Blood and Lymphatic

Non-Hodgkin`s Lymphoma, Part 2

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Outlines

Intended learning objectives:

By the end these two lectures; you have to:

- Identify different types of non hodgkin`s lymphoma (NHL).
- Know common types of T-cell lymphomas and describe their main features
- Identify sites and features of extra-nodal lymphomas
- Able to evaluate the clinical stage of a lymphoma patient.
- Differentiate between HL and NHL

Non-Hodgkin`s Lymphoma

Real/WHO classification

Based on immunohistochemistry (IHC or tissue markers)

B cell lymphoma	T cell lymphoma
Precursor B cell lymphoma •Precursor B cell lymphoblastic leukemia/ lymphoma	**Precursor T cell lymphoma** •Precursor T cell lymphoblastic leukemia/ lymphoma
Peripheral B cell neoplasms 1.B cell chronic lymphocytic leukemia / small lymphocytic lymphoma (CLL/SLL) 2.Lymphoplasmocytic lymphoma 3.Mantle cell lymphoma 4.Follicular lymphoma 5.Marginal zone lymphoma 6.Extranodal lymphoma of mucosa associated lymphoid tissue (MALT). 7.Plasmacytoma/ multiple myeloma 8.Diffuse large B cell lymphoma 9.Burkitt's lymphoma	**Peripheral T cell neoplasms** 1.T cell chronic lymphocytic leukemia / small lymphocytic lymphoma (CLL/SLL) 2.Large granular lymphocytic leukemia 3.Mycosis fungoides & Sezary syndrome 4.Peripheral T cell lymphoma 5.Angio-immunoblasic T cell lymphoma 6.Natural killer / T cell lymphoma 7.Intestinal T cell lymphoma 8.Anaplasic large T cell lymphoma

Non-Hodgkin`s Lymphoma

Examples for T-cell lymphomas

Anaplastic large cell lymphoma

Non-Hodgkin`s Lymphoma

Examples of T cell lymphoma

Anaplastic large cell lymphoma

Clinically:

- Affect middle age
- Usually presents with generalized lymphadenopathy

Microscopic picture:

- Effacement of normal nodal architecture
- Proliferation of atypical (neoplastic) lymphoid cells that:
  - Are large in size
  - Have abundant cytoplasm
  - Have large lobulated nuclei
  - Are CD30 positive

Non-Hodgkin`s Lymphoma

Examples of T cell lymphoma

Anaplastic large cell lymphoma

Clinically:

- Affect middle age
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Microscopic picture:

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- ❑ Proliferation of atypic
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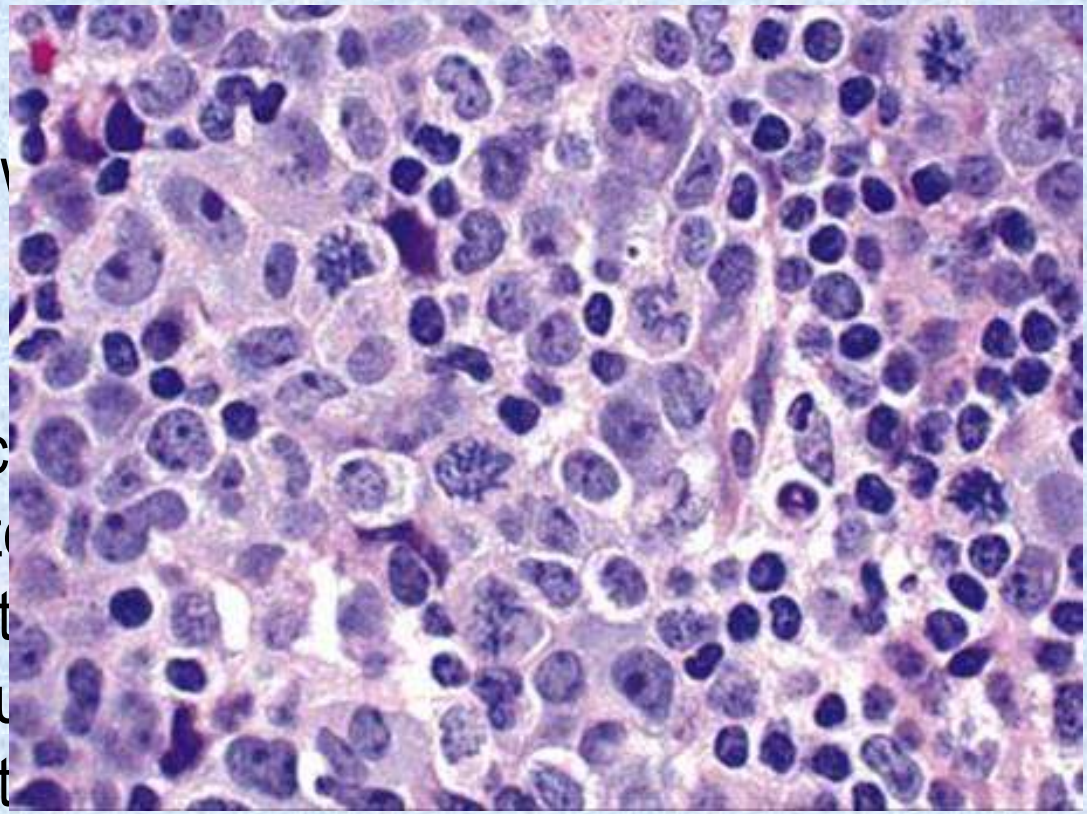


