

Case Report

C-Cell Hyperplasia in a Case of Papillary Carcinoma Thyroid

Dr. Monika Gupta¹, Dr. Dimple Mehrotra², Dr. Pushpa Bisht³, Dr. Rajeev Sen⁴

¹Associate Professor, ²Senior Resident, ³Junior Resident, ⁴Senior Professor and Head,
Department of Pathology, Pandit B.D.Sharma PGIMS Rohtak, Haryana, India

Corresponding Author: Dr. Dimple Mehrotra

ABSTRACT

Papillary thyroid carcinoma is the most common type of thyroid cancer, representing 75-85% of all thyroid cancer cases. ^[1] C-cell hyperplasia can be reactive or neoplastic and is considered a preneoplastic lesion associated with various endocrinopathies. We report a case of coexistent reactive C cell hyperplasia with papillary carcinoma thyroid.

Key words- C-cell hyperplasia, calcitonin, papillary carcinoma thyroid

INTRODUCTION

Parafollicular cells (also known as C-cells) are primarily calcitonin producing cells found adjacent to the thyroid follicles. ^[2] Reactive C cell hyperplasia is considered a physiologic or reactive proliferation of calcitonin producing cells in response to different physiologic and/or pathologic endocrinal stimuli. ^[3]

CASE REPORT

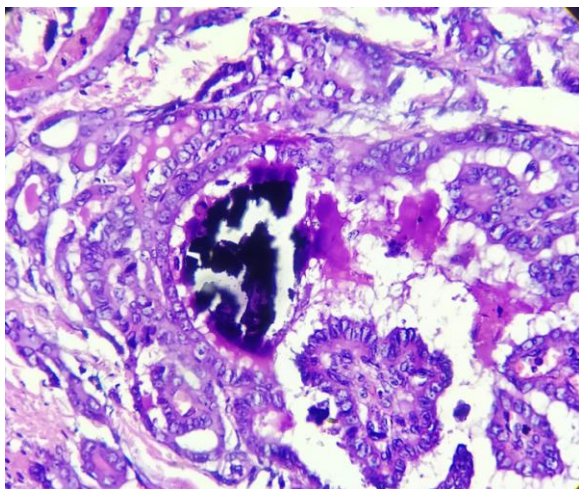


Fig.1 Papillary carcinoma Thyroid (H&E:400X)

A 46 year female who was a known case of hypothyroidism presented with a painless nodule of 2 cm diameter in the right lobe of thyroid since 1 month. Her Serum calcitonin levels were raised. Radiological imaging (USG) revealed a hypoechoic lesion measuring approx. 2.5x1.5 cm showing flow on Color Doppler in right lobe and isthmus along with multiple enlarged cystic lymph nodes identified in right cervical region. Fine needle aspiration cytology of this thyroid nodule was reported as Papillary Thyroid Carcinoma. After which a total thyroidectomy was performed and the specimen submitted for histopathological examination. On Gross examination the total thyroidectomy specimen measured 6.5x2x0.5cms. Cut surface showed a grey white area measuring 1.5cms in diameter with a tiny yellowish orange focus measuring 0.5 cm in diameter within the grey white area. Microscopic examination of the grey white area showed features of Papillary Carcinoma thyroid (Fig 1) and sections examined from the yellow orange areas showed monotonous population of C cells suggestive of a reactive C cell hyperplastic nodule (Fig 2

and 3). On IHC: The focus of C cell hyperplastic nodule was positive for Chromogranin, negative for Thyroglobulin (Fig 4).

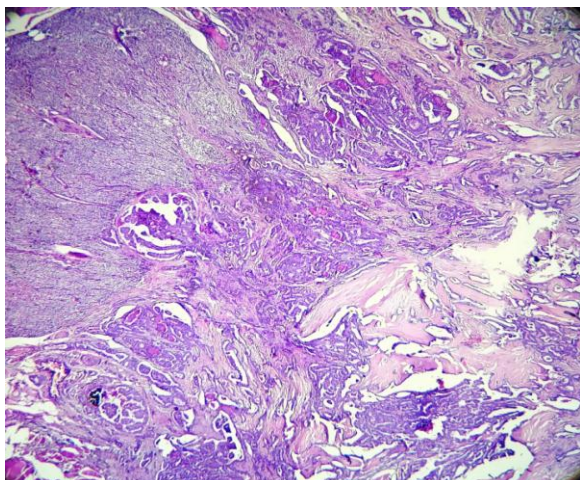


Fig.2 : A reactive C cell hyperplastic nodule at upper left corner of the photomicrograph in a background of papillary carcinoma thyroid (H&E 100X)

