Biomedical and Biopharmaceutical Research
Abbreviation: Biomed. Biopharm. Res.
Volume: 22: Issue: 02 |Year: 2025
Page Number: 63-66

FROM THYROITIS TO LYMPHOMA: A DIAGNOSTIC JOURNEY

Dr Susrita Kumari Panda[1], Dr Meenakshi Mohapatro[2], Dr Itishree Rana[3], Dr Abhishek Sahu[4], Dr Kalyani Prava Gouda[5], Dr Lity Mohanty[6]

[1]Junior Resident, Department of Pathology, SCB Medical College and Hospital, Cuttack
[2]Assistant Professor, Department of Pathology, SCB Medical College and Hospital, Cuttack.
[3]Assistant Professor, Department of Pathology, SCB Medical College and Hospital, Cuttack
[4]Junior Resident, Department of ENT &HNS ,SCB Medical College and Hospital, Cuttack
[5]Professor, Department of Pathology, SCB Medical College and Hospital, Cuttack
[6]Professor and HOD, Department of Pathology, SCB Medical College and Hospital, Cuttack

Corresponding Author

Dr Meenakshi Mohapatro*Assistant Professor, Department of Pathology, SCB Medical College and Hospital, Cuttack.*

Article Received:15-01-2025

Article Accepted:02-03-2025

Abstract

Intro: Primary thyroid lymphoma is an exceedingly rare entity, accounting for less than 5% of thyroid malignancies and approximately 2% of extranodal lymphomas, with an estimated incidence of 2 cases per million annually.More common in women with 6to 7th decade.Hashimoto thyroiditis is known risk factor.FNAB& biopsy are crucial.

Presentation of case: A 65-year-old male presented with 10-year history of progressively enlarging neck swelling,without associated compressive symptoms. Clinically,the patient was diagnosed with solitary thyroid nodule(Grade 3). USG neck revealed TIRADS 4 nodule in left lobe and TIRADS 1 nodules in right lobe. FNAB indicated autoimmune thyroiditis(BethesdaCategory 2).Subsequently, the patient underwent total thyroidectomy, the specimen submitted for histopathological evaluation. Macroscopically, the thyroid specimen consisted of left lobe measuring 7.5x5x4.5cm and right lobe with isthmus measuring 4x3x2cm. Microscopic examination features consistent with thyroid lymphoma in the context of autoimmune thyroiditis. IHC revealed CD20 and BCL2 positivity(30% of tumor cells),while CD3, TTF1, CD10, MUM1, and BCL6 were negative. The Ki67 proliferation index 90%. Based on these findings,final diagnosis of diffuse large B-cell lymphoma (DLBCL) of the thyroid with underlying autoimmune thyroiditis was established.

Discussion: Primary thyroid lymphoma arising from autoimmune thyroiditis, especially in male patients,is exceptionally rare. Among the various subtypes of thyroid lymphoma, diffuse large B-cell lymphoma is the most common. Immunohistochemical findings in these cases mirror those of conventional DLBCL.

Conclusion: Primary thyroid lymphoma is a rare and challenging diagnosis to establish preoperatively. Once diagnosed, accurate staging is critical for determining the most appropriate treatment strategy.

Keywords: Primary thyroid lymphoma, DLBCL, thyroidectomy

INTRODUCTION

Primary Thyroid Lymphoma (PTL) is defined as lymphoma involving the thyroid gland alone or the thyroid gland and adjacent neck lymph nodes without contiguous spread or distant metastases at the time of diagnosis. The most common presentation is a rapidly growing painless mass in the neck, causing compression symptoms. PTL is most common in women in their sixth or seventh decade of life [1].

It is an exceedingly rare entity, accounting for less than 5% of thyroid malignancies and approximately 2% of extranodal lymphomas, with an estimated incidence of 2 cases per million annually[1][2]. Clinically, thyroid lymphoma typically manifests as a rapidly enlarging neck mass, often accompanied by compressive symptoms. Hashimoto's thyroiditis is a known risk factor, with 0.6% of patients with autoimmune thyroiditis progressing to develop primary thyroid lymphoma. Fine needle aspiration biopsy (FNAB) and surgical biopsy are crucial for establishing the diagnosis. Upon confirmation, whole-body PET scanning is recommended to assess systemic involvement and accurately stage the disease.

