

Case Report

Incidental papillary carcinoma of thyroid in Graves' disease

A. Bhagya Lakshmi^{1*}, S. Srinivas², Shaik Ayesha Begum¹, B. Vivekananda²

¹Department of Pathology, Andhra Medical College and King George Hospital, Visakhapatnam, A. P., India

²Department of Endocrinology, Andhra Medical College and King George Hospital, Visakhapatnam, A. P., India

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*Correspondence:

Dr. A. Bhagya Lakshmi,

E-mail: dr.a.bhagyalaxmi@gmail.com

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ABSTRACT

Traditionally Grave's disease was considered as protection against thyroid cancer. The incidence of papillary carcinoma thyroid in grave's disease is 2.4%. Thyroid cancer occurring in grave's disease has higher frequency of persisting or relapsing disease than thyroid cancers occurring in matched euthyroid control patients. Here we present a case of papillary carcinoma in a Grave's disease patient presented with nodular goiter

Keywords: Graves' disease, TSH, Papillary carcinoma

INTRODUCTION

Thyroid cancer in patients with thyrotoxicosis was considered to be extremely rare, but this perception has proven to be incorrect. Several studies have demonstrated both an increased incidence of nodules and of thyroid cancer in patients with Grave's disease. Palpable thyroid nodules occur in approximately 15% of grave's patient, with cancer rates varying from as low as 1% to as high as 9% of cases. The association between TSH (thyroid stimulating hormone) and thyroid cancer has long been known. TSH has a central role in thyroid growth and normal functioning and appears to play a similar part in the growth and development of thyroid cancer. The close relationship of TSH to the stimulating TSH-R antibodies (TSH-R AB) seen in grave's disease has led to the perception that thyroid cancer occurring in the setting of grave's disease may become more aggressive as a result of stimulation by these autoantibodies.

CASE REPORT

A 65 year's old male patient presented with diplopia and proptosis (Figure 1) associated with lacrimation and redness of eyes for 2 months with no foreign body

sensation or restriction of visual fields or pain in eyes. He gave a history of weight loss despite normal appetite. He was a known hypertensive and a chronic smoker. General examination of patient showed tremors of outstretched hands with bilateral exophthalmos. Thyroid examination revealed Grade 2 nodular goiter, hard in consistency with no regional lymphadenopathy and eye examination showed bilateral exophthalmos, with limitation of upward and outward gaze, with a clinical Activity Score of 5/7. Patient's thyroid profile was done which revealed raised T₃ and T₄ with T₃-1.53ng/ml, and T₄-14.44µg/ml with decreased TSH level of 0.01µiu/ml. Scan showed diffuse thyromegaly with hypoechoic nodules on both sides. Fine needle aspiration cytology of right lobe was suggestive of papillary carcinoma. Patient underwent surgery and we received a total thyroidectomy specimen of 9x4x2 cms with surface of thyroid was nodular and on cut section it showed a grey white nodule measuring 2x1 cms and few cystic areas. Histopathological examination showed thyroid follicles with scalloping of the colloid and tumour composed of complex branching papillary structures with fibrovascular cores lined by cells showing pathognomic nuclear features of nuclear clearing, enlargement, overlapping, and intranuclear grooves. Histological

features are consistent with papillary carcinoma thyroid in Grave's disease (Figure 2 to Figure 5).

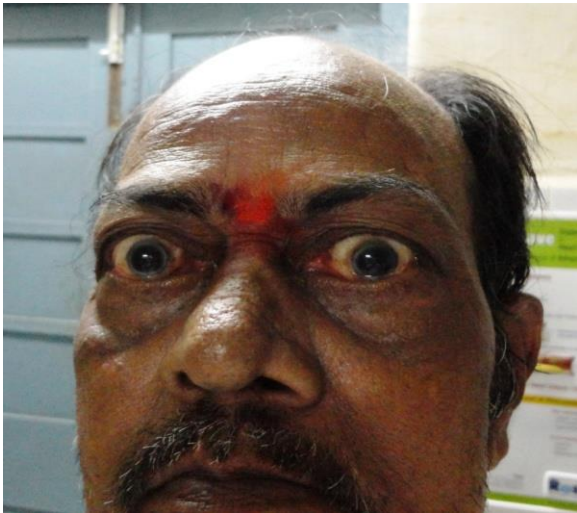


Figure 1: Clinical photo- Graves' orbitopathy.

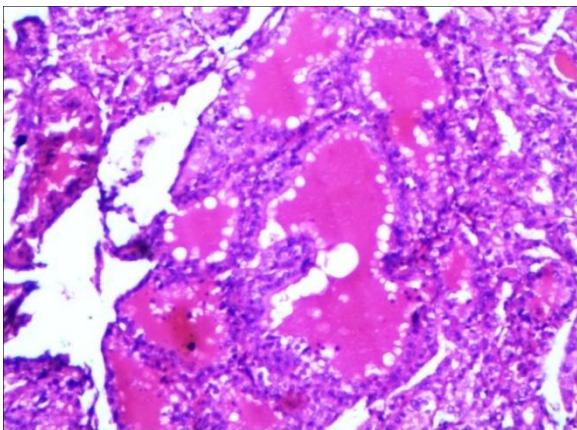


Figure 2: Photomicrograph showing thyroid follicles showing scalloping of colloid (H&E 100X).

