

# CD10 positive thyroid marginal zone non-Hodgkin lymphoma

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### Abstract

A 72 year old woman presented with swelling of the right lobe of her thyroid gland. Fine needle aspiration and flow cytometry showed a clonal population of B cells expressing CD10 and a diagnosis of follicle centre cell lymphoma was made. Subsequent excision of the thyroid showed the typical histological features of a marginal zone non-Hodgkin lymphoma. Polymerase chain reaction showed no evidence of t (14;18). Immunohistochemistry confirmed CD10 positivity and LN1 (CDw75) expression. This is only the second report

### of aberrant expression of CD 10 by a marginal zone lymphoma.

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Marginal zone lymphoma represents a distinct subtype of B cell non-Hodgkin lymphoma with a defined morphological and immunohistochemical profile. It most often arises in association with mucosa associated lymphoid tissue, hence the alternative designation of MALToma. The histological pattern can be nodular or diffuse, often with reactive lymphoid follicles, with an infiltrate of centrocyte-like cells which may colonise the reactive germinal centres and may also show plasmacytoid differentiation.<sup>1</sup> Typically well developed lymphoepithelial lesions are present. This pattern of low grade histology can coexist with that of a high grade lesion, showing predominance of large blasts, effacement of tissue architecture, and less obvious lymphoepithelial lesions.<sup>2</sup> The characteristic immunoprofile shows positivity for CD 20,45 with light chain restriction and usually negativity for CD 5, 10, 43, and cyclin D1 with absence of t (14;18).<sup>1</sup>

We present a case of a thyroid marginal zone lymphoma which is otherwise unremarkable apart from the aberrant expression of CD10 and LN1 (CDw75). A review of published reports suggests that this is only the second description of such an occurrence.<sup>3</sup> On this occasion it suggested initial classification as a follicle centre cell lymphoma on the basis of CD10 positivity identified with flow cytometry.

### Case report

A 72 year old woman presented with swelling of the right lobe of her thyroid gland. Fine needle aspiration was performed which showed a rather monotonous population of lymphoid cells which were a mixture of small and medium sized centrocytic cells within a background of cell debris. Flow cytometry showed a 90% population of cells expressing CD10, 20, 22, 38, and 45 with light chain restriction. There was negativity for CD 2, 3, 5, 11c, and 23. On this basis the diagnosis of a follicle centre cell lymphoma was made. Subsequently a right hemithyroidectomy was performed. This showed the typical morphological features of a marginal zone lymphoma. There was a nodular low power architecture which effaced most of the gland, with prominent lymphoepithelial lesions (fig 1). Adjacent thyroid tissue showed a coexisting lymphocytic thyroiditis. The lymphoid cell population consisted of centrocyte

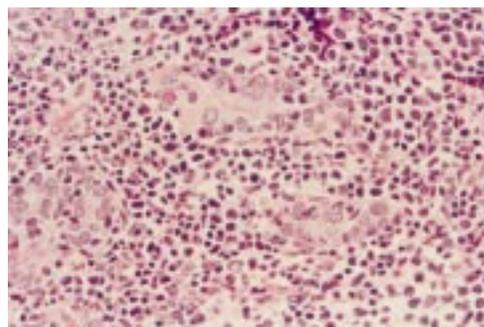


Figure 1 Marginal zone non-Hodgkin lymphoma of the thyroid gland, showing well developed lymphoepithelial lesions. (Haematoxylin and eosin, x277.)

BCL2 PCR (varying DNA volumes)

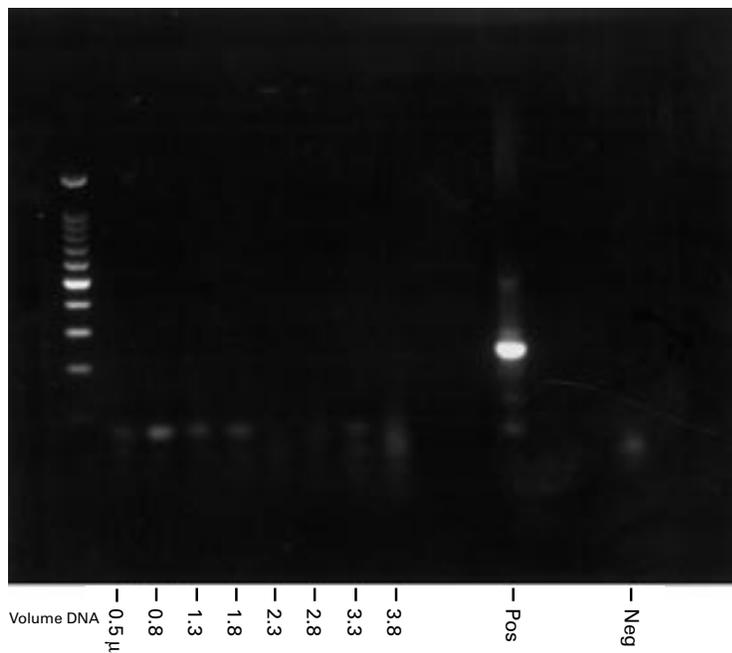


Figure 2 Bcl-2 polymerase chain reaction. This shows the absence of a 206 base pair fragment within the patient's sample.

