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Case Report

Poorly differentiated carcinoma thyroid: an oddball of thyroid malignancy

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ABSTRACT

Poorly differentiated thyroid carcinoma (PDTC) is an aggressive form of follicular cell derived thyroid carcinoma with a poor prognosis with an incidence of 0.3% to 6.7%. It ranks between DTC and ATC regarding the degree of differentiation. PDTC was recognized as a distinct pathologic entity in the classification of thyroid tumour by World Health Organization (WHO) classification of endocrine tumours. This case report was done in Government Villupuram Medical College and Hospital in a 56-year-old male patient who presented with two swellings in the neck one in the midline in the region of thyroid and the other on right lateral side of neck for 5 months. The patient was diagnosed to have poorly differentiated thyroid carcinoma postoperatively and the following course of events are discussed here.

Keywords: Poorly differentiated carcinoma, Total thyroidectomy, I131 scan, Turins criteria

INTRODUCTION

Thyroid malignancy constitutes the most common among endocrine malignancy. Its incidence is increasing in the past few decades.[1,2] More than 90% of cases are categorised as differentiated thyroid cancers which include papillary thyroid carcinoma, Follicular thyroid carcinoma and Hurtle cell carcinoma.[3,4] Most DTC patients are characterized with a favourable prognosis, as reflected by 10-year survival rates of about 90%.[5]

On the opposite, anaplastic thyroid carcinomas (ATCs), which are characterized by aggressive and rapidly fatal nature, typically confer a dismal outcome as reflected by 2-year survival rates of about 10–15%.[6] Poorly differentiated thyroid carcinoma is a rare thyroid carcinoma originating from follicular epithelial cells.[7,8] It is a malignant follicular cell neoplasm with limited evidence of follicular cell differentiation.[9] It ranks between DTC and ATC regarding the degree of differentiation. PDTC accounts for 0.3% - 6.7% of all thyroid carcinomas.[10,11]

We will be presenting a case of a 56-year-old patient who was diagnosed to have poorly differentiated carcinoma thyroid, its presentation, diagnosis, surgical management and post-operative follow up.

CASE REPORT

We had a 56-year-old male patient who presented with two swellings in the neck one in the midline in the region of thyroid and the other on right lateral side of neck for 5 months. Insidious onset and gradually progressive. No features suggestive of hypothyroidism and hyperthyroidism. Patient had no comorbidities. He had no previous history of surgery or irradiation in childhood.

On local examination

Swelling of size 4×3 cm present over right side of neck, hemispherical in shape, extending inferiorly – 5 cm above suprasternal notch, medially – 4 cm from midline, superiorly – 2 cm below angle of mandible, laterally – at lateral border of sternocleidomastoid.

Another swelling

Size 2×2 cm over midline, globular shape, 5 cm below thyroid cartilage, just above suprasternal notch (Figure 1). Clinically both neck swellings moved with deglutition. His thyroid function test was normal. Ultrasonography (USG) neck revealed right lobe of thyroid – exophytic nodular lesion with calcification noted measuring 3.5×2.6 cm with internal solid colloid cystic degeneration noted, left lobe of thyroid – 40×24 mm – 3 cm nodular goitre with internal cystic degeneration noted. X-ray neck revealed calcification over right lobe of thyroid with no tracheal deviation or compression (Figure 2).

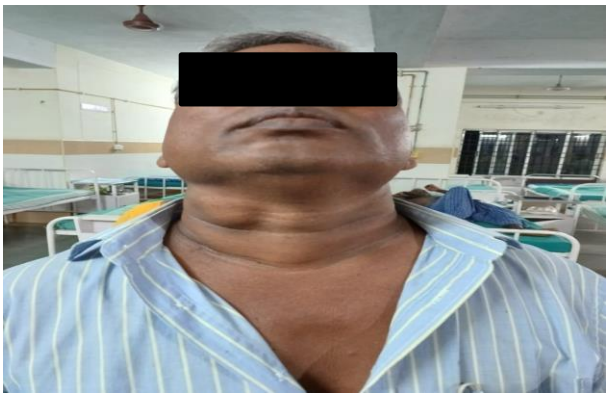

Figure 1: Preoperative picture.

