CASE REPORT

pISSN: 2384-3799 eISSN: 2466-1899
Int J Thyroidol 2016 November 9(2): 195-199
https://doi.org/10.11106/ijt.2016.9.2.195

Synchronous Occurrence of Papillary Thyroid Carcinoma and Mucosa-Associated Lymphoid Tissue Lymphoma: a Single Case Report

Jun Suk Byun, Hye Yoon Lee, Ki Won Chun and Dae Sung Yoon

Department of Surgery, Konyang University Hospital, Daejeon, Korea

Papillary thyroid carcinoma (PTC) is a common lesion, accounting for 70-80% of all thyroid cancers, whereas mucosa-associated lymphoid tissue (MALT) lymphoma of thyroid gland is rare. A simultaneous occurrence of both malignancies is extremely rare. 57 years old Korean woman diagnosed with Hashimoto's thyroiditis at left lobe of thyroid gland where atypical cells of undetermined significance at right lobe. Later, left lobe was confirmed with malignant lymphoma during series of fine-needle aspiration biopsy. Right lobe was interpreted as malignant lesions, such as papillary thyroid carcinoma based on ultrasonography images and previous biopsy results. Total thyroidectomy was performed. Pathology reported papillary thyroid carcinoma at right lobe and MALT lymphoma at left lobe. There were no post-operative complications and no recurrence yet reported. Since an association between Hashimoto's thyroiditis and development of MALT lymphoma has been reported previously, a history of Hashimoto thyroiditis should be suspected MALT lymphoma.

Key Words: Papillary thyroid carcinoma, Mucosa-associated lymphoid tissue lymphoma of the thyroid gland, Hashimoto's thyroiditis

Introduction

The most common thyroid cancer is papillary thyroid carcinoma (PTC) which accounts for nearly 80% of all thyroid cancers diagnosed. The third and fourth decade of female population is the most predominant group (female to male ratio, 3:1) for PTC, and it usually is associated with an excellent prognosis.[1,2] Mucosa-associated lymphoid tissue (MALT) lymphoma of the thyroid gland is rare, accounting for between 0.6% and 5% of all cases of thyroid cancer.[3] Pure thyroid MALT lymphomas comprise about 6 to 28% of primary thyroid lymphomas, and are recognized as extranodal marginal zone B-cell lymphomas in the Revised European American Lymphoma classification of 1994 and the World Health Organization classification of 1999.[4-6] Both PTC and MALT lymphomas are diagnosed by fine-needle aspiration (FNA) based on histologic features. The thyroid is normally devoid of such lymphocytic tissue, Hashimoto's thyroiditis has been associated with an increased risk of lymphoma, including MALT lymphoma.[7] Thus, Hashimoto's thyroiditis is reported to strongly associate with MALT lymphomas whereas there is very little association with PTC. The simultaneous appearance of both malignancies in a single patient is very rare although there are only few reports on synchronous event previously.

Received April 25, 2016 / Revised 1st June 21, 2016, 2nd August 23, 2016 / Accepted September 4, 2016
Correspondence: Dae Sung Yoon, MD, PhD, Department of Surgery, Center of Breast and Thyroid Cancers, Konyang University Hospital, 158 Gwanjeodong-ro, Seo-gu, Daejeon 35365, Korea
Tel: 82-42-600-8956, Fax: 82-42-524-8956, E-mail: dsyoonmd@kyuh.ac.kr

Case Report

57 years old Korean woman visited our thyroid cancer center due to multi-centric nodules in both thyroid glands detected during the Korean National Cancer Screenings. The physical examination revealed neither palpable nodule nor lymph node on her neck. She was initially diagnosed with Hashimoto's thyroiditis at the left lobe of the thyroid gland where atypical cells of undetermined significance at the right lobe. Results of thyroid function test showed the euthyroid state with low thyroglobulin level (0.04-0.6 ng/mL, normal rage 1.4-78 ng/mL). After series of FNA biopsy and 6 months interval of regular check-ups, the left lobe of the thyroid gland has been confirmed with the malignant lymphoma along with Hashimoto's thyroiditis at the background, whereas the right lobe of her thyroid gland was under suspicion of undifferentiated malignancy. On initial ultrasonography, 0.5 cm size hypoechoic nodule at the right lobe of the thyroid gland near the isthmus, whereas various sizes (0.2-0.8 cm) of multifocal heterogeneous echogenic nodules at the left lobe of the thyroid gland which was diffusely enlarged (Fig. 1).

