



## THYROID LYMPHOMA-A CASE REPORT AND REVIEW LITERATURE

### Pathology

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### ABSTRACT

Primary Thyroid lymphoma is rare accounting for 5% of thyroid malignancies. A case of Non-Hodgkin lymphoma of B cell lineage involving left lobe of thyroid is reported here for its rarity.

### KEYWORDS

Thyroid lymphoma, biopsy, FNAC, Non-Hodgkin lymphoma

#### INTRODUCTION:

Primary thyroid lymphoma is a very rare condition<sup>1</sup>. It is most common in female sex and most commonly arises in the background of Hashimoto thyroiditis<sup>2,1</sup>. Patients usually present with rapidly enlarging mass with or without cervical lymphadenopathy<sup>2,3</sup>. Most common type of primary thyroid lymphoma is Non Hodgkin lymphoma of which DLBCL is most common type followed by MALT lymphoma<sup>3,5</sup>. DLBCL have varied morphological variants

#### CASE REPORT:

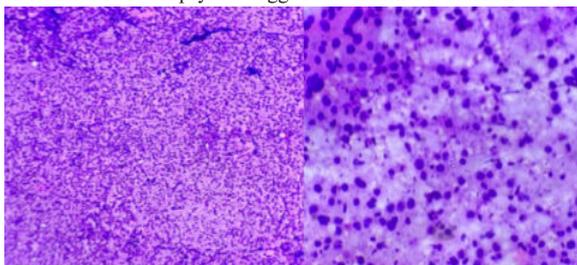
A 69-year-old female presented with complaints of swelling in the neck for the past one month with rapid progressive increase in size. Patient was a known case of hypothyroidism and was not under treatment. Patient had no history of other comorbid conditions.

On examination 7\*8cm well defined swelling in front of neck was observed extending from right to left side of neck, firm in consistency. The swelling moves with deglutition. The skin over swelling was normal.

Ultrasound finding showed a large well defined hyperechoic lesion measuring 6.5\*8.3cm noted in midline and on left side of neck with calcification causing tracheal compression. Final impression was given as large solid nodule in left lobe of thyroid TIRADS-4.

CT showed hypodense lesion of size 7.4\*6.7\*9.7cm noted arising from left lobe of thyroid, isthmus.

Fine needle aspiration cytology was done for the patient which showed cellular smear with sheets of small to intermediate sized cells having scant cytoplasm, and atypical nuclei admixed with cluster of oncocytes, multinucleated giant cells, tingible body macrophages in a background showing necrotic material and karyorrhectic debris. The FNAC features were in favour of Non-Hodgkin lymphoma Bethesda VI. Hence a trucut biopsy was suggested for further evaluation.



Smear showing sheets of lymphoid cells (10x) lymphoid cells, oxyphilic cells, background showing necrosis and karyorrhectic debris (40x)

Trucut biopsy done showed sheets of small round to medium sized lymphoid cells with scant cytoplasm round vesicular nuclei with irregular nuclear membrane and prominent nucleoli. Increased mitotic activity and large areas of necrosis noted. The trucut biopsy revealed histopathological features of lymphoproliferative disorder favouring Non-Hodgkin lymphoma. Since the tissue was tiny, IHC markers were not done in the trucut biopsy.

Patient was taken up for surgery under general anesthesia total thyroidectomy was done and specimen was sent for histopathological examination.

#### GROSS:

Received total thyroidectomy specimen. Left lobe measuring 10\*7\*7 cm. External surface was nodular. Cut surface showed homogenous grey white lesion with hemorrhagic areas involving entire lobe except for the normal thyroid parenchyma in the upper pole measuring 2\*1 cm. Capsule was intact with no extracapsular involvement. Closest margin was 0.1 cm, which was grossly free from tumour involvement. Right lobe was enlarged measuring 10\*4\*2.5cm. External surface was unremarkable. Cut surface of right lobe of thyroid showed honey coloured material and capsule was intact.

Isthmus was enlarged measuring 6\*1\*1 cm. External surface of isthmus was unremarkable. Cut surface of isthmus showed homogenous grey white areas measuring 2\*1 cm. Lymph nodes were not submitted for histopathological examination.



External surface-enlarged left lobe of thyroid, nodular appearance.



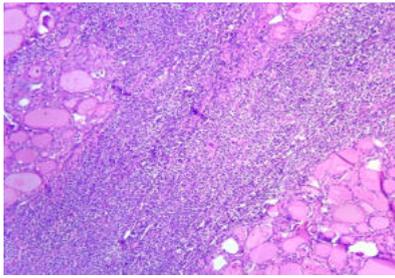
Cut surface-homogenous grey white areas

#### MICROSCOPY:

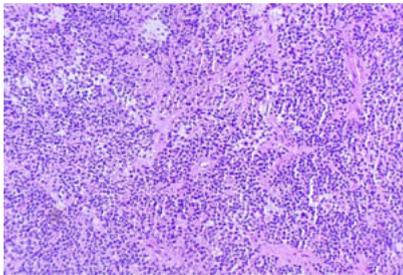
Section studied from left lobe of thyroid shows neoplasm composed of sheets of medium to large sized lymphoid cells with scant cytoplasm and large vesicular nucleus with prominent nucleolus, scattered binucleate and bizarre tumour giant cells seen large areas of hemorrhage and necrosis made out.