Immunohistochemical analysis is also essential for subclassification. Treatment modalities include surgery, chemotherapy, radiotherapy, or a combination of these approaches.

CASE REPORT

A 65-year-old male presented with a 10-year history of progressively enlarging neck swelling, without associated compressive symptoms. Clinically, the patient was diagnosed with a solitary thyroid nodule (Grade 3). Ultrasound of the neck revealed a TIRADS 4 nodule in the left lobe and TIRADS 1 nodules in the right lobe. FNAB indicated autoimmune thyroiditis (Bethesda Category 2). Subsequently, the patient underwent a total thyroidectomy, and the specimen was submitted for histopathological evaluation. Macroscopically, the thyroid specimen consisted of a left lobe measuring 7.5x5x4.5 cm and a right lobe with isthmus measuring 4x3x2 cm[Fig 1]. Microscopic examination demonstrated features consistent with thyroid lymphoma in the context of autoimmune thyroiditis[Fig 2,3,4]. Immunohistochemistry revealed CD20,CD79a and BCL2 positivity (30% of tumor cells)[Fig 5,7], while CD3, TTF1, CD10, MUM1, and BCL6 were negative[Fig8,9]. The Ki67 proliferation index was 90%[Fig 6]. Based on these findings, a final diagnosis of diffuse large B-cell lymphoma (DLBCL) of the thyroid with underlying autoimmune thyroiditis was established.

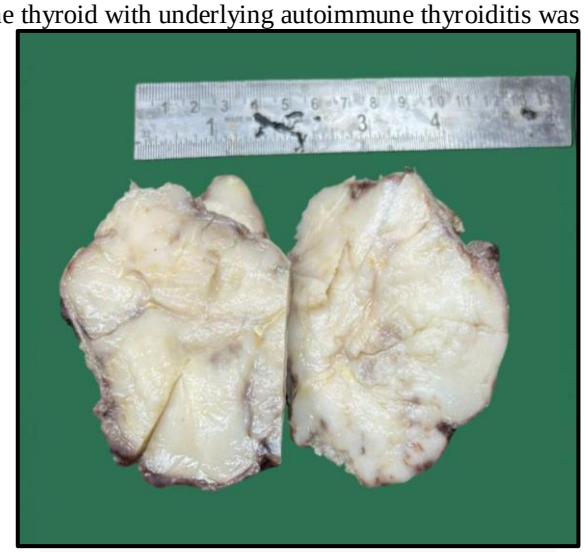

Fig 1 : Gross image showing left lobe of thyroid

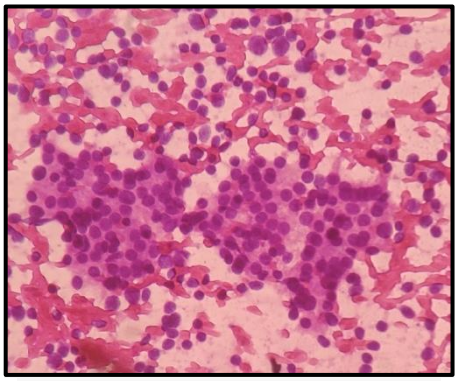

Fig 2.H&E (400x): Cytosmear showing lymphocytic infiltration into thyroid follicles

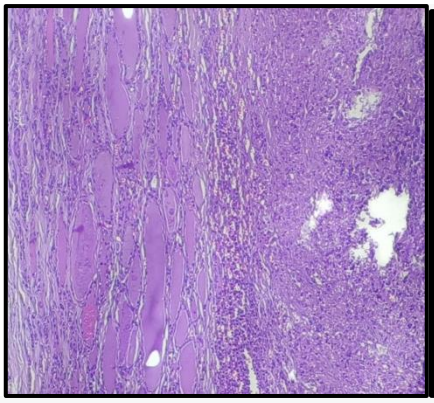
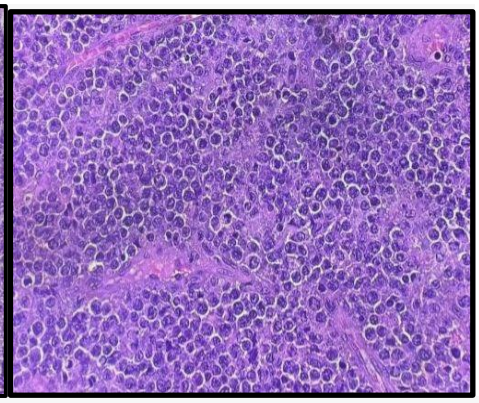

