

Case Report

Hurthle cell adenoma and papillary microcarcinoma: a rare case of thyroid collision tumor

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ABSTRACT

Collision tumors of the thyroid gland are histologically distinct tumors coexisting within the gland. Here, we depict a case of a 36-year-old woman who presented with anterior neck swelling of one-year duration. Local examination revealed a 3×2 cm, firm, right solitary thyroid nodule. Fine needle aspiration cytology was suggestive of Hurthle cell neoplasm. Patient underwent a right hemi-thyroidectomy. Histopathological examination showed co-existence of Hurthle cell adenoma and papillary thyroid microcarcinoma. The patient was asymptomatic during six months follow up. It is important that the surgeons and pathologists are aware of these collision tumors so that optimal therapeutic interventions can be carried out.

Keywords: Collision tumors, Thyroid, Hurthle cell adenoma, Papillary microcarcinoma

INTRODUCTION

Collision tumors are rare pathological entities wherein two or more histomorphologically distinct neoplasms co-exist at the same anatomic location. There are few case reports of various collision tumors of thyroid gland, with majority of them describing co-occurrence of medullary and papillary carcinomas.¹ Here, we describe a case of co-existing Hurthle cell adenoma (HCA) and papillary microcarcinoma (mPTC). To the best of authors' knowledge, only a single case of combined Hurthle cell adenoma and papillary thyroid carcinoma (PTC) has been reported in the literature till date.²

CASE REPORT

A 36-year-old lady presented with the complaint of anterior neck swelling to Surgery department of Andaman and Nicobar Islands Institute of medical

sciences, Port Blair, for one-year duration which was progressively increasing in size. There was no history of rapid increase in size, associated pain, or any compressive symptoms. On examination, she was found to have a 3×2 cm, firm, solitary nodule of the right lobe of thyroid. There were no palpable regional lymph nodes. Rest of the general physical and systemic examination were largely unremarkable. Thyroid function tests were normal. Ultrasound scan of the neck showed a 3.6×3.0 cm hyperechoic nodule in the right lobe of thyroid, suggestive of a follicular neoplasm. Fine needle aspiration cytology was performed which yielded moderately cellular smears displaying clusters as well as singly dispersed population of Hurthle cells (Figure 1 A, B). These cells showed mildly anisomorphic nuclei with fine chromatin, conspicuous nucleoli, and abundant amount of granular cytoplasm. A diagnosis of Hurthle cell neoplasm was made (Bethesda category IV). Subsequently, right hemi-thyroidectomy was carried out

and the specimen was sent for histopathological examination. On gross examination, the specimen measured 6×4.5×3.5 cm. The outer surface was nodular. Cut surface revealed a well-encapsulated nodule that was solid, soft to firm, homogenous, tan-brown in colour and measured 3×3×2 cm. A firm, whitish nodule, measuring 0.7cm in maximum diameter, was also noted in juxtaposition. The larger nodule, microscopically, showed an encapsulated lesion comprising of sheets and closely packed follicles of hurthle cells (Figure 2 A, B). After examining multiple sections from the capsule, no evidence of capsular or vascular invasion were noted. The smaller adjoining of nodule showed another neoplasm composed arborizing papillae with thin fibrovascular core (Figure 2C). These papillae were lined by neoplastic cells displaying nucleomegaly, nuclear clearing, grooving, and occasional intranuclear pseudoinclusions (Figure 2D).

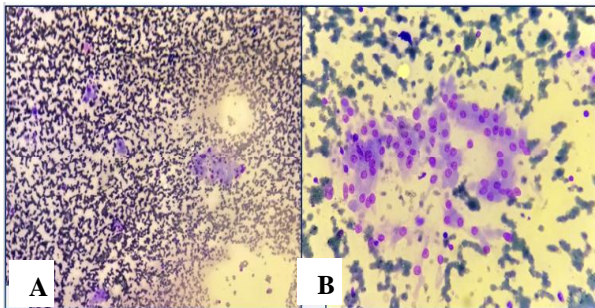


Figure 1: (A) Hurthle cells lying singly as well as in small groups against a haemorrhagic background (May Grunwald Giemsa stain, 40×) (B) Individual cells display mildly anisomorphic nuclei, finely dispersed chromatin, conspicuous nucleoli and abundant granular cytoplasm (May Grunwald Giemsa stain, 400×).