According to those biopsy results, the previous ultrasonography images could be interpreted as the malignant lesions, such as papillary thyroid carcinoma, at her right lobe of the thyroid gland. The further evaluations have been scheduled by both medical and surgical oncologists. On the neck computer tomography, the left lobe of thyroid gland showed diffuse enlargement with elliptical solid enhancing nodules involving almost entire left lobe and isthmus along with multiple enlarged lymph nodes showing at left level IV, VI and adjacent supraclavicular fossa. Small nodular solid enhancing lesion adjacent to the right isthmus was found at the right lobe of the thyroid gland (Fig. 2).

On the bone marrow biopsy, the result confirmed that there was no evidence of the systemic lymphoma. Therefore, the surgical intervention was scheduled, and the total thyroidectomy with selective neck dissection on level III, IV, VI) was performed. The intraoperative frozen biopsy at the level III was confirmed no malignancy, and later the perithyroidal lymph nodes (level III, IV, V) were also proven to be no malignancy. The pathologic report confirmed that PTC at the right lobe and MALT lymphoma at the left lobe of the thyroid gland. Immunohistochemistry result of Bcl2, CK, and CD20 showed infiltration and aggregations of neoplastic B-cell in extranodal and interfollicular space (Fig. 3). The Ann Arbor staging was stage IE disease localized to the thyroid. She was discharged without any post-operative complications, and the radioactive iodine (RAI) therapy was not necessary for her. One month later, positron emission to-

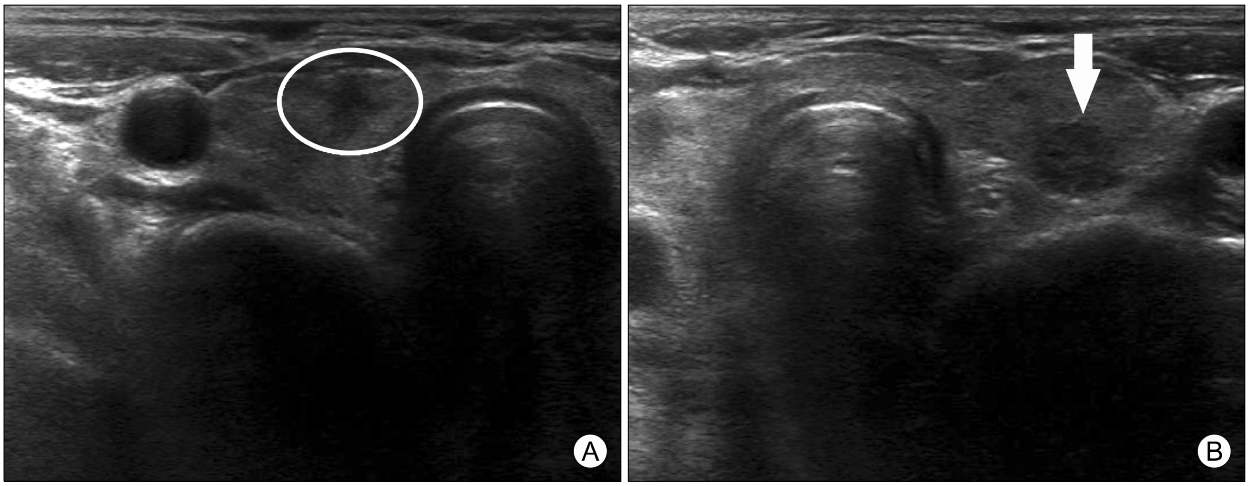

Fig. 1. Ultrasonography for the thyroid gland revealed the diffuse enlarged left lobe of the thyroid gland with 0.8 cm size of hypoechoic nodule (arrow) whereas about 0.5 cm size of irregular shaped hypoechoic nodule found near the right side of the isthmus (circle).

