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FOLLICULAR NEOPLASM, RIGHT LOBE THYROID WITH RETROSTERNAL EXTENSION- CASE REPORT

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ABSTRACT

Follicular neoplasm (consisting of the combination of high numbers of follicular cells, micro follicular arrangement, and scant or absent colloid) is a cytologic term used to encompass both the benign proliferation of thyroid follicular cells in adenoma and the malignant proliferation in carcinoma. Follicular adenomas are much more common than follicular carcinomas, occupying a histologic niche between follicular hyperplasia and follicular carcinoma. Retrosternal goiter is defined when 50% of the thyroid is below the thoracic inlet. This can also be called as intra thoracic goiter. Retrosternal goiter is a very rare condition which account for 5 to 20% of thyroidectomy patients.1 Mediastinal extension is more common in huge goiters with a peak incidence in 5th to 6th decade. This is usually rare when the patient has associated hyperthyroidism which may increase the risk of complications. The reported incidence of goiters with thyroid malignancy is around 3 to 17%.1,2 Retrosternal goitre occurs when the thyroid enlarges downwards into the chest. Although the great majority of retrosternal goitres are extensions from the neck, pure intra thoracic goitres are very rare. Here we present an unusual way in which a 51 year old male was found to have Follicular Neoplasm, Right Lobe Thyroid With Retrosternal Extension.

KEYWORDS: Follicular neoplasm, Carcinoma, Hypothyroidism and retrosternal node.

INTRODUCTION

Thyroid carcinoma is the most common malignancy involving the endocrine glands and is responsible for approximately 1.5% of new cases and 1,500 deaths from cancer annually in the United States.[1,2] The histopathologic classification of these tumors includes papillary thyroid cancer (60–80%), follicular carcinoma (15–18%), anaplastic carcinoma (3–10%), medullary carcinoma (4–5%), lymphoma (5%), and metastases.[3]

Follicular neoplasm (consisting of the combination of high numbers of follicular cells, micro follicular arrangement, and scant or absent colloid) is a cytologic term used to encompass both the benign proliferation of thyroid follicular cells in adenoma and the malignant proliferation in carcinoma. Follicular adenomas are much more common than follicular carcinomas, occupying a histologic (if not biologic) niche between follicular hyperplasia and follicular carcinoma. Unlike carcinomas, adenomas have no vascular or capsular invasion but otherwise have similar cytologic features. In general, when a biopsy specimen of a thyroid nodule reveals a follicular neoplasm, approximately 80–90% of such lesions will be adenomas and 10–20% will be carcinomas.[4,6]

Microscopically, most follicular carcinomas are composed of fairly uniform cells forming small follicles of high cellularity containing scant colloid, reminiscent of normal thyroid but lacking the diagnostic features of papillary cancer, which has characteristic nuclear features and often contains psammoma bodies.[7,9] Occasional follicular tumors are dominated (> 75% of cell content) by cells with abundant granular, eosinophilic cytoplasm known as Hürthle cells.[10] A third rare subtype of follicular carcinoma consists of poorly differentiated cells with a characteristic solid infiltrating netlike appearance (insulae), which commonly contain necrosis, hemorrhage, and vascular invasion, and is known, appropriately, as the insular variant of follicular carcinoma.[11] There is debate among clinicians as to the prognostic significance of the Hürthle-cell variant of follicular carcinoma in a patient as opposed to classic follicular carcinoma.[12,14] although most studies indicate there is no significant mortality difference between the two subtypes of follicular carcinoma.

Invasion of adjacent thyroid parenchyma may be grossly apparent or can be limited to microscopic foci of

capsular or vascular invasion.[15] These lesions may require extensive histologic sampling before they can be distinguished from follicular adenoma. Patients with minimally invasive follicular carcinoma have an excellent prognosis. In contrast, patients with follicular carcinoma with extensive vascular invasion have a poorer prognosis, and distant metastases are sometimes present.[16] Vascular invasion is common, with spread to bone (predominantly osteolytic), lungs, and occasionally liver or brain.[17]

A noninvasive method of evaluating thyroid nodules identified as containing follicular neoplasia that could reliably differentiate between benign follicular adenomas and malignant follicular carcinomas would be invaluable in avoiding both the risks (including laryngeal nerve injury and hypoparathyroidism) and expense of surgery.[18,19] Rarely does physical examination help in the differentiation of the benign and malignant thyroid nodule,[20] and, although certain clinical features (including male sex, size greater than 4 cm, and solitary nodule),[21,23] may be helpful in risk stratification, a cytologic finding of follicular neoplasia often mandates surgery. Sonography is attractive in the evaluation of palpable thyroid nodules given its high resolution, absence of exposure to ionizing radiation, portability, and ease of use.

