

Hashimoto's Thyroiditis with Squamous Metaplasia

Dahal S, Makaju R, Basnet D, Dhakal B, Shrestha B, Maharjan PB

Department of Pathology

Dhulikhel Hospital, Kathmandu University Hospital,
Kathmandu University School of Medical Sciences,
Dhulikhel, Kavre, Nepal.

Corresponding Author

Sajana Dahal

Department of Pathology

Dhulikhel Hospital, Kathmandu University Hospital,
Kathmandu University School of Medical Sciences,
Dhulikhel, Kavre, Nepal.

E-mail: sajana.dahal1@gmail.com

Citation

Dahal S, Makaju R, Basnet D, Dhakal B, Shrestha B, Maharjan PB. Hashimoto's Thyroiditis with Squamous Metaplasia. 2024;87(3):356-8.

INTRODUCTION

Squamous cells are uncommon in the thyroid gland and are associated with some pathological processes.¹ In general, squamous metaplasia of the thyroid is due to chronic inflammation, which may be a triggering mechanism in Hashimoto's thyroiditis.² Thyroid diseases associated with squamous cell metaplasia includes nodular goiter, myxedema, involution, papillary and trabecular adenocarcinoma and adenoma. Small area of squamous metaplasia has also been described in few cases of Hashimoto's thyroiditis.³ Other pathological conditions associated with squamous metaplasia includes mucoepidermoid carcinoma, squamous cell carcinoma and diffuse sclerosing variant of papillary thyroid carcinoma. However, extensive squamous metaplasia is a very rare finding in thyroid gland.⁴ Some authors have documented squamous metaplasia in Hashimoto's thyroiditis, in addition to the classical findings of numerous oxyphil thyroid cells, dense chronic inflammatory cell infiltrates, fibrosis and loss of colloid.⁵ We report a case of Hashimoto's thyroiditis with squamous metaplasia.

ABSTRACT

Hashimoto's thyroiditis is an autoimmune inflammatory disease. Although rare, squamous metaplasia can be seen in Hashimoto's thyroiditis. We present a case of 19 years female who presented with chief complaint of anterior neck swelling for three months. Thyroid Stimulating Hormone (TSH) was 3.93 mIU/L. Ultrasonography neck showed TIRADS (Thyroid Imaging Reporting and Data Systems) 5 lesion. Fine Needle Aspiration Cytology showed Papillary Thyroid Carcinoma. Histopathological examination revealed numerous lymphoid follicles of variable size with clusters of squamous metaplastic cells within the germinal centers of lymphoid follicles and surrounding fibrosis. Some cells showed nuclear clearing. Diagnosis of Hashimoto's thyroiditis with squamous metaplasia was further confirmed by immunohistochemistry. The case presented here is rare and there are very few cases reported in literature so far.

KEY WORDS

Hashimoto's thyroiditis, Squamous metaplasia, Thyroid gland

CASE REPORT

Nineteen years female presented with chief complaint of anterior neck swelling, difficulty in swallowing and generalized body weakness for three months. She had no known chronic illness. On examination, anterior neck swelling was observed which moved on deglutition. Investigation showed TSH: 3.93 mIU/L, fT3: 2.75 mIU/L, fT4: 1.12 mIU/L. Ultrasonography neck showed well defined lobulated wider than taller hypoechoic (20 x10 mm) lesion with minimal vascularity within, TIRADS 5 lesion. FNAC of thyroid gland revealed atypical cells arranged in loose cohesive clusters, monolayered sheets and scattered singly. Individual cells were mildly pleomorphic with high N:C ratio and scant cytoplasm. Intranuclear inclusion was seen (Fig. 1). Nuclear clearing and overlapping were seen at places. Oncocytic cells was also noted. Background showed hemorrhage. The reporting on FNAC was given as - The Bethesda System for Reporting Thyroid Cytopathology (TBSRTC) Category VI- Papillary Thyroid Carcinoma. Right hemithyroidectomy was performed and the specimen