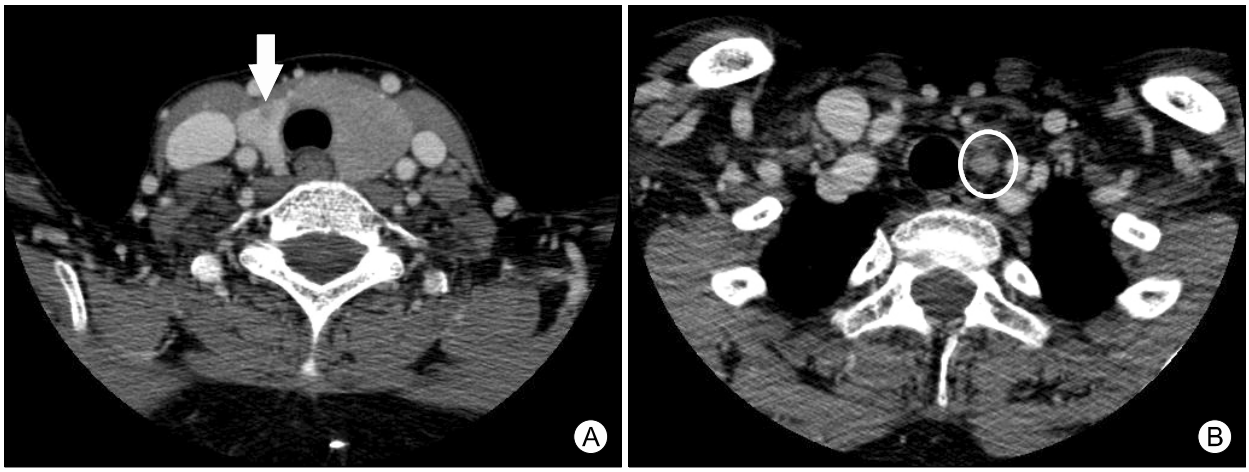

Fig. 2. Enhanced computed tomography (CT) revealed small nodular lesion appeared adjacent to the right side of isthmus (arrow) whereas the left lobe of the thyroid gland and the isthmus involving with lymphoma showed diffusely enlargement and abnormal enlarged lymph nodes involving left level IV, VI and supraclavicular area (circle).

mography (PET)-computer tomography (CT) showed no evidence of remnants of the lymphoma. After 5 years passed from the surgery, she has been carefully monitored without the administration of chemotherapy or radiation, and there has no recurrence been reported during the close surveillance by the ultrasonography.

Discussion

PTC is the most prevalent thyroid cancer and is associated with 20-year survival rate of more than 90%.[2] Thyroidectomy is the primary treatment and usually leads to high cure rates with excellent prognosis.[3] Thyroid lymphoma accounts for between 0.6% and 5% of malignant tumors found in the thyroid and MALT lymphoma accounts for 10% of all thyroid lymphomas.[1,2] MALT lymphomas tend to have more indolent courses and are associated with better prognosis: the 5 year-disease-specific survival rate is 90-96%.[1,2] Development of MALT lymphoma has been linked to chronic inflammation and autoimmunity, thus it is involved with Hashimoto's thyroiditis. Despite the fact that MALT lymphoma of the thyroid gland is rare, any patient with Hashimoto's thyroiditis who increases a neck mass would be suspected to it.[8]

FNA is more frequently used for the diagnosis of tumors, especially in the thyroid. However, results on its effectiveness are conflicting, with a reported sensitivity ranging from 55% to 86%.[2] The cytological diagnosis of MALT lymphoma is very difficult because of an overall heterogeneous appearance and the differentiation of this type of lymphoma from Hashimoto's thyroiditis.[3]

Matsuzuka et al.[9] reported no correction between treatment types (surgery alone, surgery and radiation, surgery and chemotherapy, or surgery and multimodality therapy) and survival outcomes.[9] While a combination of radiotherapy and chemotherapy is currently known as the standard treatment modality, local treatments such as total thyroidectomy, or sole radiotherapy have been reported to be effective as well in MALT lymphoma limited to the thyroid.[4,10] In cases of co-occurrence of PTC and MALT lymphoma, the most important consideration is whether surgery or radiation and chemotherapy should be performed followed by whether total thyroidectomy or lobectomy should be performed if surgical treatment was selected.[3] No evidence of recurrence of either PTC or MALT lymphoma has been noted in the present case, but careful follow-up is essential because there are no reports for lone-term prognosis of co-occurrence of the two malignant tumors.[3]

Rituximab is a monoclonal antibody directed against B cell specific antigen CD20. It was approved by the U.S. Food and Drug Administration in 2006 as a

