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A rare phenomenon in thyroid neoplasms: Collision tumor

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Abstract
The combination of two or more histologically distinct tumor components occurring at the same anatomic location is called a collision tumor and is a rare occurrence in the thyroid gland. Most often both the tumors are malignant and combinations of papillary-follicular carcinoma, papillary-medullary carcinoma are more common. Here, we report a rare collision tumor having Hurthle cell adenoma and papillary microcarcinoma as its components.

Keywords: Collision tumor thyroid, huthle cell adenoma, papillary microcarcinoma thyroid

Introduction
Collision tumors are composed of two or more histologically distinct tumor components occurring at the same anatomic location. They are rare in occurrence. Some of the organs where they can occur are liver, stomach, adrenal gland, ovary, lungs, kidney and colon. Even more rarely these tumors may be found in the thyroid gland. [1]

Case Report
A 47 year old female presented with a slowly growing anterior swelling of the neck of six months duration and with no other associated symptoms. On examination, she had a solitary thyroid nodule of 4×3.5x3 cm in the right lobe of thyroid gland. The nodule was nontender, skin was normal and there were no palpable lymph nodes. Rest of the general and systemic examination was nil remarkable. The serum TSH, T3, and T4 levels were within normal limits and preoperative surgical work-up was also unremarkable.Ultrasound scan of the neck showed a well defined heterogenous, hyperechoic lesion of 28×21 mm with microcalcifications, increased internal vascularity, cystic degeneration and a peripheral halo in the nodule. Clinically it was thought of as a follicular adenoma. Fine needle aspiration done at an outside hospital was reported as Colloid Nodule. The patient underwent a right hemithyroidectomy.

On pathologic examination: The specimen weighed 20 gm, measured 5×4×3 cm. Externally it was nodular with intact capsule. Cut section showed well defined grey brown lesion of 3.5×2.5 cm (Hurthle cell adenoma) with few foci of hemorrhage and tiny cystic areas. Adjacent to lesion, there was a 0.5×0.5 cm chalky white area (Papillary carcinoma). Adjacent normal thyroid parenchyma measured 1.5×1 cm. (Figure1).
The histopathology showed Hurthle cell adenoma as a well encapsulated nodule with fibrous capsule. The tumor cells were arranged in solid sheets, and follicles having abundant granular eosinophilic cytoplasm, large nuclei and few showed prominent nucleoli. (Figure 2). Section from the papillary carcinoma area showed papillae with fibrovascular cores lined by tumor cells with nuclear clearing and finely dispersed chromatin. Occasional nuclear grooves were seen. No capsular or vascular invasion was noted. (Figures 3 and 4)

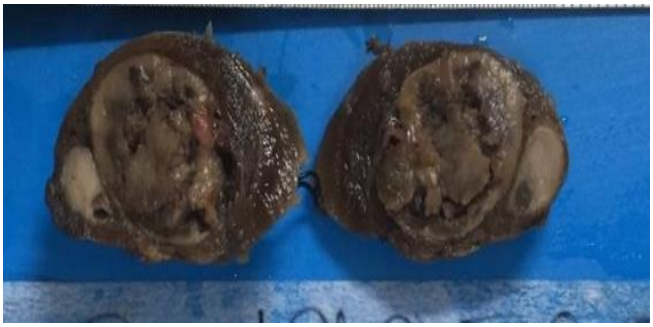

Fig 1: Larger lesion is Hurthle cell adenoma with adjacent smaller well- circumscribed chalky white area of Papillary carcinoma

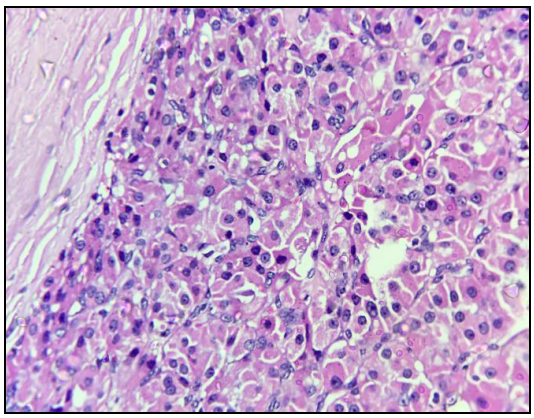

Fig 2: Sections from Hurthle cell adenoma with capsule. (H and E stain 100X)