Non-Hodgkin`s Lymphoma

Examples for Extra-nodal lymphomas

B-cell → **Extra-nodal mucosal associated marginal zone lymphoma (MALT lymphoma)**
Involves glandular organs

T-cell → **Mycosis fungoides & Sezary syndrome**
Involves skin and subcutaneous tissue

Non-Hodgkin`s Lymphoma

Extra-nodal lymphomas

Extra-nodal mucosal associated marginal zone lymphoma (MALT lymphoma)

Main features:

- A subtype of B cell lymphoma
- Usually low grade
- Has excellent prognosis

Common sites:

- Gastric mucosa (usually associated with H pylori infection)
- Salivary tissue
- Lacrimal glands

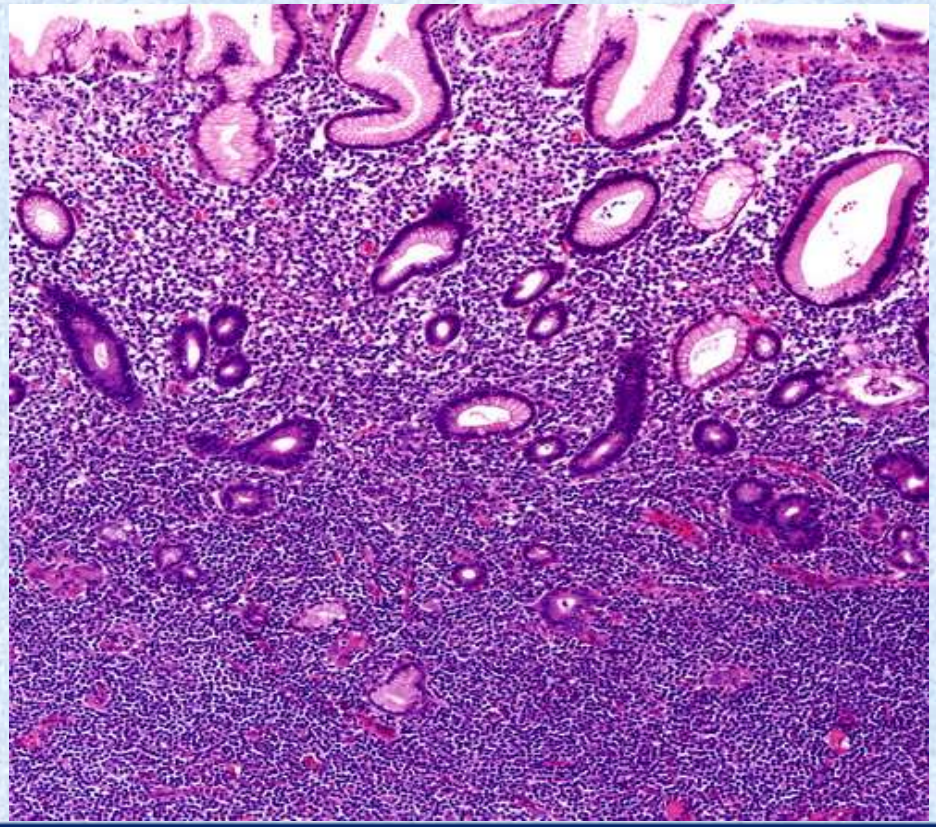
Non-Hodgkin`s Lymphoma

Extra-nodal lymphomas

Extra-nodal mucosal associated marginal zone lymphoma (MALT lymphoma)

Microscopic picture:

- Diffuse infiltration of gastric mucosa by atypical lymphocytes
- The cells have small size and uniform shape
- The cells attack and destroy mucosal glands (lymphoepithelial lesions).



