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Anaplastic Carcinoma In A Young Female: An Incidental Finding In A Colloid Goitre

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ABSTRACT

Anaplastic carcinomas are the lethal thyroid neoplasms and have poor survival rate and prognosis. Pre existing well differentiated thyroid neoplasms can give rise to anaplastic carcinoma. Here, we report a case of anaplastic carcinoma in a young female in a colloid goitre as an incidental finding diagnosed by histopathological examination. Thyroid function tests showed suppressed TSH and elevated FT4 and FT3. Anti-thyroid hormone drugs were started. Thyrotropin receptor antibody was negative. USG neck showed single hypoechoic lesion in the periphery of the right lobe. A thyroid scan revealed focal hot and cold nodules and fine needle aspiration biopsy (FNAB) of the thyroid gland showed colloid nodule. Patient underwent right side lobectomy and final histopathology showed anaplastic thyroid carcinoma. Our case is interesting from a pathophysiologic perspective, since it suggests that nodular goiter can be associated with an aggressive form of thyroid carcinoma. We would like to emphasize that there should be a high index of suspicion in patients with nodular goiter for careful evaluation to detect any associated cancer.

Keywords: Anaplastic carcinoma, Colloid goitre, Incidental, Thyroid

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INTRODUCTION

Amongst the thyroid carcinomas, anaplastic carcinomas are the most aggressive and the rare tumours. They account for less than 2 % of all thyroid neoplasms.¹ They usually arise from pre existing well differentiated thyroid carcinoma or de novo.

The incidence of malignancy is 9.0% in the toxic and 10.58% in the non-toxic multinodular goiter group.¹ In a review of resected multinodular goiters by Pedomallu, papillary carcinoma was found to be the most common cancer in (7%).² However, the finding of anaplastic carcinoma is still very rare. This disease progresses rapidly and treatment should be promptly initiated. Only combined multimodal therapy can impact favorably on the local control rate to prevent the high mortality rate from asphyxiation.

Anaplastic cells do not express thyroid specific genes and thyroid function test are usually normal.² Alwani and Rathod explained that hyperthyroidism with thyroid carcinoma include those which produce thyroid hormone autonomously, and causes destructive thyrotoxicosis by rapid cancerous invasion of the normal thyroid tissue.^{2,3} Here, we report a case of anaplastic carcinoma in a young female in a colloid goitre as an incidental finding.

CASE REPORT

A 33 year old female presented with a midline neck swelling for four months and a complaint of pain in the swelling for 15 days. There was no history of sudden increase in size, fever, dyspnoea, dysphagia and hoarseness of voice. On examination, patient had a midline neck swelling measuring 5x 3.5 centimetre, which was firm, tender and moving freely with deglutition.

Thyroid profile was advised and TSH measured 0.15 μ IU/L, free serum thyroxine (T₄) was 1.56 ng/dL and free serum triiodothyronine (T₃) measured 2.4 pg/mL. These levels were suggestive of hyperthyroid state. Rest haematological investigations were normal. Chest X ray was unremarkable. USG neck showed single hypoechoic lesion in the periphery of the right lobe.

Fine Needle Aspiration Cytology (FNAC) was done and brown colour material was aspirated. FNAC smear showed atrophic and reactive follicular epithelial cells along with multiple cystic macrophages. Few atypical cells having nuclear pleomorphism, hyperchromasia were noted. Further, patient underwent for right side lobectomy and specimen was sent for histopathological examination. On gross examination, a single greyish brown, firm, encapsulated globular tissue of 7.2 x 5.3x 2.4 cm size, with unremarkable outer surface was seen. Cut section showed a single well-defined whitish area in the periphery and rest of the area was gelatinous brown.

Microscopic examination revealed the features of colloid goitre except the section from the whitish area which showed few clusters as well as singly scattered atypical cells. These atypical cells were large round to spindle in shape, hyperchromatic, pleomorphic with irregular nuclear membrane, coarse chromatin, few have prominent nucleoli and moderate amount of cytoplasm. Occasional multinucleated giant cells were also seen. Areas of necrosis and haemorrhage were noted along with high mitotic count (Figure 1 and 2). Immunohistochemical expression of Vimentin showed diffuse cytoplasmic positivity(Figure 3).. All these features were suggestive of anaplastic carcinoma. Further patient was referred to radiotherapy department for chemotherapy. Six doses of 50 mg/m² Cisplatin was given at an interval of 21 to 28 days. After six months of chemotherapy, our patient is doing well with no evidence of disease recurrence.