Retrosternal goiter is defined when 50% of the thyroid is below the thoracic inlet. This can also be called as intra thoracic goiter. Retrosternal goiter is a very rare condition which account for 5 to 20% of thyroidectomy patients.1 Mediastinal extension is more common in huge goiters with a peak incidence in 5th to 6th decade. This is usually rare when the patient has associated hyperthyroidism which may increase the risk of complications. The reported incidence of goiters with thyroid malignancy is around 3 to 17%.[1,2] Retrosternal goitre occurs when the thyroid enlarges downwards into the chest. Although the great majority of retrosternal goitres are extensions from the neck, pure intra thoracic goiters are very rare. Retrosternal goitres are more likely to be left sided and very rarely a left sided cervical goitre descends into the right side of the chest which is called a "crossed substernal goitre.[2] With few exceptions huge goiters can be removed by cervical approach but less than 2% patients require cervical/sternotomy approach. All these factors will influence the perioperative management of the patient.

CASE REPORT

A 51 years old male patient presented to the general surgery department with complaints of swelling of necks for 1 month,a feeling of tightness in the throat area, Hoarseness (scratchy voice) and Neck vein swelling and also have Difficulty breathing (shortness of breath) and Difficulty swallowing (due to squeezing of the esophagus, or “food tube”) . Local examination revealed a diffuse swelling of right lobe of thyroid (Figure 1). Her medical history revealed hypothyroidism from 25 years. A provisional diagnosis of Thyroid swelling was made. Radiological examination was done. Computed tomography of neck revealed 12 x 8 x 7cm retrosternal mass arising from right lobe of thyroid with tracheal compression (Figure 2). There was no cervical lymphadenopathy. Thyroid function test (T3, T4 and TSH) were done. T3 was 114.38 nmol/l, T4 was 8.17nmol/l and TSH was less than 12.1uIU/Ml. Fine needle aspiration cytology (FNAC) from thyroid nodule was reported as follicular neoplasm and right lobe thyroid with retrosternal extension.Patient was advised total thyroidectomy and radioiodine therapy but was not willing, hence was administered supraphysiological dose of thyroxine.then after counselling patient willing to thyroidectomy.Patient was discharged on 4th postoperative day and he is fine now.

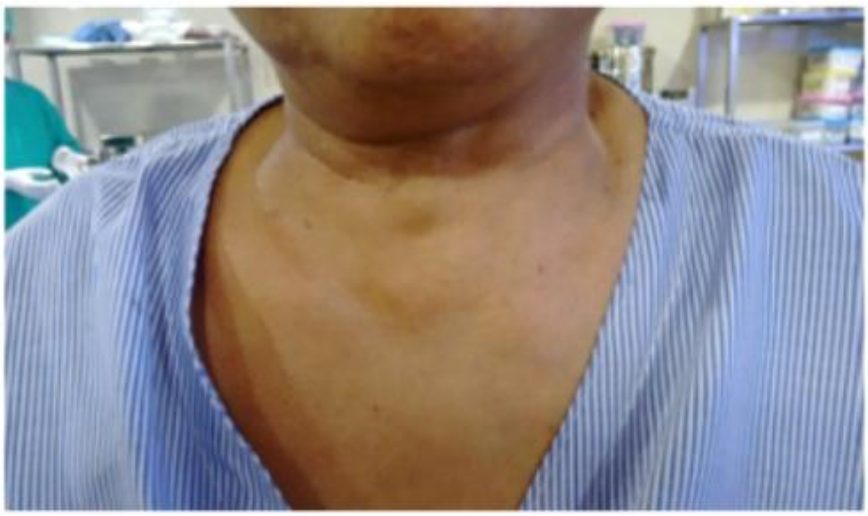

Figure 1: Diffuse swelling of right lobe of thyroid.