Fig 3.H&E (40x):Diffuse infiltration. Fig 4. H&E(400x): Round to oval cells with by large atypical lymphoid cells. high N:C ratio, coarse chromatin

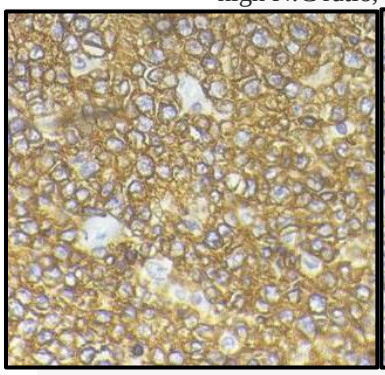
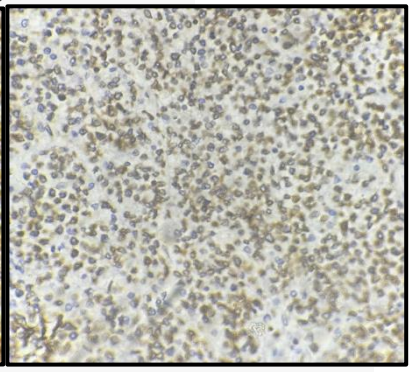

Fig 5. IHC CD20(400x):Positive Fig 6. IHC ki67(400x).

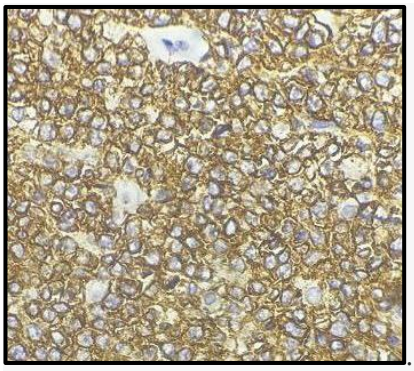
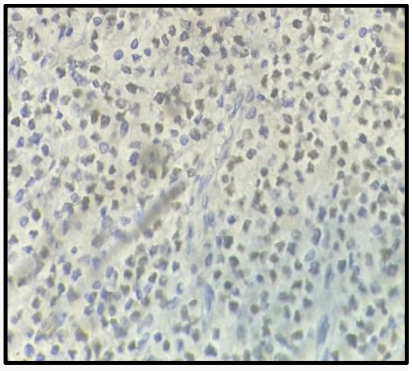

Fig 7 IHC CD79a(400x): Positive Fig 8 IHC BCL6 (400x): Negative

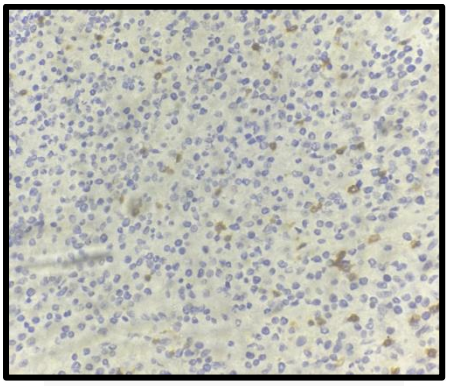

Fig 9.IHC CD10(400x): Negative

DISCUSSION

Primary thyroid lymphoma is an extremely rare entity.The majority of PTLs are found in women, with the ratio between females and males varying from 2:1–8:1 in various studies [4,5,6]. The predominance of PTL in women is worth mentioning, especially when compared to the prevalence of lymphomas in general, the latter being more frequently encountered in men in almost all subtypes [8]. The usual age at the moment of diagnosis is 50–80 years old, with a maximum during the seventh and eighth decade of life..Primary thyroid lymphoma arising from autoimmune thyroiditis, especially in male patients, is exceptionally rare. Among the various subtypes of thyroid lymphoma, diffuse large B-cell lymphoma is the most common[3][4]. Immunohistochemical findings in these cases mirror those of conventional DLBCL.Generally, the evolution of PTL is good, with a high 5-year survival rate. A worse prognosis is associated with higher age (over 80 years old), advanced stage of the disease, lack of treatment, and follicular or diffuse large cell histological subtypes [9,10,11,12].

