate pretreatment diagnosis is required to attempt local-regional control and provide an early palliative treatment to patient. Here we present a case of anaplastic carcinoma of thyroid diagnosed on cytology where radiological findings were misleading. Thus emphasises importance of FNAC in early and initial diagnosis of tumour, which can have impact on treatment received by patient.

**Keywords :** Anaplastic carcinoma thyroid, cytology, radiological findings, spindle cells, squamoid

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### I. Introduction

Anaplastic thyroid carcinoma [ATC] is a rare highly malignant tumor that accounts for 1% to 2% thyroid carcinomas [1]. It arises from the follicular cells of the thyroid gland. Most cases of ATC develop in elderly patients [2,3]. The diagnosis of ATC is usually based on clinical examination and cytology, histology, imaging study and immunohistochemical study [4]. Here we present a case of anaplastic carcinoma of thyroid diagnosed on cytology where radiological findings were misleading. Thus emphasises importance of FNAC in early and initial diagnosis of tumour, which can have impact on treatment received by patient.

### II. Case Report

A 65 year old female presented with midline neck swelling since 4 months, associated with pain, dysphagia and hoarseness of voice. On local examination swelling was diffuse, approximately 10cm×10.5 cm, hard and tender with raised local temperature. USG revealed multiple well defined isoechoic to hypoechoic lesions in both lobes of thyroid. Few nodules show colloid degenerative changes within. No cervical lymphadenopathy seen. Diagnosis of multinodular goitre was given on USG.

#### 2.1 On Microscopy

The smears were highly cellular. The smears from both lobes of thyroid showed mainly bizarre malignant spindle shaped cells arranged in clusters and sheets and dispersed singly with nuclear pleomorphism, clumped chromatin and minute conspicuous nucleoli. Bizarre mononuclear cells showing squamoid differentiation and multinucleated giant cells also noted. Marked neutrophilic infiltrate and areas of necrosis seen in the background. Mitotic figures also noted. [Fig. 1,2,3] However histopathological correlation was not possible as patient's condition became critical and died shortly after.

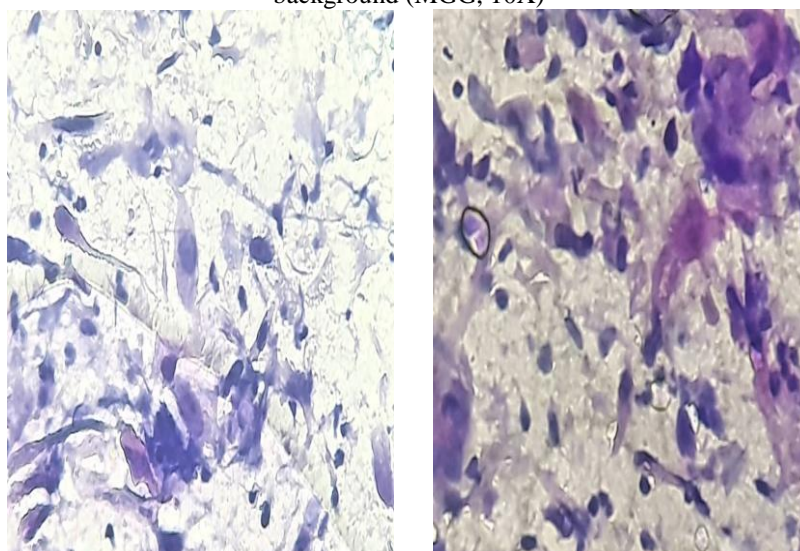
### III. Discussion

ATC is a rare highly malignant tumor that accounts for 1% to 2% thyroid carcinomas [5]. It arises from follicular cells of thyroid but does not retain any of the biological features of original cells such as uptake of iodine, thyroid function test are usually within normal limits [3]. Most cases of ATC develop in patients older than 60 years with about 55 to 77% female preponderance [6]. Clinically most commonly presents as a rapidly growing, painful, low anterior neck mass which is often firm and fixed to underlying structures [7]. Compressive symptoms including hoarseness, dysphagia, dyspnea and cough are frequent. Regional nodal metastases and vocal cord paralysis are seen in up to 40% and 30%, respectively, of the patients with ATC [8]. Over 70% of patients with ATC have direct invasion of surrounding tissues, such as fat, trachea, muscle, esophagus, and larynx [4]. Systemic metastases occur in up to 75% of patients, with lung being the most common site (80%), followed by bone (6% to 15%) and brain (5% to 13%) [7]. Patients often present at an advanced stage, making curative surgical resection not feasible.

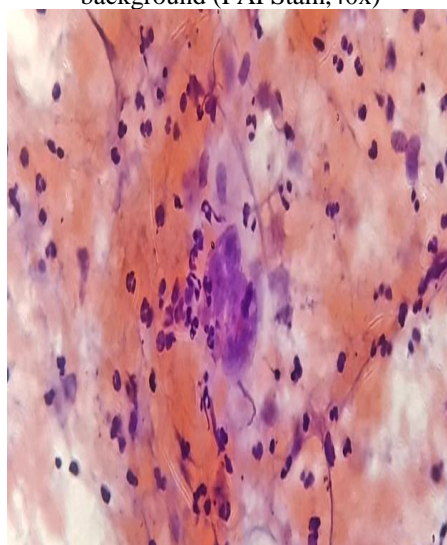
In the present study patient presented with compressive symptoms of dysphagia, dyspnea and hoarseness of voice. There was no cervical lymphadenopathy and no metastasis at the time of diagnosis. High resolution ultrasound is only 45% sensitive in diagnosing ATC with features of hypoechogenicity, irregular margins and vascularity. MRI are only useful for defining local extent of disease and for identifying distant metastasis while FNAC is reported to be 100% accurate in diagnosing anaplastic carcinoma of thyroid[9]. In our case also USG findings were of multinodular goitre and FNAC proved to be important in leading to accurate diagnosis. In the present study FNAC plays a valuable role in enabling the confirmation of diagnosis which enables the immediate provision of palliative care[10]. Three patterns of anaplastic carcinoma of thyroid are seen in cytology- spindle cell (53%), giant cell (50%) and squamoid (19%). All of them frequently coexist and has no effect on prognosis of patient. Present study showed all three patterns of cells. All ATC shows mitotic figures and necrosis[11]. Patients often present at an advanced stage of ATC, making it frequently unresectable. FNAC provides a rapid and accurate pretreatment diagnosis to attempt local-regional control and provide an early palliative treatment to patient

#### IV. Figures

**Figure 1 and 2** : Anaplastic carcinomas of thyroid- marked pleomorphic malignant spindle cells on necrotic background (MGG, 10X)



**Figure 3**- Anaplastic carcinomas of thyroid-large multinucleated giant cell with marked neutrophilic infiltrate in background (PAPStain,40x)



## V. Conclusion

Anaplastic thyroid carcinoma is one of the most aggressive of all human malignant diseases. It has an unfavorable prognosis. It presents at very advanced stage and is frequently unresectable. FNAC plays a valuable role in enabling the rapid and accurate pretreatment diagnosis and helps in an attempt of local-regional control and provide an early palliative treatment to patient.

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