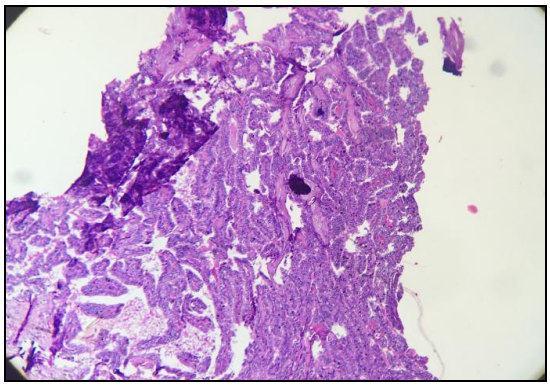

Fig 3: Section from the papillary carcinoma area. (H and E stain 40X)

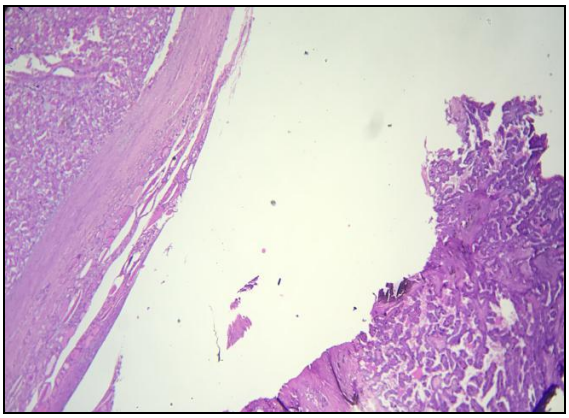

Fig 4: Collision tumor: Section showing Hurthle cell adenoma (left) and Papillary carcinoma of thyroid (right) (H and E stain 40X)

In view of papillary thyroid carcinoma, on the histopathology report, the patient was referred to the department of Oncology and is under follow-up.

Discussion

Thyroid nodules are very common in day to day clinical practice and have a prevalence of 5% by palpation and almost 50% in the elderly on ultrasound examination [2]. Thyroid neoplasms are usually of a single type. Rarely more than one type of thyroid neoplasm occurs at the same time in single or different lobes. These tumors can occur as mixed tumor, composite tumor or collision tumor. Collision tumor refers to coexistent but independent tumors that are histologically distinct. The common follicular histogenesis of Hurthle cell adenoma and papillary carcinoma explains the synchronicity of these two entities [3].

The term Microcarcinoma indicates a papillary thyroid carcinoma that is incidentally found and is less than 1 cm in diameter.

The gross specimen in our case was sampled extensively to look for any capsular or vascular invasion so as to rule out Hurthle cell carcinoma. In addition, we found a focus of papillary microcarcinoma adjacent to the adenoma capsule. Hence, we reported the case as collision tumor comprising of Hurthle cell adenoma and papillary microcarcinoma. This is a very rare entity. Various authors [4-7] have reported combination of different malignancies in thyroid. In our case it was a combination of a benign and a malignant tumor. Rana *et al.* [3] have reported a similar case of collision tumor of Hurthle cell adenoma and papillary microcarcinoma in a 45 year old woman.

Detection of such associated lesions may modify the management of patient although such combination is seen in minority of patients.

Tumors having two different histologic malignancies behave more aggressively and have a higher risk of recurrence as compared to either of the tumors occurring independently. Treatment should be patient specific and is dictated by the more aggressive of the tumors. As these entities are very rare, standardized protocols for diagnosis or treatment have not yet been established [1].

Conclusion

Collision tumors are rare entities in thyroid gland. Extensive sampling of thyroid specimens is recommended and even tiny areas appearing different from normal need to be sampled thoroughly in order to detect unsuspected carcinomas.

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