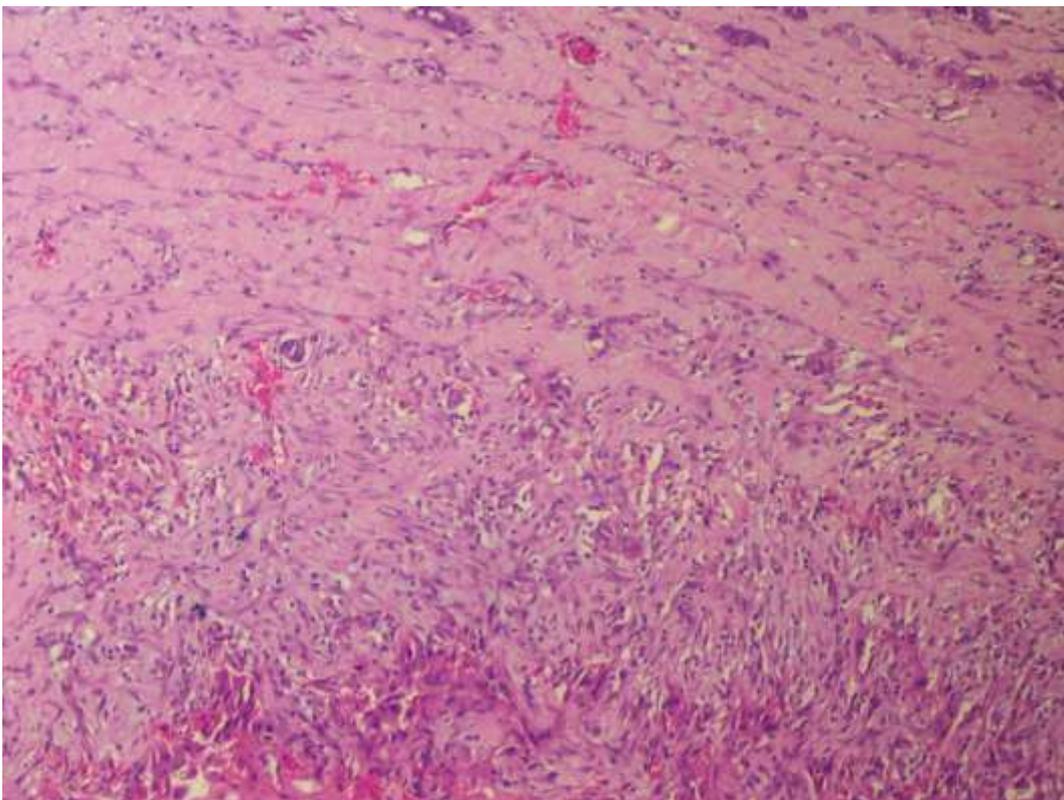


Figure 1: Photomicrograph shows clusters as well as singly scattered atypical cells, large round to spindle in shape with hyperchromatic nuclei and irregular nuclear membrane. Few cells show prominent nucleoli and moderate eosinophilic cytoplasm. Occasional large tumor cells are also seen with areas of necrosis and haemorrhage and high mitotic count. Haematoxylin and Eosin x 10X.

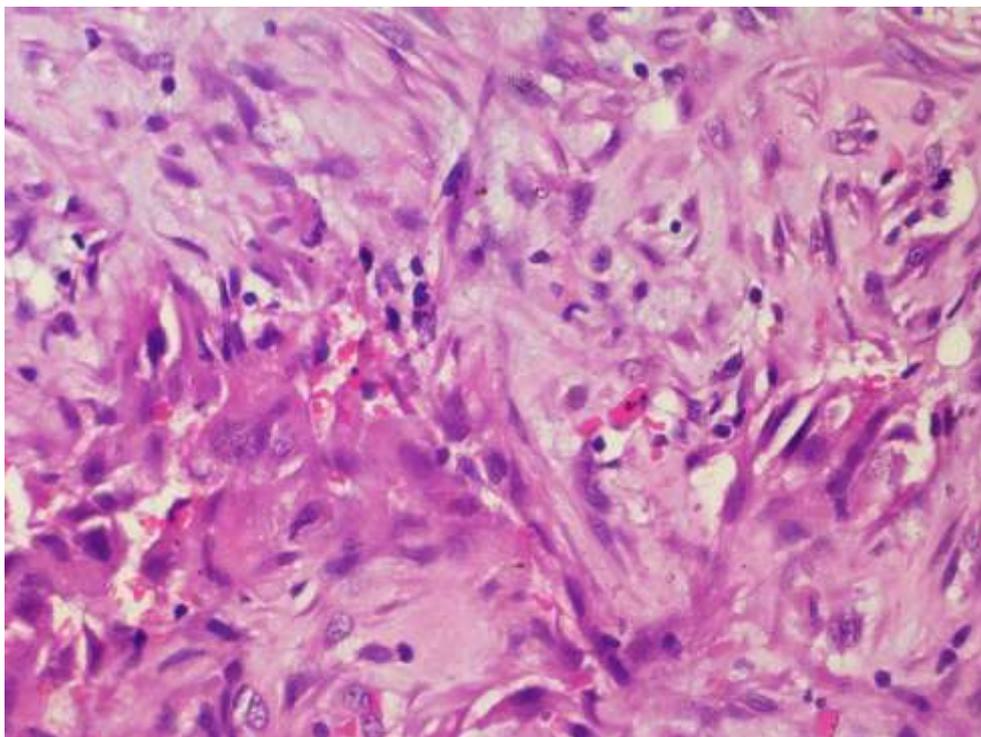


Figure 2: High power of Figure 1.