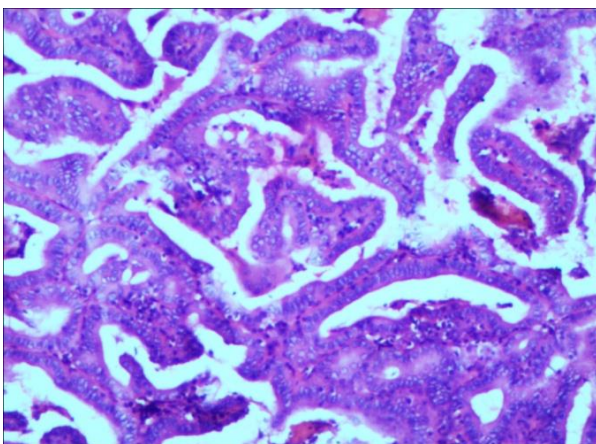


Figure 3: Photomicrograph showing papillary formations with central fibrovascular core (H&E 100X).

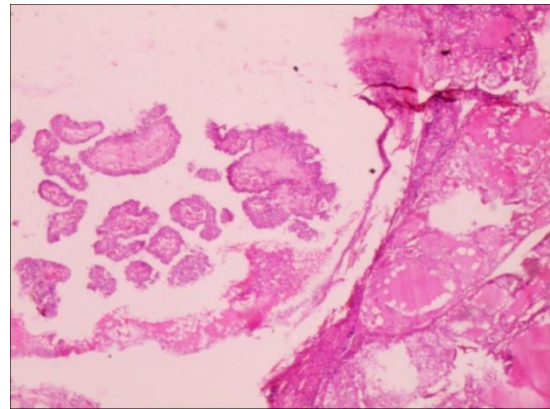


Figure 4: Photomicrograph showing cyst showing multiple branching papillary structures (scanner view).

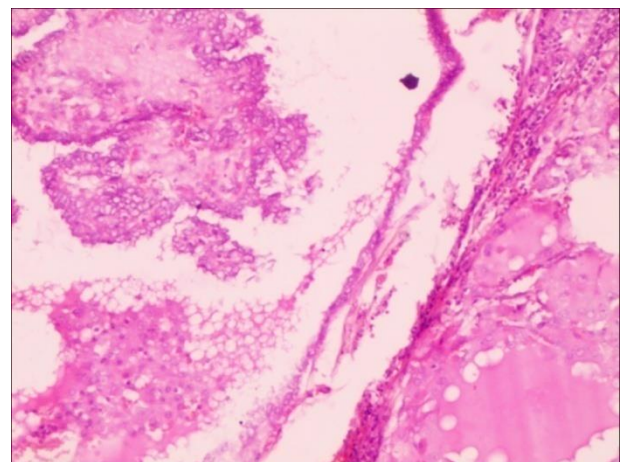


Figure 5: Photomicrograph showing cyst showing multiple papillae with adjacent thyroid follicles showing scalloping of colloid (H&E 100X).

DISCUSSION

In the earliest reports, thyrotoxicosis was considered insurance against thyroid cancer, a conclusion based mainly on the results of Beahrs et al.⁷ and Sokal⁸ who reported incidences of carcinoma in patients with grave's disease of 0.5% and 0.15%, respectively. Shapiro et al.¹ and subsequent reports² indicated that the coexistence of grave's disease and thyroid carcinoma was not rare. Small thyroid cancers are being discovered as incidental findings in Graves' disease patients.³ Thyroid nodules are common in graves disease and raise a concern about the possible presence of thyroid malignancy.⁵ Thyroid stimulating hormones (TSH) plays role in thyroid growth and normal functioning and is involved in thyroid organogenesis, cell differentiation, iodine uptake, and tri-iodothyronine secretion,⁴ thyroid stimulating antibodies in grave's disease stimulate the growth of thyroid cancer. There are important functional similarities between TSH and the thyroid-stimulating antibodies of grave's disease. Like TSH, thyroid-stimulating immunoglobulin occupies thyrotropin membrane receptors on normal thyroid cells

and activates thyroid adenylate cyclase, ultimately causing normal thyroid tissue to become hyperplastic and hyper functional. Filetti and his colleagues⁵ reported a correlation between thyroid cancer that relapse after thyroidectomy and a high level of circulating thyroid stimulating antibody. High level of thyroid stimulating antibody have also been reported to stimulate the thyroid cancer metastasis.⁴ Factors other than Thyroid stimulating antibody, however, can also play a role in promoting cancer growth and metastatic spread in grave's patients. Among these factors are the presence of growth factors possibly produced by the overstimulated and hypervascularized thyroid as well as the immunological derangement present in these patients.⁶

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Ethical approval: Not required

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