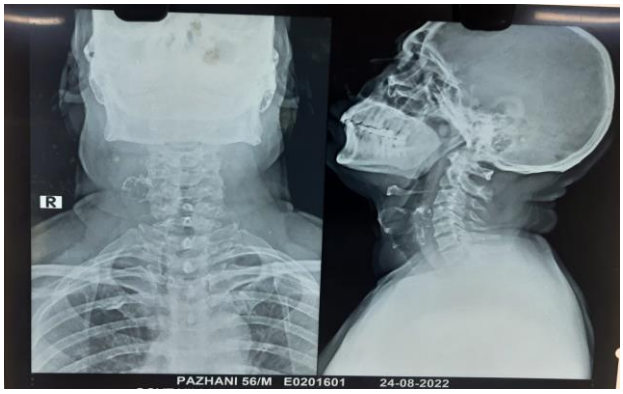

Figure 2: X-ray neck AP & lateral view.

Fine needle aspiration cytology (FNAC) over right neck swelling was suspicious of malignancy while the FNAC over midline swelling was colloid goitre. Contrast enhanced computed tomography (CECT) neck and CT chest done preoperatively showed multinodular goitre with retrosternal extension.

Total thyroidectomy was done with central and right lateral neck node dissection (Figure 3). Postoperatively patient was normal without voice change and respiratory distress. Drain was removed on post-operative day (POD) 6. Post op biopsy report turned out to be poorly differentiated carcinoma with all 10 nodes negative for malignancy (pT2N0Mx). Patient was planned for I131 whole body scan and started on thyroxine suppressive dose after discharge.

Figure 3: Post op specimen.

On follow up after 2 months patient developed a firm swelling of size 2×1cm on right side of neck. CECT neck was done and it showed no evidence of any significant lymphadenopathy. FNAC over swelling was done and it turned out to be metastatic carcinomatous deposits. Patient was planned for I131 whole body scan and it was negative for metastasis. Patient was on suppressive dose and on regular follow up. 6 months later patient developed multiple enlarged cervical nodes on both sides. CECT neck was done again and it showed ill defined, irregular mildly enhancing eccentric heterogenous soft tissue density lesion of size 8.7×3.8×3.1 cm noted in the right side of glottis involving the cricoid/thyroid cartilage on right paratracheal aspect. Few enlarged bilateral submandibular, right upper cervical and tracheal nodes were identified suggestive of metastasis.

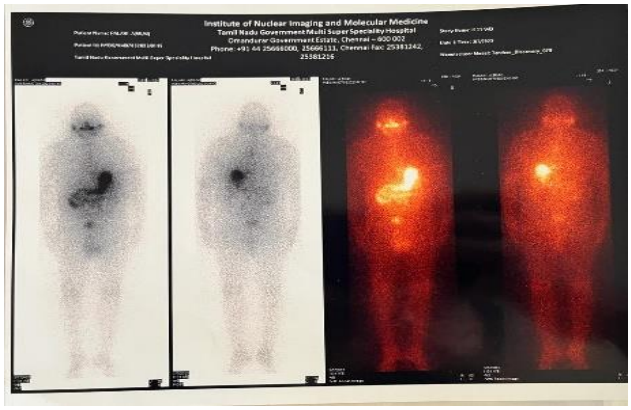

Figure 4: RAI uptake study.

We proceeded with PET scan and it showed active disease in thyroid bed, active cervical and mediastinal lymph node metastasis and active lesion in glottic region on right infiltrating and eroding right lamina of thyroid cartilage (Figures 5 and 6). We did trucut biopsy under image guidance and it turned out to be poorly differentiated

carcinomatous deposits. Patient was planned for chemo RT and now started on radiotherapy (Figure 7).

