DOI: 10.5958/2319-5886.2014.00419.6

International Journal of Medical Research & Health Sciences

www.ijmrhs.com Volume 3 Issue 3 Coden: IJMRHS Copyright @2014 ISSN: 2319-5886

Received: 13th May 2014 Revised: 22nd Jun 2014 Accepted: 26th Jun 2014

Review article

# COEXISTENCE OF HASHIMOTO'S THYROIDITIS WITH PAPILLARY CARCINOMA THYROID: A RARE CASE REPORT WITH REVIEW OF LITERATURE

*Mahajan Meera S[1], Bindu Suparna M[2], Taksali Reeta N[3], Kale Apurva V[4], Mulay Smita S[5]

[1,3]Lecturer, [2]Associate Professor, [4]Resident, [5]HOD and Professor, Department of Pathology, MGM Medical College and Hospital, N-6 Cidco, Aurangabad, Maharashtra

*Corresponding Author email ID: meeramahajan12@gmail.com

## ABSTRACT

Hashimoto's thyroiditis is an inflammatory disease of the thyroid gland. It has an autoimmune etiology. A higher incidence of papillary thyroid carcinoma with Hashimoto's thyroiditis was reported in several studies. 51 year old female patient presented with a swelling in front of the neck region since 5 years. Clinical examination revealed a swelling about 4x4x3 cm, smooth, tender, non-pulsatile and moved with deglutition. Ultrasonography revealed multinodular goiter without evidence of lymphadenpathy. Thyroid profile was done. Patient was euthyroid. FNAC reported as benign lesion. Hemithyroidectomy was done. Grossly thyroidectomy specimen i.e. hemithyroid 6x3x3 cm was received which was externally capsulated and nodular. Cut section showed a greyish white area and cystic areas each of size 1x1 cm filled with haemorrhagic and mucoid material respectively. Microscopy showed thyroid follicles with lymphoid infiltrate in the stroma forming follicles with germinal centres. Hurthle cell change was also noted. Section from both cystic areas showed plenty of complex branching papillae with fibrovascular core lined by cuboidal cells showing ground glass nuclei. The case was diagnosed as papillary carcinoma in Hashimoto's thyroiditis. The frequency of the association of Hashimoto's thyroiditis and differentiated thyroid carcinoma is approximately 30%. However, the presence of Hashimoto's thyroiditis has no effect on the diagnostic evaluation and management of papillary carcinoma of thyroid. Yet, one has to keep an eye for the features of papillary carcinoma in case of Hashimoto's thyroiditis. So a thorough grossing of thyroid specimen is recommended especially in patients who have Hashimoto's thyroiditis.

**Key words:** Hashimoto's thyroididtis, papillary carcinoma thyroid, coexistence.

## INTRODUCTION

Hashimoto's thyroiditis , characterized by the presence of diffuse lymphocytic and plasma cell infiltration of the thyroid parenchyma and reactive germinal centres, is most typically seen in the adult population with a female predominance.[1] Papillary carcinoma is defined as a malignant epithelial tumour showing evidence of follicular cell differentiation and characterized by nuclear distinctive feature.[2]

Several studies report a higher rate of papillary thyroid carcinoma in patients with Hashimoto's thyroiditis indicating possible correlation between the two diseases.[3-5]

There is approximately 30% frequency of the coexistence of Hashimoto's thyroiditis and differentiated thyroid carcinoma. The presence of coexistent Hashimoto's thyroioditis does not affect the diagnostic evaluation and management of papillary thyroid cancer.[6]

## CASE REPORT

51 years old female patient presented with swelling in front of the neck region since 5 years. Patient had difficulty in swallowing and change in voice since 2 months. Clinical examination revealed a swelling about 4x4x3 cm, smooth, tender, non-pulsatile and moved with deglutition. On ultrasonography thyroid gland appeared diffusely bulky with well defined nodules. It was reported as features suggestive of multinodular goiter without evidence of lymphadenopathy. Thyroid profile was done. Patient was Euthyroid.$FT_4$ – 1.06[N.R.- 0.8-1.9 ng/dl] $FT_3$ – 3.05 [N.R.- 1.5-4.1 pg/dl] TSH – 0.973[N.R.- 0.4-4Uiu/ml] FNAC reported as benign lesion. hemithyroidectomy was done. Grossly thyroidectomy specimen i.e. hemithyroid of size 6x3x3 cm was received which was externally capsulated and nodular. Cut section showed a greyish white area and cystic areas each of size 1x1 cm filled with haemorrhagic and mucoid material respectively. (Fig-1) Microscopy showed thyroid follicles with lymphoid infiltrate in the stroma forming follicles with germinal centers.(Fig-2,3)