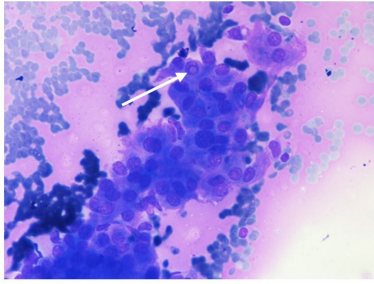


Figure 1. FNAC, wright-stained smear shows atypical cells in clusters with an intranuclear inclusion (arrow), 40X.

measured 4x3x1 cm. Externally, thyroid gland was well encapsulated. Cut section showed a nodular grey-white mass present at inferior pole of right thyroid measuring 2x1.5x0.5 cm. Rest of the parenchyma appeared normal. H and E sections from right thyroid and isthmus revealed well encapsulated tissue comprising of numerous lymphoid follicles of variable size with clusters of squamous metaplastic cells within the germinal centers of lymphoid follicles and surrounding fibrosis (Fig. 2a and b). Some of the cells showed nuclear clearing. Also seen were thyroid follicles of varying size lined by cuboidal cells and oncocytic cells. Immunohistochemistry was sent and the following findings were received. TTF1: Positive in follicular and squamous cells (Fig. 3a), Thyroglobulin: Positive in follicular cells (Fig. 3b), P40: Positive in squamous metaplastic cells

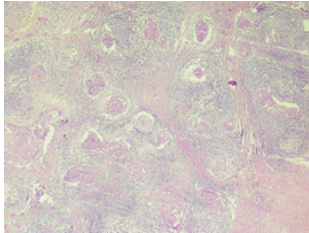


Figure 2a. H and E section shows numerous lymphoid follicles of variable size with clusters of squamous metaplastic cells within the germinal centers of lymphoid follicles and surrounding fibrosis, 4X.

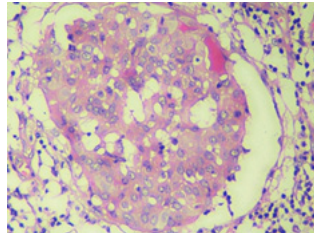


Figure 2b. H and E section shows lymphoid follicles with clusters of squamous metaplastic cells within the germinal centers of lymphoid follicles, 40X.

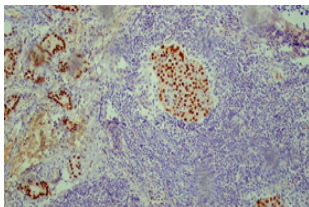


Figure 3a. TTF1 positive in thyroid follicular cells and squamous cells, 10X.

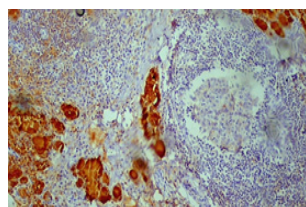


Figure 3b. Thyroglobulin positive in follicles, 10X.

(Fig. 3c), Calcitonin: Negative, CD5/CD117: Negative, ki67: low. Immunohistochemistry findings suggested Hashimoto thyroiditis with squamous metaplasia.

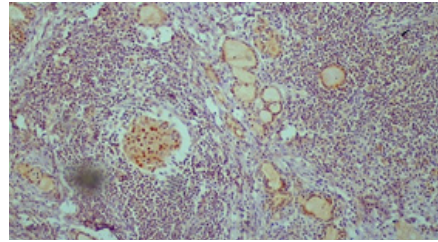


Figure 3c. p40 positive in squamous cells, 10X.