CONCLUSION

Primary thyroid lymphoma is a rare and challenging diagnosis to establish preoperatively. Once diagnosed, accurate staging is critical for determining the most appropriate treatment strategy.

REFERENCES

1. Sakhri, S., Zemni, I., Ayadi, M.A. *et al*. Primary thyroid lymphoma: a case series. *J Med Case Reports***18**, 108 (2024). https://doi.org/10.1186/s13256-024-04434-1
2. Pavlidis ET, Pavlidis TE. A review of primary thyroid lymphoma: molecular factors, diagnosis and management. J Invest Surg. 2019;32:137–142. doi: 10.1080/08941939.2017.1383536. [DOI]
3. Chen C. Primary thyroid T-lymphoblastic lymphoma: a case report and review of the literature. Int. J. Clin. Exp. Pathol. 2014;7(1):443–450. [PMC free article] [PubMed] [Google Scholar]
4. Peixoto R, Correia Pinto J, Soares V, Koch P, Taveira Gomes A. Primary thyroid lymphoma: A case report and review of the literature. Ann Med Surg (Lond). 2016 Dec 21;13:29-33. doi: 10.1016/j.amsu.2016.12.023. PMID: 28053701; PMCID: PMC5199157.
5. Vardell Noble, V.; Ermann, D.A.; Griffin, E.K.; Silberstein, P.T. Primary Thyroid Lymphoma: An Analysis of the National Cancer Database. *Cureus***2019**, *11*, e4088. [**Google Scholar**] [**CrossRef**]
6. Thieblemont, C.; Mayer, A.; Dumontet, C.; Barbier, Y.; Callet-Bauchu, E.; Felman, P.; Berger, F.; Ducottet, X.; Martin, C.; Salles, G.; et al. Primary Thyroid Lymphoma Is a Heterogeneous Disease. *J. Clin. Endocrinol. Metab.***2002**, *87*, 105–111. [**Google Scholar**] [**CrossRef**]
7. Pedersen, R.K.; Pedersen, N.T. Primary non-Hodgkin's lymphoma of the thyroid gland: A population based study. *Histopathology***1996**, *28*, 25–32. [**Google Scholar**] [**CrossRef**]
8. Chiu, B.C.-H.; Weisenburger, D.D. An Update of the Epidemiology of Non-Hodgkin's Lymphoma. *Clin. Lymphoma***2003**, *4*, 161–168. [**Google Scholar**] [**CrossRef**] [**PubMed**]
9. Vita, O.; Dema, A.; Barna, R.; Cornea, R.; Brebu, D.; Vlad, M.; Popa, O.; Muntean, I.; Szilagyi, D.; Iacob, M.; et al. Primary Thyroid Lymphoma: A Retrospective-Observational Study in a Single Institutional Center. *Medicina***2024**, *60*, 476. https://doi.org/10.3390/medicina6003047
10. Vita O, Dema A, Barna R, Cornea R, Brebu D, Vlad M, Popa O, Muntean I, Szilagyi D, Iacob M, et al. Primary Thyroid Lymphoma: A Retrospective-Observational Study in a Single Institutional Center. *Medicina*. 2024; 60(3):476. https://doi.org/10.3390/medicina6003047
11. Vita, Octavia, AlisDema, Robert Barna, Remus Cornea, Dan Brebu, Mihaela Vlad, OanaPopa, IoanaMuntean, Diana Szilagyi, MihaelaIacob, and et al. 2024. "Primary Thyroid Lymphoma: A Retrospective-Observational Study in a Single Institutional Center" *Medicina* 60, no. 3: 476. https://doi.org/10.3390/medicina60030476
12. Vita, O., Dema, A., Barna, R., Cornea, R., Brebu, D., Vlad, M., Popa, O., Muntean, I., Szilagyi, D., Iacob, M., Iordache, M., Cornianu, M., &Lazureanu, D. C. (2024). Primary Thyroid Lymphoma: A Retrospective-Observational Study in a Single Institutional Center. *Medicina*, *60*(3), 476. https://doi.org/10.3390/medicina60030476