**Fig 1: Cut section of a thyroid showing nodule with cystic and haemorrhagic areas**

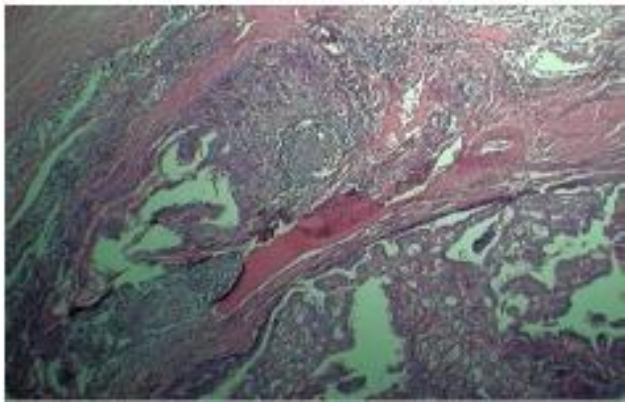

**Fig 2: Thyroid having lymphoid follicles & papillary carcinoma (H& E 10x)**

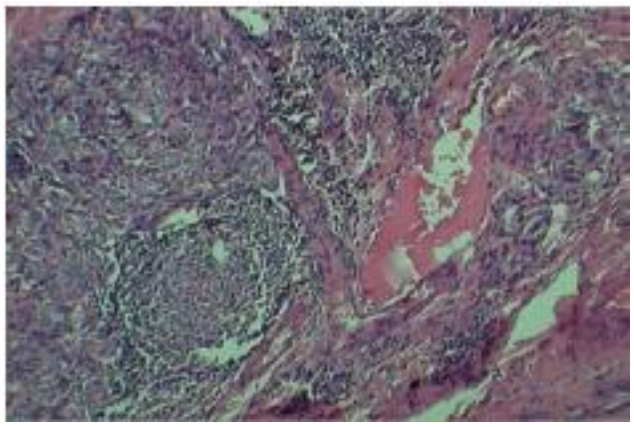

**Fig 3: Lymphoid follicles with germinal centres (H& E 10x)**

Hurthle cell change was also noted. Section from both cystic areas showed plenty of complex branching papillae with fibrovacular core lined by cuboidal cells showing ground glass nuclei.(Fig-4,5) The case was diagnosed as papillary carcinoma in Hashimoto's thyroiditis.

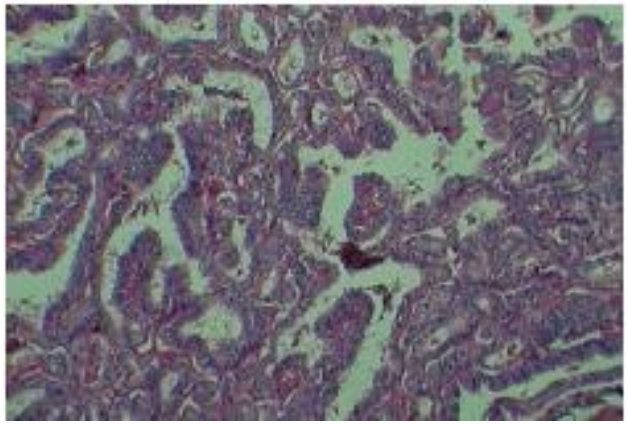

**Fig 4: Papillary carcinoma (H& E 10x)**

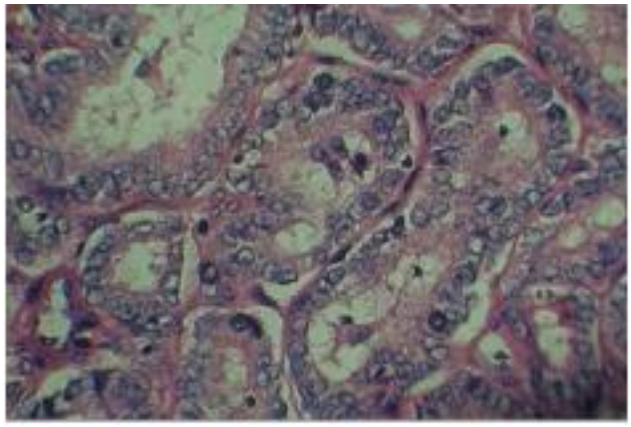

**Fig 5: Papillae and ground glass like appearance of nuclei. (H& E 40x)**

## DISCUSSION

Hakaru Hashimoto, a Japanese surgeon, working in Berlin, Germany, first described Hashimoto's thyroiditis as a histological diagnosis. It is a part of

the spectrum of autoimmune thyroid diseases. It is known that women express thyroid autoimmunity more frequently than men and this tendency is even more obvious in the postmenopausal period.[7] Papillary thyroid cancer is the most common form of cancer in the thyroid. It is 2.5 times more likely to develop in women than in men.[8] In our case, patient is of 51 years female.

