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Editorial

Embodiment and Subsumption-Thymus Inclusions-Lymph Node

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Ectopic thymus tissue may be encountered within parenchyma of supraclavicular lymph nodes.

Thymocytes which configure T cell receptors (TCRs) may be intensely aware of self-antigens confined to thymus.

Thymus contributes to pathogenesis of myasthenia gravis as antibodies which derange signalling of acetylcholine upon motor endplate are activated. Concomitant, frequent thymic hyperplasia configures as a diagnostic criterion in combination with circulating antibodies against acetylcholine receptors and anti-muscarinic antibodies.

Insulin levels appear crucial for growth and evolution of thymus. In combination with growth hormone and insulin-like growth factor. Insulin augments expansion of lymphocytes confined within medulla of thymus. Dysfunction of thymus occurs within type I diabetes with consequent occurrence of immunodeficiency and endocrine or metabolic complications.

Insulin supplementation contributes to morphological preservation of thymus and sustains maturation of immune system. Hyperactivity of thymus gland is preponderantly associated with thymic hyperplasia or myasthenia gravis. Besides, conditions such as thymic epithelial tumors, lymphomas, systemic lupus erythematosus and hyperthyroidism may display hyperplasia of thymus [1,2].

Alternatively, agenesis or atrophy of thymus may arise within diverse congenital immunodeficiency disorders. DiGeorge syndrome is associated with absence of development of thymus during embryogenesis. Severe combined immunodeficiency syndrome is associated with involution of thymus within early childhood and deficiency of T cell and B cell lymphoid populations [2,3].

Clinical manifestations of hyperactive thymus gland appear as pallor, lymphadenopathy, rhinorrhoea or tonsillitis [2,3].

Upon microscopy, nodules of lymphoid stroma appear impregnated with Hassalls's corpuscles. Additionally designated as thymic bodies, Hassall's corpuscles configure as structures confined to medulla of thymus gland. The concentrically articulated Hassall's corpuscles are composed of eosinophilic type VI thymic epithelial cells. The concentric corpuscles demonstrate a centric tumour mass and appear constituted of singular or multiple granular cells circumscribed by a capsule composed of epithelioid cells [3,4].

Of magnitude varying from 20μm to 100 μm, the corpuscles expand with increasing age. Spherical to ovoid corpuscles are constituted of epithelial cells pervaded with keratohyalin granules and bundles of cytoplasmic fibres. Nevertheless, Hassall's corpuscles appear to differentiate from medullary thymic epithelial cells following decimation of autoimmune regulator (AIRE) expression [7].

Thymus gland inclusions within lymph node parenchyma require segregation from lesions as distant metastasis from primary squamous cell carcinoma [8,9].

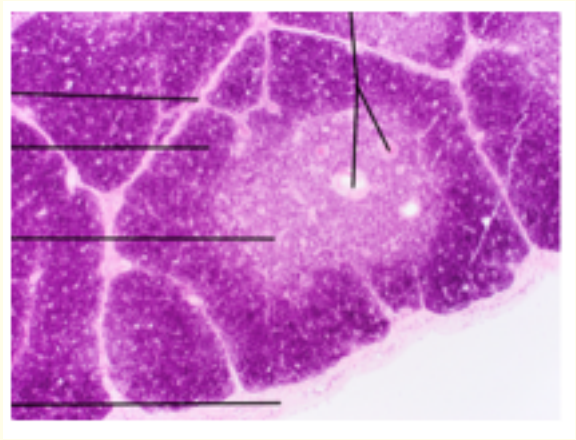

Figure 1: Thymus inclusions within lymph node demonstrating Hassall's corpuscles with concentric, eosinophilic epithelial cells and a centric tumour mass [13].

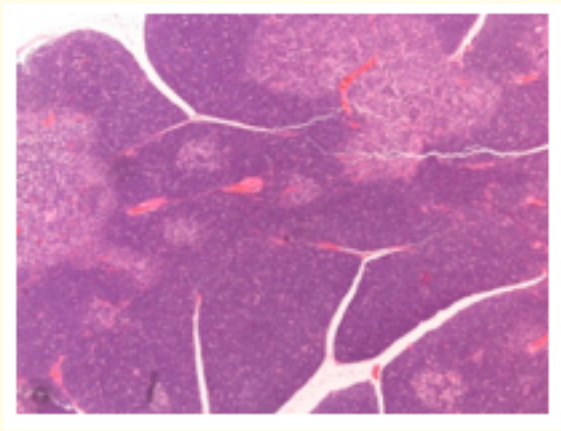

Figure 2: Thymus inclusions within lymph node parenchyma expounding Hassall's corpuscles with concentric dissemination of eosinophilic epithelial cells and multiple granular cells [14].