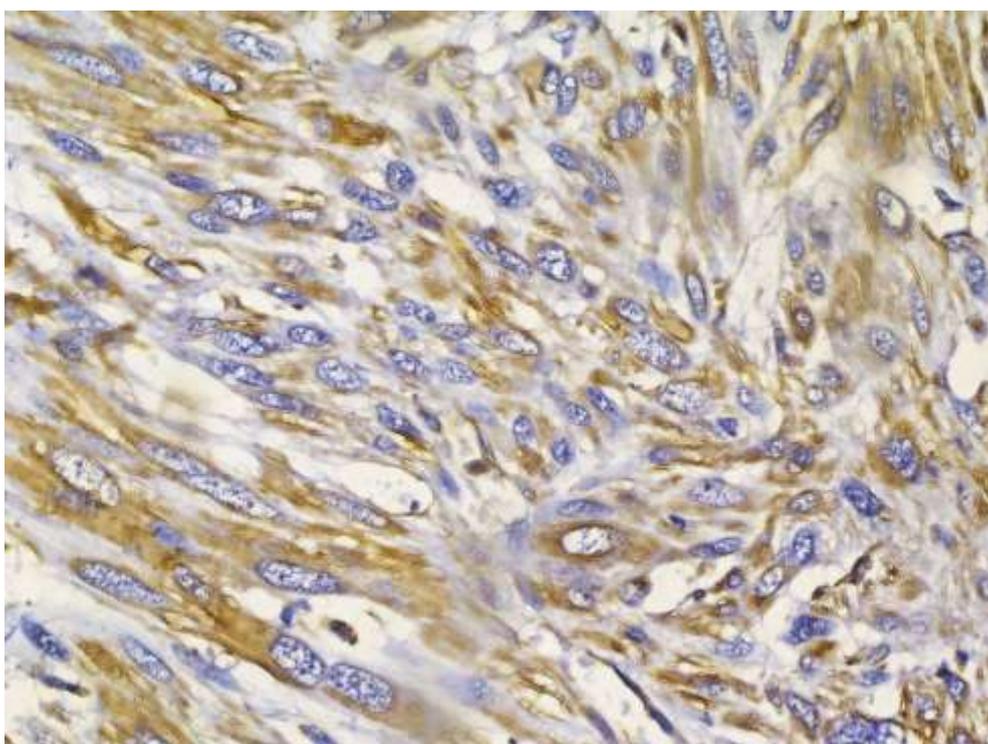


Figure 3: Immunoexpression of Vimentin showed diffuse cytoplasmic positivity in the anaplastic tumor cells. IHC Vimentin x40X.

DISCUSSION

Anaplastic carcinoma is the most aggressive thyroid neoplasm and generally has a fatal outcome.² They usually have female preponderance and commonly seen in older age group, 60 to 70 years.³ Risk factors for anaplastic carcinoma includes pre-existing well differentiated thyroid carcinoma, previous radiation exposure, iodine deficiency, long standing multinodular

goitre.³ They are more frequently seen in endemic goitres areas.⁴ Rapidly growing neck mass is the most common clinical presentation. Other symptoms included pain, dysphagia, hoarseness of voice and dyspnoea.⁵ Distant metastasis at the time of diagnosis can give rise to systemic symptoms. It has been reported that 50% of cases presented with the distant metastasis at the time of diagnosis, most commonly in lung followed by bone.^{6,7}

In our case, patient was young female and has a history of midline neck swelling for 4 months and a complaint of pain from the last 15 days. There were no complaints of rapidly increase in size of swelling, dysphagia, or hoarseness of voice. All the haematological investigations were normal except serum TSH level was slightly decreased and serum T4 was raised. Initially, it was diagnosed as a case of colloid goitre, but after histopathological examination, it was diagnosed as an incidental anaplastic carcinoma.

The incidence of incidental thyroid carcinomas ranges from 6-10%.⁸⁻¹⁰ Papillary microcarcinomas are the mostly commonly diagnosed incidental tumours and anaplastic carcinomas are rare incidental finding.^{10,11} Gunes et al has reported the case of incidental anaplastic carcinoma in a subtotal thyroidectomy specimen of a 50 year old female, diagnosed as benign colloid nodule by FNAC. She was administered radiotherapy and adjuvant chemotherapy and survived for 1.5 years after treatment.¹² In contrast, our patient was 33 year old and underwent right lobectomy followed by 6 doses of 50 mg/m² Cisplatin. After 6 months of chemotherapy, there was no evidence of the disease and our patient is doing well.

CONCLUSION

Incidence of anaplastic thyroid carcinoma in colloid goitre is almost negligible. However, if they occur, they tend to be fatal. Multiple site aspirations from enlarged thyroid swelling can improve diagnostic accuracy. It is essential to diagnose them at an early stage to aid proper treatment and improve patient's survival.

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