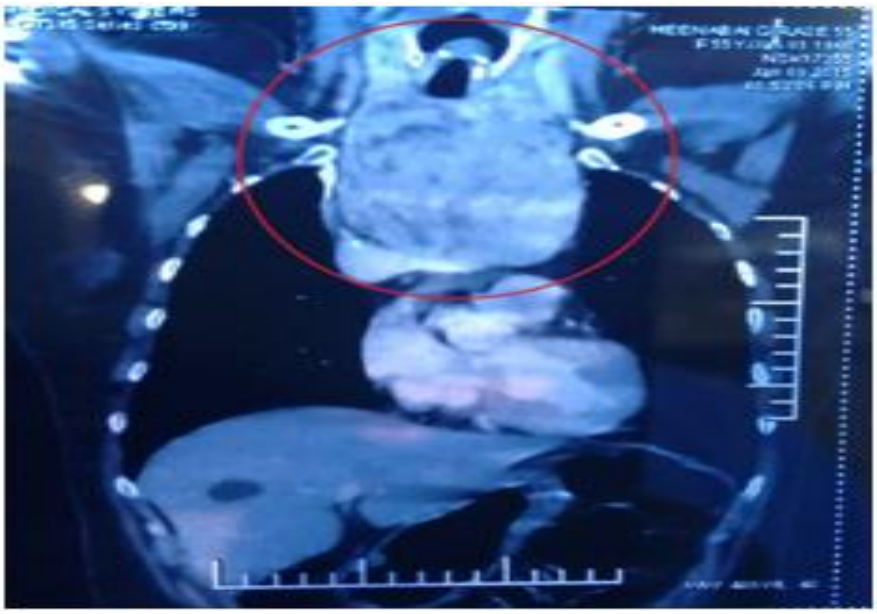

Figure 2: Computed tomography of neck revealed 12 x 8 x 7cm retrosternal mass arising from right lobe of thyroid with tracheal compression.

DISCUSSION

Follicular thyroid carcinoma is a subtype of thyroid cancer, which is slow growing and is associated with a good prognosis.Follicular carcinoma of thyroid is the second category of well-differentiated thyroid cancer that constitutes about 10% of all thyroid malignancies. Blood borne metastasis is common with spread to lung, bone and other solid organs. In less than 10% cases of follicular carcinoma, there is evidence of lymphatic involvement. The patients' presentations above are highly unusual. Thyroid abscess and acute supporative thyroiditis are notcommon, presenting only 0.1–0.7% of surgically treated thyroidpathologies.[13] Infection of the thyroid gland are rare due to itsisolated anatomic location, fibrous capsule, rich blood supply, generous lymphatic drainage, and high content of iodine. However, various factors like congenital pyriform sinus, thyroid/neck injury, blood-borne infections, surrounding infections and intrinsic glandpathology like nodular goiter, thyroid cyst, and papillary thyroidcancer may predispose to suppurative thyroiditis.[14] Infection inpre-existing thyroid pathology may present with localized thyroidabscess. In the first case, the underlying pathology was solitary thyroid nodule and FNAC revealed follicular adenoma. After 2 years, the patient presented with thyroid abscess. Hemithyroidectomywas done and biopsy showed follicular carcinoma.

The staging of follicular thyroid carcinoma is differentiated fromthe standpoint of the age of the patient. There are two categories: older than 45 years of age and younger than 45 years of age. Stagingof patients who are younger than 45 years of age is quite simple; ifthe carcinoma is confined to only the thyroid with no lymph nodeinvolvement or metastasis, it is stage I. In our patient, who had distant metastasis, the carcinoma would be considered stage II. Thismethod of staging is the tumor, node, metastasis method (TNMmethod) and is the official method of staging adopted by the American Joint Commission on Cancer. In cases of metastatic disease tolung and/or bone, adverse prognostic factors are said to includemultiplicity of sites, older patient age at the time of discovery ofthe metastases, and absence of radioactive iodine uptake by themetastases.

A retrosternal goiter (RSG) is an extension of an enlarged thyroid gland into the mediastinum first described by Haller in 1749. Since then, the terms substernal, intrathoracic, and mediastinal goiters have been used interchangeably, representing the myriad of nomenclatures that may cause confusion and lack of standardization to describe this condition.[24] It is a relatively common finding, occurring in 1%–20% of all thyroidectomies performed.[25] Various clinical and radiological classifications of mediastinal goiter have been proposed but none has yet to be universally validated or adopted.[6] Huinn et al.[1] proposed a classification based on the relationship of the goiter with the aortic arch and right atrium after performing a systematic review on its complications. In Rios et al[6] study where he critically appraises these classifications, he found that Katlic's definition.[7] which states that a goiter by which at least 50% is retrosternal, is the most useful for predicting the need of a sternotomy.

Majority of RSG up to 90% can be completely removed via a transcervical approach,[12] with extra-cervical approaches such as sternotomy only required in 7% and thoracotomy 3% of the time.[1] In general, a cervical approach combined with a sternotomy is favoured for a RSG located in the anterior mediastinum whereas a cervical approach with thoracotomy is favoured for one located in the posterior mediastinum.[13] Blind maneuvers to attempt to dislocate the mediastinal component of the

goiter into the neck via passage of a Foley's catheter into the mediastinum, morcellation of the RSG, and insertion of strong silk sutures into the cervical goiter to apply traction from the neck are discouraged due to risk of uncontrolled hemorrhage and injury to adjacent critical structures in the thoracic inlet. Of note, the VATS approach as performed in this case has also been gaining traction in recent years due to its potential for faster recovery and better cosmesis.

