# A Case of Poorly Differentiated Thyroid Carcinoma and the Challenges for Diagnosis

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## Introduction

Poorly differentiated cancer is an uncommon and aggressive form of thyroid cancer. This type of malignancy lies between the spectrum of well-differentiated thyroid cancer and anaplastic cancer. This is a case of poorly differentiated thyroid cancer in a patient with a history of ovarian cancer.

## Case

**A** 76-year-old female with past medical history of ovarian granulosa cell tumor, status post total abdominal hysterectomy and bilateral salpingoophorectomy/omentectomy with adjuvant chemotherapy for 6 cycles presented with an enlarging left lateral neck mass. She also had a subcentimeter thyroid nodule incidentally found on biannual imaging for ovarian cancer surveillance that was followed on ultrasound for 2 prior years. She denied dyspnea, stridor, vocal changes, sore throat, or dysphagia. Thyroid ultrasound revealed a single 1.2 cm mid-pole nodule in the left lobe of the thyroid. She subsequently underwent fine needle aspiration of the nodule, with results showing atypical cells with numerous cytoplasmic vacuoles. A fine needle aspiration of the thyroid nodule was obtained based on its ACR TI-RADS 5 classification. Cytology was consistent with primary thyroid undifferentiated anaplastic carcinoma. She was referred to otorhinolaryngology (ENT) and due to the increasing size of the left neck mass a fine needle aspiration of was obtained that indicated a malignant lymph node of unknown origin and type. fShe then underwent a left hemithyroidectomy with left deep cervical lymph node biopsy. Pathology revealed a poorly differentiated thyroid carcinoma in the left thyroid nodule and a lymph node positive for malignancy of thyroid origin.

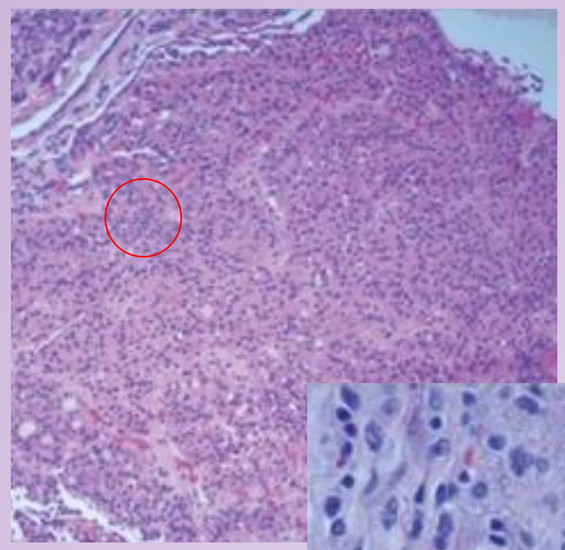

Image 1: Poorly differentiated thyroid carcinoma. Papillary features noted on the left upper quadrant (circle).

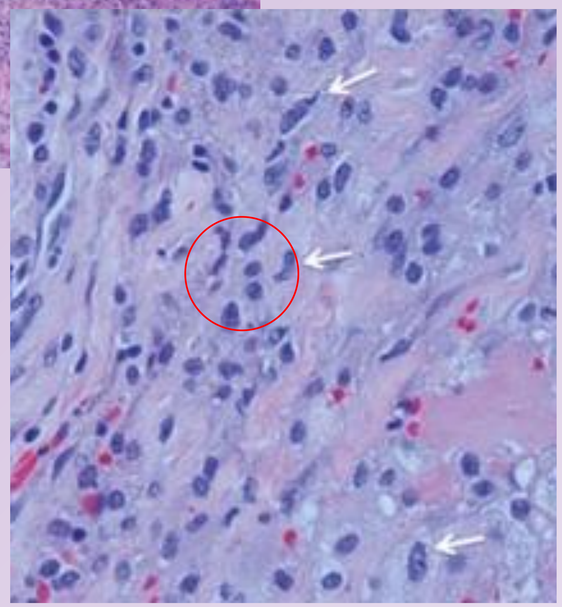

Image 2: Anaplastic thyroid carcinoma. Hyperchromatic nuclei with various sizes and shapes (circle).

## Case (cont'd)

She then underwent a completion thyroidectomy, left radical neck dissection, left central neck dissection, left carotidectomy saphenous vein interposition graft, and left pectoralis major flap.

She received  levothyroxine replacement post surgery. She was started on adjuvant radiotherapy along with weekly carboplatin. Her response to therapy was favorable. PET scan on 11/2019 showed interval resolution of the previously noted hyper metabolic mass in left neck without any new abnormal FDG uptake.

## Conclusion

Poorly differentiated thyroid cancer is a festering carcinoma that comes with a poor prognosis. Some of the distinct features when contrasting poorly differentiated with anaplastic cancer include median age and molecular alterations. This case exhibits the diagnostic challenge and importance of differentiating these two pathologies, since the treatment is unique to each. Anaplastic carcinoma follows a treatment plan with surgical resection or combination therapy with chemotherapy and radiation depending on staging. On the contrary, the mainstay for treatment of poorly differentiated carcinoma is total thyroidectomy with lymph node dissection due to concern for metastasis, followed by radioiodine therapy. There are no formal guidelines regarding the management of this rare pathology, however, it is important to identify the correct diagnosis due to variation in treatment.

## References

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