The relationship between Hashimoto's thyroiditis and papillary thyroid carcinoma was first proposed by Daily, et al. in1955. A clear association between the two diseases among patients of different ethnic origin was determined by Okayasu et al. The causative relationship between Hashimoto's thyroiditis and Papilllary Carcinoma thyroid is not yet clear, careful observation of Hashimoto's thyroiditis patient is recommended. The literature quotes a number of proposed mechanisms of both of these diseases and some attempts are made to explain the association. For example, Wirtschafter et al. described expression of the RET/PTC1 and RET/PTC3 oncogenes in Hashimoto's thyroiditis patient.[8]

Arif, et al. concluded papillary thyroid carcinoma and Hashimoto's thyroiditis overlap in morphological features, immunohistochemical pattern and most importantly, molecular profile. Although considered a 'benign' condition, Hashimot's thyroiditis can harbour the RET/PTC rearrangement which is an early specific marker that is strongly associated with papillary thyroid carcinoma.[9]

In addition, expression of p63 in Hashimoto's patients with papillary thyroid cancer was found by Unger,et al. Thus was further examined by Burstein, at al. who proposed the two diseases are both initiated by pleuripotent p63 positive stem cell remnants.[8]

Larson, et al. investigated this relationship based on the link between chronic inflammation and cancer, resulting from chronic immune response activation leading to repeated cellular damage and alteration of stromal elements. Their work revealed that patients with HT were 3 times more likely to present with associated well –differentiated thyroid carcinoma in comparison to patients without HT, supporting the existence of a link between chronic inflammation and cancer development.[1]

According to Pino et al an immunological and autoimmune mechanism can be possible in etiopathogenia of papillary carcinoma stimulating lymphocytic infiltration.[10]

Segal K et al[11] states that Hashimoto's thyroiditis does not appear to be a premaliganant lesion. Thyroid carcinoma originated in the proliferating epithelium of Hashimoto's thyroiditids does not have any evidence. It would appear that thyroid carcinoma stimulate the development of HT in some patients. Autoimmune inflammatory reaction and the circulating antibodies hamper growth and metastasis of carcinoma of thyroid gland.[11]

Neoplastic transformation is a multistep process that results in a continuous spectrum from the normal (physiological) state to a fully established neoplasm.[9]

The crux of papillary thyroid carcinoma diagnosis relies on nuclear changes: overlapping elongated ground glass nuclei with grooves and pseudoinclusions are characteristic and are most reliable features. In fact, nuclear features are the essential diagnostic component and although frequently associated with papillae, the diagnosis of papillary thyroid carcinoma can be made in their absence. The gold standard nuclear features for the diagnosis of papillary thyroid carcinoma are related to RET/PTC rearrangement.[9]

Total thyroidectomy is the surgical procedure of choice for treatment of Hahimoto's thyroiditis with papillary thyroid carcinoma.[12] The survival of the patients who have papillary thyroid cancer may be superior in coexistent Hashimoto's thyroiditis.[13]

There is a need to be cautious while screening FNAC smears if any focus of papillary thyroid carcinoma is seen. A thorough grossing of thyroid specimen is recommended. If sample sections are not taken properly and careful grossing is not done then foci of microcarcinoma may be missed in a patient who has Hashimoto's thyroiditis.[14]

## CONCLUSION

There is approximately 30% frequency of the coexistence of Hashimoto's thyroiditis and differentiated thyroid carcinoma. Relationship between Hashimoto's thyroiditis and papillary thyroid carcinoma was first proposed by Daily, et al. in1955. A clear association between the two diseases among patients of different ethnic origin was determined by Okayasu et al.