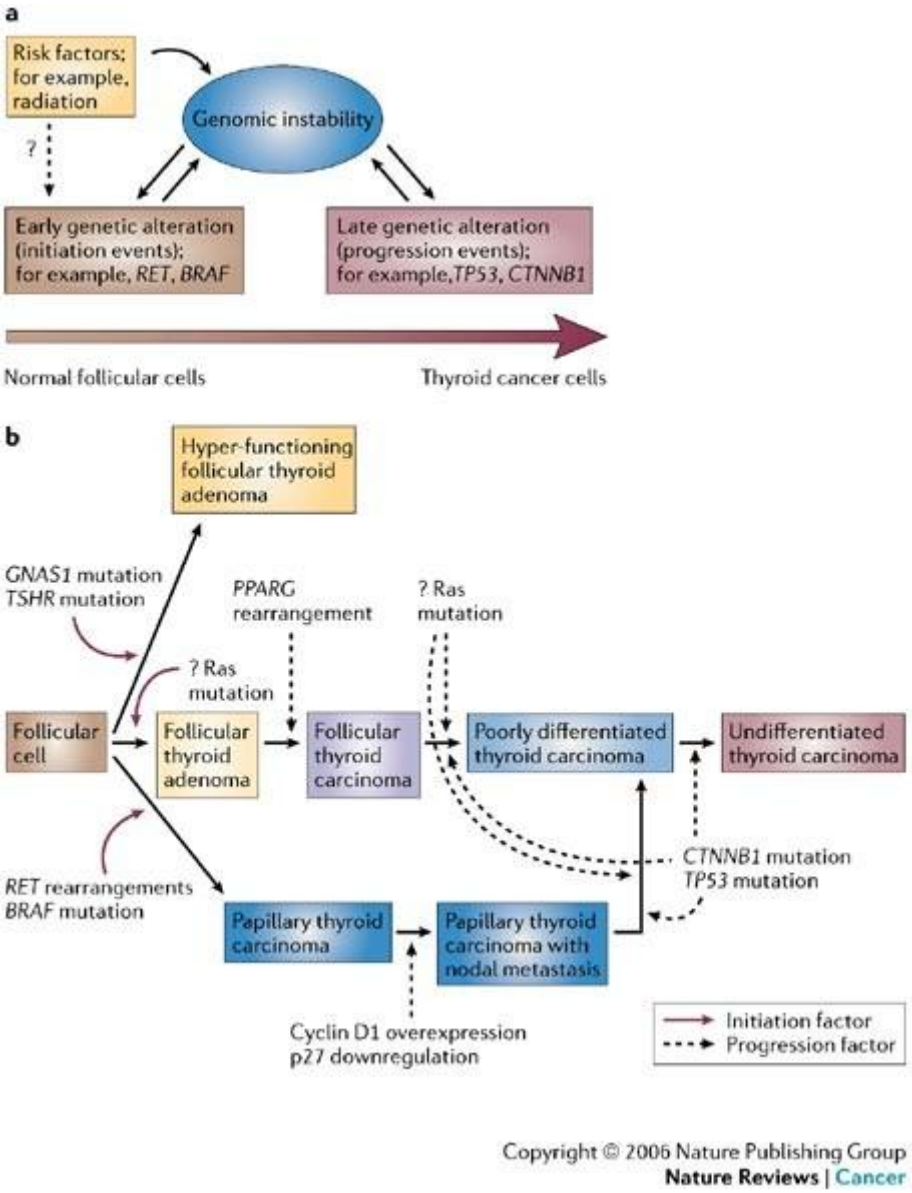

Figure 3: Pathogenetic mechanisms in thyroid follicular-cell neoplasia.

CONCLUSION

Although the incidence of papillary thyroid carcinoma is much higher than of follicular carcinoma, the later accounts for more deaths. Follicular carcinoma differs from papillary in that it occurs at an older age, exhibits hematogenous spread rather than lymphatic dissemination, and has a more aggressive behavior. So total thyroidectomy with adjuvent radioiodine therapy remains the standard of treatment for follicular carcinoma thyroid. Disseminated metastases from follicular carcinoma at the time of diagnosis in a young patient remain exceedingly rare. Even if it is advanced and metastatic, can be managed adequately with proper modalities of treatment.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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