DISCUSSION

Metaplastic squamous epithelium in thyroid gland is reported sporadically.² The pathogenesis of squamous metaplasia in the thyroid gland is not clear, however literature suggests that squamous metaplasia is directly derived from the thyroid follicular epithelium.⁶ Squamous metaplasia can be confused with the entities comprising of solid cell nests as in papillary microcarcinoma, medullary carcinoma, squamous cell carcinoma because solid cell nests comprising of squamous metaplasia and papillary thyroid carcinoma can both present with papillary architecture, nuclear grooves and nuclear pseudoinclusions.⁷ Similar to our case, massive squamous metaplasia due to long-standing chronic inflammation, i.e., Hashimoto’s thyroiditis was noted in three cases reported by Ryska et al.¹ A study conducted by Haeri et al. revealed suspicious for malignancy on FNAC and Hashimoto’s Thyroiditis with Squamous Metaplasia on histology.⁴ Similar study performed by Kobayashi et al. demonstrated TSH – 11.2 mIU/ml with benign findings on FNAC, squamous cell carcinoma on intraoperative frozen section and Hashimoto’s Thyroiditis with Squamous Metaplasia on histology.⁶ Harcourt-Webster JN also carried out a study demonstrating a relation between squamous cell changes and chronic thyroiditis in three separate instances.⁸ And, a study conducted by Bullock WK, Hummer GJ and Kahler JE, likewise presented a case of chronic thyroiditis with squamous metaplasia.⁹

In our case, the squamous metaplastic cells were misinterpreted as malignant cells in both FNAC and histology. The overdiagnosis of squamous metaplastic cells as malignant cells can be avoided by examining the morphology in detail, confirming the squamous cells by IHC and going through the previous literatures.

In conclusion, we reported a case of Hashimoto’s thyroiditis with squamous metaplasia. We believe that the squamous metaplasia was caused due to Hashimoto’s thyroiditis. There are very few cases reported in literature so far. This type of case must not be misdiagnosed as malignancy, which remains a diagnostic pitfall in cytology as well as in histology.

REFERENCES

1. Ryska A, Ludvíková M, Rydlová M, Cáp J, Zalud R. Massive squamous metaplasia of the thyroid gland-- report of three cases. *Pathol Res Pract.* 2006;202(2):99-106. doi: 10.1016/j.prp.2005.11.002. Epub 2005 Dec 22. PMID: 16376021.
2. Dube VE, Joyce GT. Extreme squamous metaplasia in Hashimoto's thyroiditis. *Cancer.* 1971 Feb;27(2):434-7. doi: 10.1002/1097-0142(197102)27:2<434::aid-cncr2820270230>3.0.co;2-j. PMID: 5100405.
3. Musso-Lassalle S, Butori C, Bailleux S, Santini J, Franc B, Hofman P. A diagnostic pitfall: nodular tumor-like squamous metaplasia with Hashimoto's thyroiditis mimicking a sclerosing mucoepidermoid carcinoma with eosinophilia. *Pathol Res Pract.* 2006;202(5):379-83. doi: 10.1016/j.prp.2005.12.001. Epub 2006 Feb 20. PMID: 16488086.
4. Haeri H, Shaker G, Amoli FA, Ahmadinejad M. Squamous metaplasia in thyroid gland as histologic diagnostic pitfall: a case report. *Tehran Univ Med J.* 2013 Oct 1;71(7).
5. Vollenweider I, Hedinger C. Solid cell nests (SCN) in Hashimoto's thyroiditis. *Virchows Arch A Pathol Anat Histopathol.* 1988;412(4):357-63. doi: 10.1007/BF00750262. PMID: 3125674.
6. Kobayashi T, Okamoto S, Maruyama H, Okamura J, Takai S, Mori T. Squamous metaplasia with Hashimoto's thyroiditis presenting as a thyroid nodule. *J Surg Oncol.* 1989 Feb;40(2):139-42. doi: 10.1002/jso.2930400216. PMID: 2915541.
7. Cameselle-Teijeiro J, Preto A, Soares P, Sobrinho-Simões M. A stem cell role for thyroid solid cell nests. *Hum Pathol.* 2005 May;36(5):590-1. doi: 10.1016/j.humpath.2005.02.010. PMID: 15948129.
8. Harcourt-Webster JN. Squamous epithelium in the human thyroid gland. *J Clin Pathol.* 1966 Jul;19(4):384-8. doi: 10.1136/jcp.19.4.384. PMID: 5953751; PMCID: PMC473289.
9. Bullock WK, Hummer GJ, Kahler JE. Squamous metaplasia of the thyroid gland. *Cancer.* 1952 Sep;5(5):966-74.