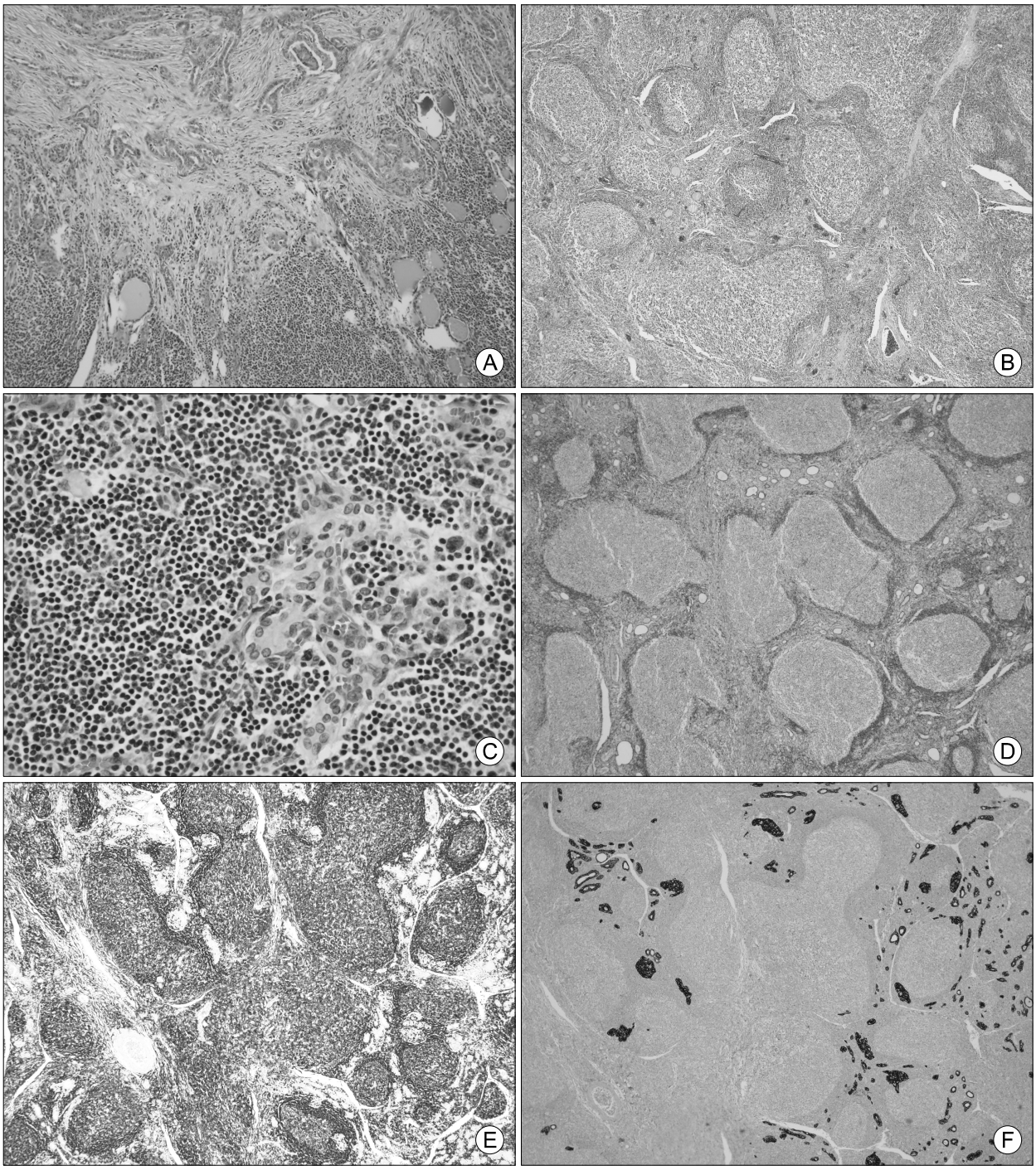

Fig. 3. (A) Histologic section of papillary microcarcinoma in background of lymphocytic thyroiditis (H&E stain, ×100). (B) Extranodal marginal zone B-cell lymphoma involving thyroid. Low-power magnification exhibiting a follicular pattern mimicking follicular lymphoma (H&E stain, ×40). (C) Sheets of monocytoid cells and lymphoepithelial lesion (LEL) (H&E stain, ×400). (D) Bcl2-negative germinal centers, excluding follicular lymphoma (Immunohistolochemistry, ×40). (E) CD20-abnormal aggregates of neoplastic B-cells in interfollicular space (immunohistolochemistry, ×40). (F) CK-destructive lymphoid infiltration accompanied by marked lymphoid hyperplasia (immunohistolochemistry, ×40).