Section from right lobe of thyroid shows features of lymphocytic thyroiditis.

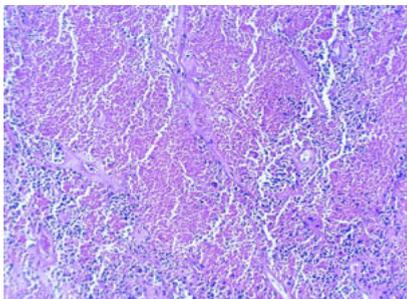
Section from the isthmus reveal involvement by lymphoma  
Vascular and capsular invasion absent.



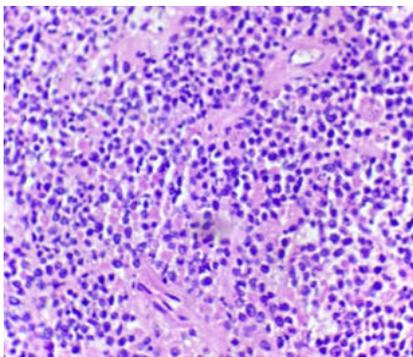
10X:showed compressed thyroid parenchyma by infiltrative lymphoid cells



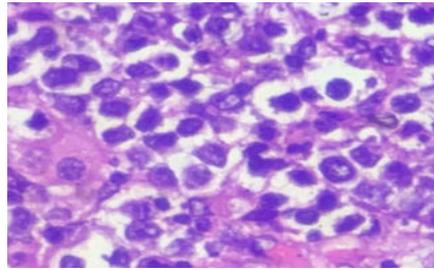
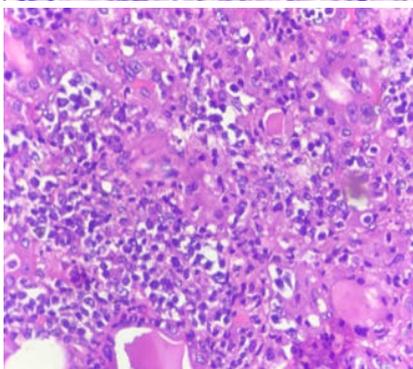
10X: showed sheets of medium to large sized lymphoid cells with scant cytoplasm.



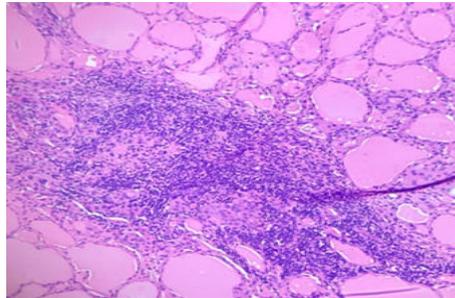
10X:shows sheets of lymphoid cells with extensive areas of necrosis and karyorrhectic debris.



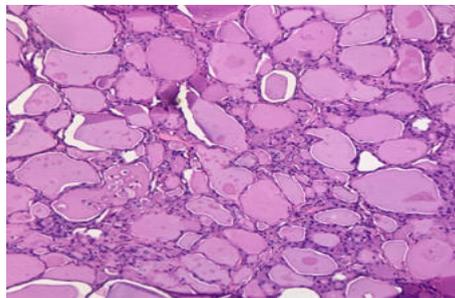
40x:shows sheets of medium to large size lymphoid cells with scant cytoplasm.



Picture showing large lymphoid cells with scant cytoplasm, vesicular nuclei, with prominent nucleoli

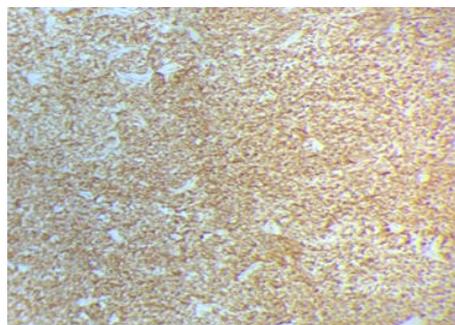


Right lobe of thyroid showing features of lymphocytic thyroiditis

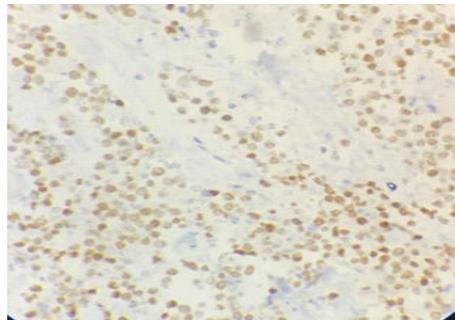


10x:shows residual normal thyroid parenchyma showing normal thyroid follicle

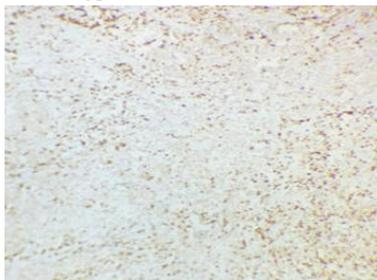
Immunohistochemistry was done.  
CD 45 -Positive in 90% of tumour cells  
PAX5-Positive in 80% of tumour cells.  
CD20-Positive in 80% of tumour cells  
CD3-scattered positivity in background lymphoid cells.  
Calcitonin-negative



CD 45-diffuse and strong positivity in 90% of tumour cells



PAX 5 -diffuse strong positive in 90 % of tumour cells.