The literature quotes a number of proposed mechanisms of both of these diseases and some attempts are made to explain the association. For example, Wirtschafter et al. described expression of

the RET/PTC1 and RET/PTC3 oncogenes in Hashimoto's thyroiditis patient.[8] Arif et al. concluded that Neoplastic transformation is a multistep process that results in a continuous spectrum from the normal (physiological) state to a fully established neoplasm.[9] Expression of p63 in Hashimoto's patients with papillary thyroid cancer was found by Unger et al. According to Pino et al an immunological and autoimmune mechanism can be possible in etiopathogenia of papillary carcinoma stimulating lymphocytic infiltration.[10] Segal K, et al. States that Hashimoto's thyroiditis does not appear to be a premaliganant lesion.

The presence of coexistent Hashimoto's thyroioditis has no effect on the diagnostic evaluation and management of papillary carcinoma of thyroid. Yet, one has to keep an eye for the features of papillary carcinoma in case of Hashimoto's thyroiditis. So a thorough grossing of thyroid specimen is recommended especially in patients who have Hashimoto's thyroiditis.

**Conflict of interest: None**

**REFERENCES**


1. Emma M Snyder, BS, Kathleen K Nocol, Andrew Buchan, Brian DC. Synchronous presentation of Hashimoto Thyroiditis and papillary thyroid carcinoma in a 7-year-old-Girl. J Ultrasound Med 2010; 29: 1007-10
2. John K, Chan C. Tumours of Thyroid and Parathyroid glands, Part A, chapter-, Christopher DM Fletcher, Diagnostic Histopathology of tumours. Churchill Livingstone 3rd ed(2): 1000.
3. Cipolla C , Sandonato L, Graceffa G, Fricano S, Torcivia A, Vieni S et al., Hashimoto thyroiditis coexistent with papillary thyroid carcinoma. Am Surg 2005;11(10): 874-78
4. Liu H, Bakhos R, Wojiek EM. Concomitant papillary thyroid carcinoma and Hashimoto's throiditis. Semin- biagn Pathol 2001;18(2): 99-103
5. Luiz Alexandre Albuquerque Freixo Campos, Silvia Miguis Picado, Andre Vicante Guima'raes, Daniel Araki Ribeiro, Rogerio Aparencido Dedivitis. Thyroid papillary caecinoma associated to Hasimoto's thyroiditis. Braz J Otorhinolaryngol 2012; 78(6):77-80
6. Cinc' J, Beleslin-Nedelkovic B, Differentiated thyroid carcinoma in previously manifested autoimmune thyroid disease. Srp. Arh Celok Lek . 2005;133(S1):74-76
7. Elias E Mazopakis, Anastasios A, Tzortzinis, Elpida I. daieraki-ott, Athanasios N. at al . Coexistance of Hashimoto's thyroiditis with papillary thyroid carcinoma – A retrospective study. Hormones 2010,9(4): 312-7
8. Daniel Repplinger BS, Joel Alder BA, Megan Haymart, Herbert Chen. Is Hashimoto's thyroiditis a risk factor for papillary thyroid cancer? J Surg Res 2008; 150(1)49-52
9. Arif S, Blanes A, SJ Diaz- cano. Hashimoto's thyroiditis shares features with early papillary thyroid carcinoma. Histopathology 2002, 41;357-62
10. Pino Riverov, Guerra Camacho M, Marcos Gracia M, Trinidad Ruiz G, Pardo Romeo G, Gonzalez Palomino A, Blasco Huelva A. The incidence of thyroid carcinoma in Hashimoto's thyroiditis our experience and literature review. An otorhinolaringol i-bero Am 2004;31(3):233-30
11. Segal K, Ben Bassat M, Avrahm A, Har EI G, Sidi J. Hashimoto's thyroiditis and carcinoma of the thyroid gland. Int Surg 1985; 70(3): 205-9
12. Kurukahvecioqlu O, Taneri F, Yuksel O, Aydin A, Tenzel E, Onuk E. Total thyroidectomy for the treatment of Hashimoto's thyroiditis coexisting with papillary thyroid carcinoma. Adv, Ther -2007;24(3):510-16
13. Bhuvanesh Sing, Ashok R Shaha, Hemali Trivedi, John F Carew, Ashok Poluri, Jatin P Shah. Coexist Hashimoto's thyroiditis with papillary carcinoma: Impact on presentation, management and outcome. Surger, 1999;126(6): 1070-77
14. Rumana Makhdoomi, Farhat Mustafa, Rais Malik, Salma Bhat, Khurshid Alam, Humaira Bashir, et al., Coexistent papillary carcinoma of thyroid and Hashimoto's thyroiditis –Daignosis on fine needle aspiration cytology. International Journal of endocrinology and metabolism 2013;11(3); 191-94