first-line drug for primary thyroid lymphoma. Kahara et al.[11] reported that rituximab monotherapy yielded an excellent treatment outcome in thyroid MALT lymphoma (clinical stage I EA). The authors explained the benefit based on the transition of thyroid autoantibody levels decreased after rituximab monotherapy. Addi-

tionally, these immunopathogenesis associated with T lymphocyte autoimmunity is the same as Hashimoto thyroiditis, which suggested that the rituximab monotherapy may also be beneficial for it.[12)]

Clinically, when any patient with a past long history of Hashimoto's thyroiditis displays signs of abrupt thyroid enlargement or compression symptoms, the possibility of thyroid MALT lymphoma should be considered.[13)] Additionally, a confirmatory diagnosis was performed through the total thyroidectomy as open biopsy in order to determine the appropriate treatment.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

References

1) Melo GM, Sguilar DA, Petiti CM, Eichstaedt AG, Caiado RR, Souza RA. *Concomitant thyroid MALT lymphoma and papillary thyroid carcinoma. Arq Bras Endocrinol Metabol 2010;54(4):425-8.*
2) Cheng V, Brainard J, Nasr C. *Co-occurrence of papillary thyroid carcinoma and primary lymphoma of the thyroid in a patient with long-standing Hashimoto's thyroiditis. Thyroid 2012;22(6):647-50.*
3) Tarui T, Ishikawa N, Kadoya S, Watanabe G. *Co-occurrence of papillary thyroid cancer and MALT lymphoma of the thyroid with severe airway obstruction: a case report and review of the literature. Int J Surg Case Rep 2014;5(9):594-7.*
4) Thieblemont C, Mayer A, Dumontet C, Barbier Y, Callet-Bauchu E, Felman P, *et al. Primary thyroid lymphoma is a heterogeneous disease. J Clin Endocrinol Metab 2002;87(1):105-11.*
5) Jaffe ES, Harris NL, Diebold J, Muller-Hermelink HK. *World Health Organization classification of neoplastic diseases of the hematopoietic and lymphoid tissues. A progress report. Am J Clin Pathol 1999;111(1 Suppl 1):S8-12.*
6) Harris NL, Jaffe ES, Stein H, Banks PM, Chan JK, Cleary ML, *et al. A revised European-American classification of lymphoid neoplasms: a proposal from the International Lymphoma Study Group. Blood 1994;84(5):1361-92.*
7) Hyjek E, Isaacson PG. *Primary B cell lymphoma of the thyroid and its relationship to Hashimoto's thyroiditis. Hum Pathol 1988;19(11):1315-26.*
8) Nam YJ, Kim BH, Lee SK, Jeon YK, Kim SS, Jung WJ, *et al. Co-occurrence of papillary thyroid carcinoma and mucosa-associated lymphoid tissue lymphoma in a patient with long-standing hashimoto thyroiditis. Endocrinol Metab (Seoul) 2013;28(4):341-5.*
9) Matsuzuka F, Miyauchi A, Katayama S, Narabayashi I, Ikeda H, Kuma K, *et al. Clinical aspects of primary thyroid lymphoma: diagnosis and treatment based on our experience of 119 cases. Thyroid 1993;3(2):93-9.*
10) Tsang RW, Gospodarowicz MK, Pintilie M, Wells W, Hodgson DC, Sun A, *et al. Localized mucosa-associated lymphoid tissue lymphoma treated with radiation therapy has excellent clinical outcome. J Clin Oncol 2003;21(22):4157-64.*
11) Kahara T, Iwaki N, Kaya H, Kurokawa T, Yoshida T, Ishikura K, *et al. Transition of thyroid autoantibodies by rituximab treatment for thyroid MALT lymphoma. Endocr J 2011;58(1):7-12.*
12) Pfreundschuh M, Schubert J, Ziepert M, Schmits R, Mohren M, Lengfelder E, *et al. Six versus eight cycles of bi-weekly CHOP-14 with or without rituximab in elderly patients with aggressive CD20+ B-cell lymphomas: a randomised controlled trial (RICOVER-60). Lancet Oncol 2008;9(2):105-16.*
13) Lee SC, Hong SW, Lee YS, Jeong JJ, Nam KH, Chung WY, *et al. Primary thyroid mucosa-associated lymphoid tissue lymphoma; a clinicopathological study of seven cases. J Korean Surg Soc 2011;81(6):374-9.*