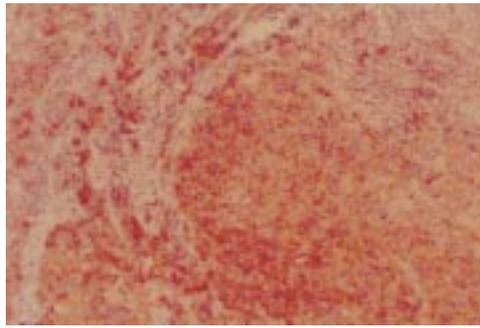


Figure 3 CD10 staining. There is moderate positive membrane staining of the centrocyte-like cells.

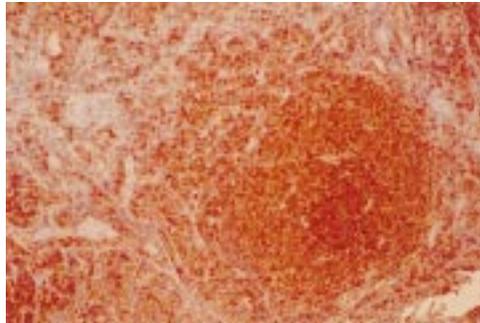


Figure 4 LN1 (CDw75) staining. There is strong membrane staining of the centrocyte-like cells. The nodular architecture is also evident.

like cells with some larger blasts indicating transformation to a high grade lesion.

Polymerase chain reaction (PCR) was performed to determine the presence of t(14;18) in view of the expression of CD10, normally associated with follicle centre cells only. DNA was extracted from the paraffin block and PCR was performed (using the GAPDH primers: 5' GTGATGGGATTTTCCTT 3' (sense) and 3' GGAGTCAACGGATTTTGGT 5' (antisense)). No translocation was present (fig 2) as there was absence of a 206 base pair fragment. Further immunohistochemistry showed positivity for CD10 (fig 3) and LN1(CDw75) (fig 4) (both from Novocastra Laboratories).

Further staging investigations showed focal mesenteric lymphadenopathy and another swelling in the left lobe of the thyroid. The bone marrow was not involved.

### Discussion

CD10 expression is normally associated with pre-B cells originating with the follicle centre and has up until now only been described in follicle centre cell non-Hodgkin lymphoma, Burkitt lymphoma,<sup>1</sup> and acute lymphoblastic leukaemia.<sup>4</sup> The molecule itself is a cell surface neutral endopeptidase thought to have a role in peptide processing in both MHC-I and MHC-II antigen presentation.<sup>5</sup> This case of marginal zone lymphoma shows aberrant expression of follicle centre cell lineage antigens CD10 and LN1. Other than this aberrant expression pattern the typical histological appearances of a marginal zone lymphoma were present. There was no evidence of translocation of bcl-2 by PCR.

This case highlights the diagnostic problems which can arise in lymphoma diagnosis and classification by flow cytometry. The prognostic implications of this case are not known. The only other previously described case was in a 56 year old man with a 7 cm lung mass.<sup>3</sup> That case was also CD5 positive, as well as "weakly CD10 positive."

- 1 Isaacson PG. Malignant lymphomas with a follicular growth pattern. *Histopathology* 1996;28:487-95.
- 2 Isaacson PG, Norton AJ. Malignant lymphoma of the thyroid gland. In: Isaacson PG, Norton AJ, eds. *Extranodal lymphomas*. Edinburgh: Churchill Livingstone, 1994:103-15.
- 3 Ballesteros E, Osborne BM, Matsushima AY. CD 5<sup>+</sup> low-grade marginal zone B-cell lymphomas with localised presentation. *Am J Surg Pathol* 1998;22:201-7.
- 4 Jandl JH. Acute lymphatic leukaemia. In: Jandl JH, ed. *Blood. Textbook of hematology*, 2nd ed. Boston: Little, Brown, 1996:961-89.
- 5 Phillips AJ, Tomasec P, Wang ECY, et al. Human cytomegalovirus infection downregulates expression of the cellular aminopeptidases CD10 and CD13. *Virology* 1998;250:350-8.