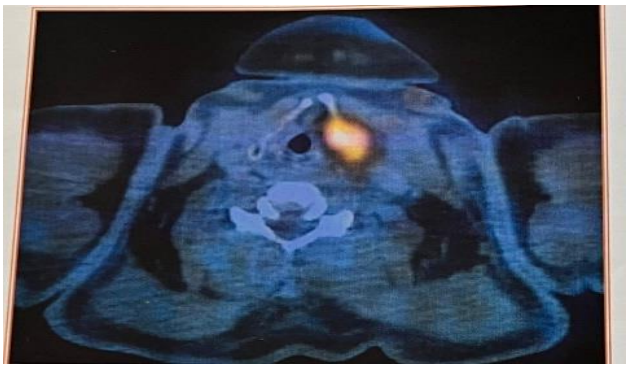

Figure 5: PET CT showing active uptake in cervical & mediastinal nodes.

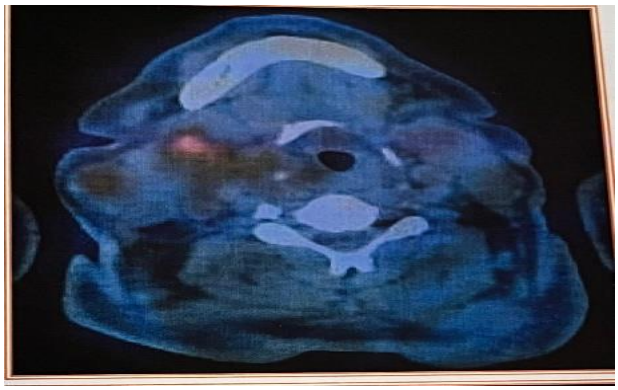

Figure 6: PET CT showing active lesion in glottis involving right lamina of thyroid cartilage.

Figure 7: Post palliative RT to neck showing skin discoloration.

DISCUSSION

PDTC was initially proposed as a separate entity by Sakamoto et al in 1983, immediately followed by Carcangiu et al who deemed the histologic growth pattern as 'insular' carcinoma in 1984.[12-14] Twenty years later, PDTC was recognized as a distinct pathologic entity in the classification of thyroid tumours by WHO classification of endocrine tumours.[15,16] In 2006, pathologists from Italy, Japan, and the United States refined the definition of PDTC in Turin by reviewing a cohort of 83 cases that had been selected according to the presence of solid/trabecular/insular growth patterns.[17,18]

Mean age of presentation is 55–65 years. It has 5-year survival rate 60% to 70%. Female to male ratio is 1.6:1.[19] Turin's criteria is used for the diagnosis of poorly differentiated thyroid carcinoma.[20]

It is defined as: malignant follicular cell neoplasm with limited evidence of follicular cell differentiation, and intermediate clinical behavior between well differentiated (papillary and follicular carcinoma) and anaplastic carcinoma.

Clinical features

Clinical features include: large solitary thyroid mass, patient may have a history of recent growth in a longstanding uninodular or multinodular thyroid; intermediate behavior between well differentiated and anaplastic carcinoma; has nodal and hematogenous metastases and 3-year survival of 38%; extends to perithyroidal soft tissue in 60-70% cases; vascular invasion in 60-90% cases; regional lymph node metastasis in 15-65%; and distant metastasis in 40-70%.

Turins criteria

Turins criteria included: presence of a solid/ trabecular/insular pattern of growth; absence of the conventional nuclear features of papillary carcinoma; and presence of at least one of the following features: convoluted nuclei, mitotic activity ≥3 × 10 HPF and tumour necrosis.

CONCLUSION

The objective of presenting this case is to emphasize its rare presentation and to widen our knowledge on poorly differentiated carcinoma thyroid, its presentation, early diagnosis, surgical management and post-operative follow up of patients presenting similarly.

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