	Peripheral blood	Spleen	Bone marrow	Immuno-phenotype	Chromosomal aberrations	Altered genes
Splenic diffuse red pulp lymphoma	Polar, broad based, small villous projections, condensed chromatin	Red pulp, blood lakes (possible)	Intrasinusoidal, interstitial ±, nodular ± (no follicles)	CD25-, CD103 ±, CD123-, DBA44 ±, Annexin A1-, Cyclin D3+, IgG+	Uncommon trisomy 3q, trisomy 18, del 7q	CCND3, IGHV3-4, BCOR, MAP2K1
Hairy cell leukaemia-variant	Circumferential, shorter villous projections, prominent nucleoli	Red pulp, white pulp effacement, blood lakes (uncommon)	Intrasinusoidal, interstitial, normal fibrosis	CD25-, CD103+, CD123-, DBA44+, Annexin A1-, TRAP ±	del 17p, del 7q, gain of 5	MAP2K1, IGHV4-34, U2AF1, ARID1A,TP53
Splenic marginal zone lymphoma	Polar shorter villi, condensed chromatin	White pulp with marginal zone expansion	Nodular ±, interstitial ±, intrasinusoidal ± (residual follicles)	CD25 ±, CD103 ±,CD123-,DBA44 ±, Annexin A1-, IgD+	Gain of 3q, del 7q	NOTCH2, IGHV1-2, KLF2

Table 1: Differential diagnosis of splenic diffuse red pulp small B cell lymphoma [5,6].

Investigative techniques as magnetic resonance imaging or computerized tomography is beneficially employed in order to assess magnitude and morphology of thymus gland [9,10].

Hyperactive or ectopic thymus gland may be treated with supplementation of vitamin A, vitamin D, oral calcium and iodine. Additionally, modalities such as thalassotherapy, thymic radiotherapy or heliotherapy appear beneficial [10,11].

Surgical eradication of thymus gland may be advantageous in treating various disorders as myasthenia gravis [11,12].

Bibliography

1. Remien K., *et al*. "Anatomy". Head and Neck, Thymus. Stat Pearls International. Treasure Island, Florida (2025).

2. Kreslavsky T. "Thymflammation: The Role of a Constitutively Active Inflammatory Network and "Ectopic" Cell Types in the Thymus in the Induction of T Cell Tolerance and Beyond". *Immunology Review* 332.1 (2025): e70037.

3. Michelson D A., *et al*. "Thymic Epithelial Cells Co-Opt Lineage-Defining Transcription Factors to Eliminate Autoreactive T Cells". *Cell* 185.14 (2022): 2542-2558.

4. Dikiy S and Rudensky A Y. "Principles of Regulatory T Cell Function". *Immunity* 56.2 (2023): 240-255.

5. Yonghao O., *et al*. "Comparison of survival outcomes of different treatment modalities for patients with primary splenic diffuse large B cell lymphoma". *Annals of Hematology* 102.7 (2023): 1857-1865.

6. Khan ZA., *et al*. "The Diagnostic Dilemma of Splenic Non-Hodgkin's Lymphoma and Splenic Abscess: A Narrative Review". *Cureus* 14.11 (2022): e31944.

7. Lee M., *et al*. "Single-Cell RNA Sequencing Identifies Shared Differentiation Paths of Mouse Thymic Innate T Cells". *Nature Communications* 11.1 (2020): 4367.

8. Mayans S., *et al*. "AlphabetaT Cell Receptors Expressed by CD4 (−)CD8alphabeta (−) Intraepithelial T Cells Drive Their Fate Into a Unique Lineage With Unusual MHC Reactivities". *Immunity* 41.2 (2014): 207-218.

9. McDonald B D., *et al*. "Elevated T Cell Receptor Signaling Identifies a Thymic Precursor to the TCRalphabeta (+)CD4 (−) CD8beta (−) Intraepithelial Lymphocyte Lineage". *Immunity* 41.2 (2014): 219-229.

10. Tan L., *et al*. "Single-Cell Transcriptomics Identifies the Adaptation of Scart1 (+) Vgamma6 (+) T Cells to Skin Residency as Activated Effector Cells". *Cell Reports* 27.12 (2019): 3657-3671.

11. Wang H and Hogquist K A. "CCR7 Defines a Precursor for Murine iNKT Cells in Thymus and Periphery". *eLife* 7 (2018): e34793.

12. ElTanbouly MA and Noelle R J. "Rethinking Peripheral T Cell Tolerance: Checkpoints Across a T Cell's Journey". *Nature Reviews Immunology* 21.4 (2021): 257-267.

13. Cheng A and Holland S M. "Anti-Cytokine Autoantibodies: Mechanistic Insights and Disease Associations". *Nature Reviews Immunology* 24.3 (2024): 161-177.

14. Image 1 Courtesy: Quizlet.

15. Image 2 Courtesy: Science direct.