CD3-positive in background lymphocytes.



Calcitonin -negative

Based on above histomorphology and immunohistochemistry final diagnosis of Non Hodgkin lymphoma of thyroid favoring B cell lineage -probably Diffuse large B cell lymphoma was rendered.

#### DISCUSSION:

Primary thyroid lymphoma is a rare neoplasm accounting for less than 5% of all thyroid neoplasm and approximately 2% of extra nodal lymphoma. The most common type is diffuse large B cell lymphoma<sup>1</sup>. Thyroid lymphoma presents as rapidly enlarging neck mass with or without cervical lymphadenopathy. Advanced cases present with obstructive symptoms of dyspnea, hoarseness, difficulty in breathing and increased serum lactate dehydrogenase.<sup>2,3</sup> When compared to lymphoma of other region thyroid lymphoma generally do not present with B symptoms such as weight loss, night sweats and fever.<sup>4</sup> Thyroid lymphoma predominantly present in female sex with female to male ratio 3-4:1. It is common in 5<sup>th</sup> to 7<sup>th</sup> decade of life<sup>2</sup>. Hashimoto's thyroiditis is the established risk factor often accompanying primary thyroid lymphoma<sup>1,2</sup>. It confers 67-80 fold increased risk<sup>5</sup>.

Thyroid lymphoma presents with indolent and aggressive histological type most common being Non Hodgkin lymphoma<sup>3,5</sup>. The most common B cell type NHL is DLBCL followed by marginal zone lymphoma and follicular lymphoma<sup>6</sup>.

DLBCL of thyroid shows obliteration of thyroid tissue by large cells. DLBCL is a neoplasm of medium or large B lymphoid cells whose nuclei are the same size as or larger than those of macrophages or more than twice the size of normal lymphocytes with diffuse growth pattern<sup>13</sup>.

DLBCL arise de novo (referred to as primary) or also represent transformation of a less aggressive lymphoma such as follicular lymphoma, Malt lymphoma (referred to as secondary lymphoma)<sup>13</sup>.

Recently WHO has classified DLBCL NOS into morphological variants namely centeroblastic, immunoblastic, anaplastic. DLBCL is classified based on molecular feature divided into germinal center B cell subtype and activated germinal center B cell type<sup>1,6,7,8</sup>.

Centroblastic variant: This is more common variant. Centroblastic cells are medium to large sized lymphoid cells having scant amphophilic or basophilic cytoplasm, round vesicular nuclei, fine chromatin, 2-4 nucleoli. This type is more frequently of germinal centre B-cell type<sup>8</sup>. Tumour cells may have multilobated nuclei, especially in tumor localized to bone and extra nodal site<sup>8</sup>.

Immunoblastic variant: Immunoblast have appreciable amount of

basophilic cytoplasm and single centrally located nucleolus, plasmacytoid differentiation may present<sup>9</sup>.

Anaplastic variant: This variant is characterized by large to very large cells with bizarre pleomorphic nuclei resemble reed Sternberg cell.<sup>10</sup> Neoplastic cells typically express pan B cell markers such as CD19, CD20, CD22, CD79a and PAX 5. CD 30 expressed in 10-20% cases, especially in the anaplastic variant, CD 5 expressed in 5% cases<sup>8,9</sup>. Neoplastic cells express CD5 in 5-10% cases which mostly contribute denovo<sup>13</sup>.

The AJCC Ann arbor classification defines stage 1E (extra nodal) as disease confined to thyroid gland as in our patient. when disease has spread to lymph node on the same side of the diaphragm it is classified as II E. Stage III E disease involve both side of diaphragm and stage IV E has disseminated disease<sup>3</sup>.

Primary thyroid lymphoma is highly sensitive to chemotherapy and radiotherapy. Prognosis varies with age, stage, subtype<sup>11</sup>. Patient with localized thyroid lymphoma have favorable prognosis. Poor prognosis associated with high stage, bulky tumour, advanced patient age, extracapsular extension, vascular invasion<sup>12</sup>.

#### CONCLUSION:

FNAC, a first line investigation helps in early detection of lymphoma which is confirmed by biopsy. IHC is useful for further classification. All the above modalities together aid in the early diagnosis of primary lymphoma of thyroid which responds well to therapy and is associated with good prognosis if detected early.

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