Case Report

Synchronous Papillary Thyroid Carcinoma and Follicular Carcinoma of Thyroid - A rare Case Report

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ABSTRACT

Papillary thyroid carcinoma(PTC) and Follicular thyroid carcinoma(FTC) are the first and second most common cancers comprising about 85% and 10% of all thyroid cancers. Simultaneous occurrence of Medullary thyroid carcinoma and papillary thyroid carcinoma has been reported, but collision tumor of FTC and PTC is an unusual event that is rarely reported . We describe a 48 year old man with synchronous FTC of oncocytic type in the right lobe and PTC in isthmus in thyroid. Pathologists and surgeons should be aware of collision tumors to avoid possible misdiagnosis.

Keywords: Synchronous tumor, follicular carcinoma, oncocytic, papillary thyroid carcinoma

INTRODUCTION

Papillary thyroid carcinoma (PTC) is the most common thyroid carcinoma, and is derived from thyroid follicular cells. Collision tumor is a term denoting two histologically distinct tumor types that occur at the same anatomic sites, which is a rare clinical entity. The organs most implicated are the stomach, liver, adrenal gland, lungs, ovary, kidneys, and colon.[1] In the thyroid gland, collision tumors are rare, constituting about only 1% of all thyroid malignancies, and the most frequently identified combination is foci of PTC with medullary thyroid carcinoma. [2,3,4] Here we report a case of the synchronous occurrence of follicular thyroid carcinoma (FTC) and PTC.

CASE REPORT

A 48-year-old man was referred to our hospital with complaints of swelling in the front of neck for 3 months, difficulty in swallowing solid foods and pain during swallowing from 1 month. He did not have history of neck radiation or familial thyroid cancer. The initial laboratory findings showed normal thyroid function tests (including thyroid stimulating hormone, free T3 and free T4, and calcitonin). Ultrasonography and CT scan were done which suggested nodules in the right lobe of thyroid

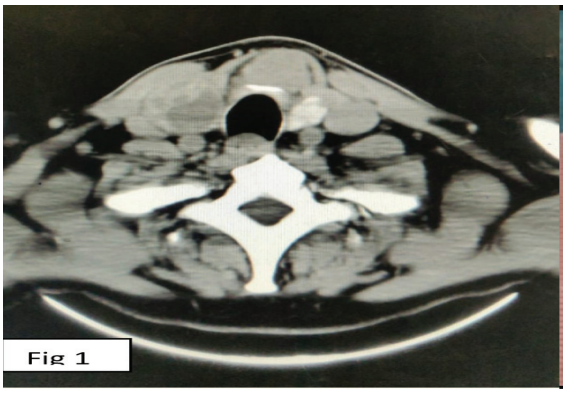

Figure 1: CT scan of neck showing malignant nodules in the right lobe and isthmus of thyroid.

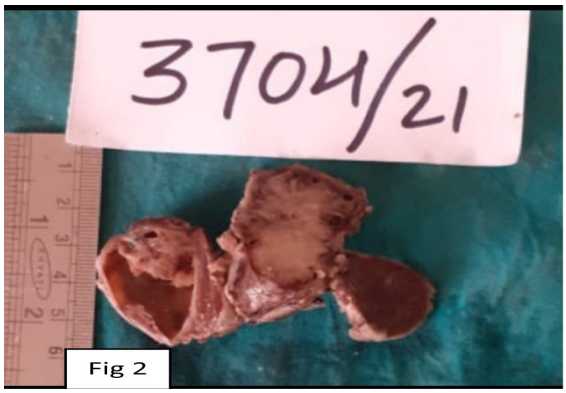

Figure 2: Gross picture of thyroid showing solid cystic lesion in right lobe and solid lesion in the isthmus.