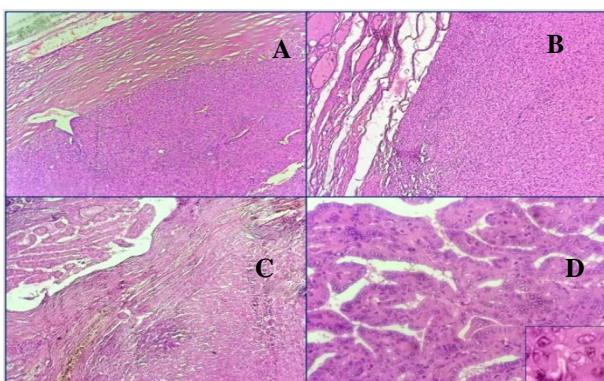


Figure 2: (A, B) Hurthle cell adenoma comprising of sheets of Hurthle cells and surrounded by a capsule of variable thickness (Hematoxylin and Eosin stain, 40×); (C) Hurthle cell adenoma (bottom right) and Papillary microcarcinoma (top left) with intervening fibrotic tissue (Hematoxylin and Eosin stain, 40×); (D) Papillary microcarcinoma with papillary architecture and PTC-like nuclear features (Hematoxylin and Eosin stain, 200×).

Rest of thyroid parenchyma was unremarkable. Hence, a diagnosis of HCA with mPTC of right lobe of thyroid was made. The post-operative period was uneventful. She was healthy with no fresh complaints at her first 6-month follow-up visit. Her follow-up thyroid function tests and ultrasonography of neck were also within normal limits.

DISCUSSION

The simultaneous occurrence of multiple and dissimilar thyroid tumors in the same thyroid gland is a rarity and can either be composite tumors or collision tumors or mixed tumors. The exact histogenesis of these tumors remains a matter of debate. Composite tumors are composed of tumors of different cell origin, e.g., thyroglobulin-positive follicular and calcitonin-positive C-cell whereas collision tumors are derived from a single cell of origin, occur in juxtaposition with no histological admixture.^{3,4} Mixed tumors are also thought to have a common cell of origin but in contrast to collision tumors, show histological admixture and the tumor cells co-express thyroglobulin and calcitonin.^{4,5} Our case qualifies as a collision tumor since both HCA and PTC originate from thyroid follicular cells.

However, there is paucity of literature describing the coexistence of PTC and Hurthle cell neoplasm. Samiee-Rad et al and Navya et al reported concurrent PTC and Hurthle cell carcinoma (HCC) arising in the background of Hashimoto thyroiditis.^{6,7} Baloch et al reported a case of coexistent HCC and tall cell variant of PTC in the same lobe of thyroid gland.⁵ An unusual case of HCC harbouring activating BRAF mutation and coexisting with multifocal PTC was presented by Sinno et al.⁸ Similar to the present case, Rana et al found a focus of mPTC adjacent to the capsule of HCA.²

Collision tumors are therapeutically challenging due to the dual pathology and clinical behaviour. For instance, PTC usually display a tendency toward regional lymph node metastasis unlike HCC that usually spreads by hematogenous route.^{5,7}

Also, HCC is more aggressive in comparison with PTC and it is resistant to the radioiodine therapy.^{5,7} In this particular case, there was no need for adjuvant therapy or revision surgery owing to the known indolent behaviour of HCA as well as mPTC. However, follow up is imperative in such cases.

CONCLUSION

This case exemplifies a unique presentation of HCA in juxtaposition with mPTC and serves as a useful addition to the existing literature of collision tumors of thyroid gland. Documentation of such cases along with follow-up data is critical for better understanding of the underlying pathology, tumorigenesis, clinical behaviour, prognostication and for crafting standardized diagnostic protocols and management strategies.

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