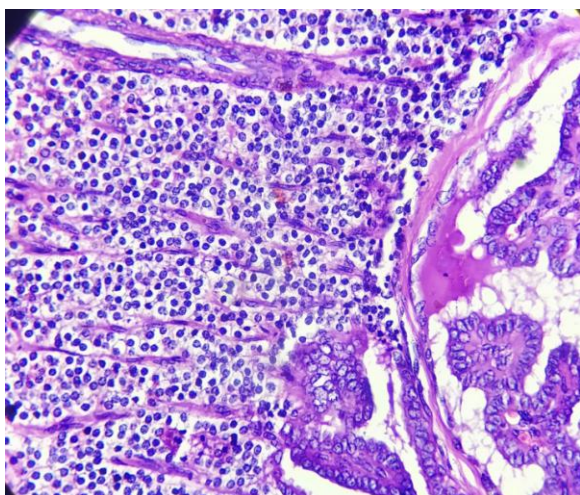


Fig. 3: C cell hyperplasia with papillary carcinoma thyroid (H&E:400X)



Fig 4: On IHC- Chromogranin positivity in the C cell hyperplastic nodule (H&E 100X)

DISCUSSION

C cell hyperplasia has traditionally been considered as a preneoplastic lesion associated with hereditary endocrinopathies (as in familial medullary thyroid cancer or MEN2) and is characterised as neoplastic C-Cell Hyperplasia. [4]

However, it may be associated with many other (neoplastic and non-neoplastic) thyroid diseases, and is characterised as reactive C-Cell Hyperplasia. [5,6]

Progression from C-Cell Hyperplasia to Medullary Thyroid Carcinoma has been recognised as a crucial entity in the familial setting including familial Medullary Thyroid Carcinoma and MEN2 syndrome. So, the clinician should suspect C Cell Hyperplasia in patients with increased calcitonin levels as was seen in our case even though the primary pathology was papillary carcinoma thyroid. [3]

CONCLUSION

The neoplastic and the reactive forms, which are two totally distinct entities, produce marked confusion in pathologists and surgeons.

Typically, reactive C Cell Hyperplasia is an incidental finding on histology following thyroid resection for other thyroid lesions which is easily overlooked. Therefore, a thorough search especially in patients with raised calcitonin levels is necessary to identify this entity.

REFERENCES

1. Orlo H. Clark, Thyroid cancer and lymph node metastases. *J. Surg. Oncol.* 2011;103(6):615–618.
2. Morillo-Bernal J, Fernandez-Santos JM, Utrilla JC *et al.* Functional expression of the thyrotropin receptor in C cells: new insights into their involvement in the hypothalamic-pituitary-thyroid axis. *J. Anat.* 2009; 215:150–158.
3. Nasikas DN, Sofopoulos M, Arniogiannaki N, Sakorafas GH. C-cell hyperplasia as an incidental finding in a patient with papillary thyroid

- microcarcinoma. *Int J Endo Oncol.* 2015; 2(4):15-21.
4. Diaz-Cano SJ, de Miguel M, Blanes A *et al.* Germline RET 634 mutation positive MEN 2A-related C-cell hyperplasias have genetic features consistent with intraepithelial neoplasia. *J. Clin. Endocrinol Metab.* 2001; 86:3948–3957.
 5. Pirola S, Harrell RK. C-cell hyperplasia in thyroid tissue adjacent to papillary carcinoma. *Int. J. Surg. Pathol.* 2012; 20:66–68.
 6. Scopsi L, Di Palma S, Ferrari C *et al.* C-cell hyperplasia accompanying thyroid diseases other than medullary carcinoma: an immunohistochemical study by means of antibodies to calcitonin and somatostatin. *Mod. Pathol.* 2001; 4: 297–304.

How to cite this article: Gupta M, Mehrotra D, Bisht P. C-cell hyperplasia in a case of papillary carcinoma thyroid. *Int J Health Sci Res.* 2019; 9(6):385-387.