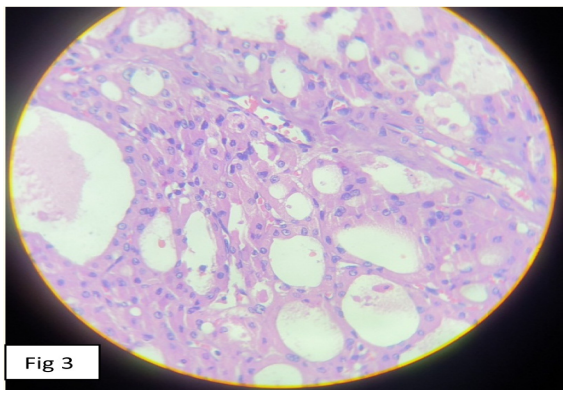

Figure 3: H&E, x40, follicular carcinoma, oncocytic type in right lobe

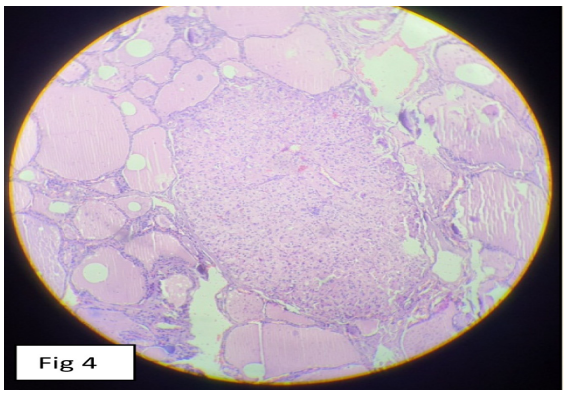

Figure 4: H&E, x40, metastatic lesion in left lobe of thyroid.

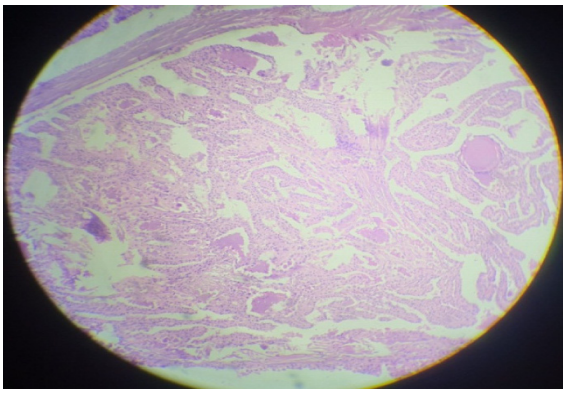

Figure 5: H&E, X10, Papillary carcinoma of thyroid in isthmus

and isthmus of malignant etiology. The patient underwent total thyroidectomy plus central lymph node dissection. There were no postoperative complications.

Postoperative pathology suggested that the nodule with a size of about 3.2x1.2 cm in the right lobe was Follicular carcinoma of thyroid of oncocytic variant. The left lobe was about 3.5x2x1.5 cm, tan brown in colour, but on microscopy showed metastatic deposit of oncocytic carcinoma. As for the nodule in the isthmus, histopathology revealed classic papillary thyroid carcinoma. Three lymph nodes isolated, out of which only one lymph node showed metastasis of papillary thyroid carcinoma.

DISCUSSION

PTC and FTC are both derived from thyroid follicular cells, where PTC is the most common and FTC the second

most common of all thyroid carcinomas.[5] Both PTC and FTC are differentiated thyroid carcinoma that comprises 90% of all cases of thyroid cancer (incidence about 0.5-10 new cases per 100,000 population globally. [6,7,8] In terms of origin, differentiated thyroid carcinomas, e.g., PTC and FTC originate from follicular epithelial cells derived from median endodermal analogues.[9] Whilst the synchronous coexistence of more than one type of thyroid cancer could be a coincidence, several theories have been postulated as potential explanations for such synchronous coexistence. The synchronous or metachronous presence of two neoplasms is rare, especially in the thyroid, and presents a diagnostic and treatment challenge. Previous literature has reported the simultaneous concurrent occurrence of medullary thyroid carcinoma (MTC) and FTC. Hypotheses, such as stem cell theory, a single progenitor cell theory, and collision theory have been used to explain the simultaneous occurrence of thyroid neoplasms of different cellular origins.[1,10,11,12] The stem cell theory postulates that cancer stem cells, which differentiate into different tumor cell lines, have the capacity to acquire a thyrocyte phenotype when exposed to genetic alterations. Collision theory suggests that two separate and distinct tumor types get initiated in close proximity to one another, thus resulting in a polyclonal neoplasm.

Due to the dual pathology of the tumor tissue, and given the scarce literature on this condition, the treatment of thyroid collision tumors is often complicated. Ryan et al. recommended that the most aggressive neoplasm should guide treatment. Moreover, surgical management with adjunct therapy is also essential. [13]

CONCLUSION

Well-differentiated thyroid carcinomas (e.g., PTC and FTC) are usually sporadic in most cases and the coexistence of two independent and simultaneous follicular epithelial cell carcinomas, a papillary carcinoma and a follicular carcinoma, is extremely rare Although synchronous occurrence of multiple distinct subtypes of primary thyroid carcinomas is uncommon, pathologists and surgeons should be aware of collision tumors to avoid possible misdiagnosis.

CONFLICT OF INTEREST:

The authors declared no conflict of interest.

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