Non-Hodgkin`s Lymphoma

Tissue tumour markers for diagnosis of lymphoma

- Identification of lymphoma subtype is very essential to decide:
  - ***Treatment***: certain subtypes have specific target therapy
  - ***Prognosis***: certain subtypes are indolent and others are aggressive

- Histological features of different types of lymphoma can be similar, so it is **NOT** conclusive to separate different types

- So, Immunohistochemistry is **mandatory** to differentiate different subtypes of lymphomas

- Immunohistochemistry is designated to detect certain proteins that are expressed specifically in certain types of lymphoma.

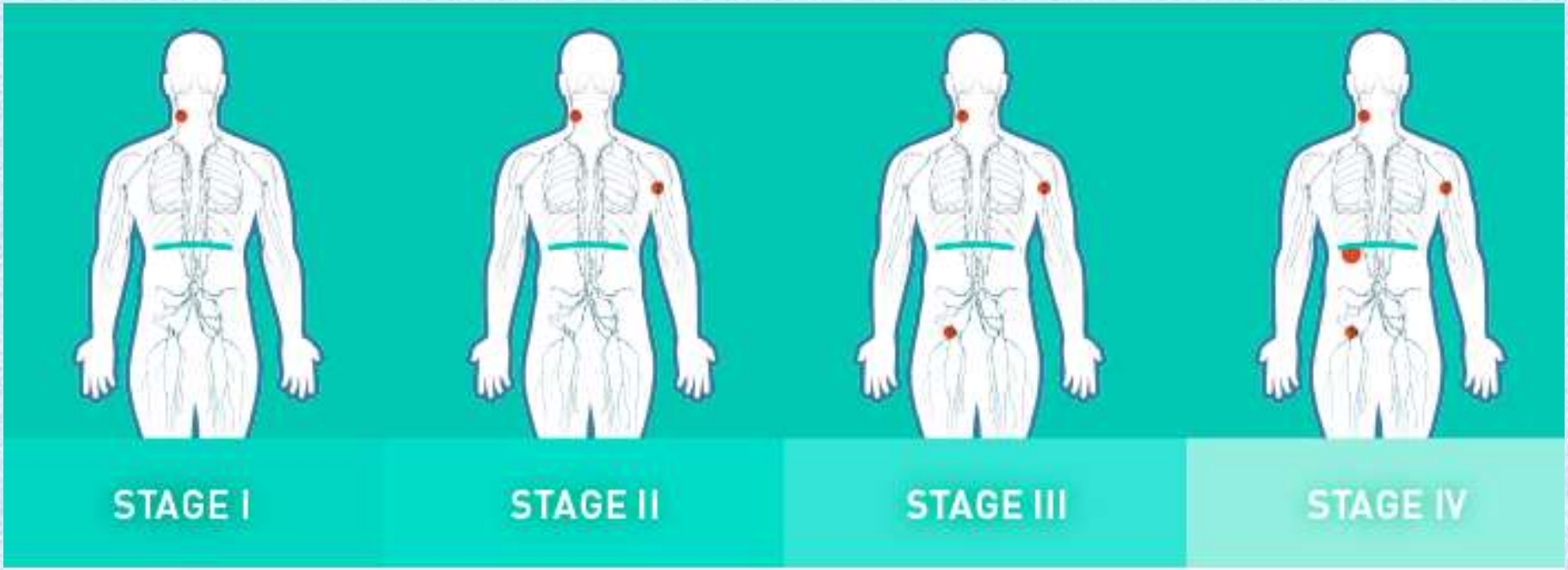
Non-Hodgkin`s Lymphoma

Tissue tumour markers for diagnosis of lymphoma

- **Examples**:
  - All B cell lymphomas are CD20 and CD79a positive
  - All T cell lymphomas are CD3 positive
  - Burkitt`s lymphoma is CD10 positive
  - Follicular lymphoma is Bcl-2 positive
  - Anaplastic large cell lymphoma is CD30 and ALK positive
  - Hodgkin`s cells are CD15 and CD30 positive

Non-Hodgkin`s Lymphoma

Clinical staging of lymphoma



NHL and HL

NHL	HL
Tend to involve more than one group of LNs	often localized to a single group of LNs
More frequent involve peripheral LN groups	More frequently involve axial LN groups
Cervical, mediastinal, para-aortic can be involved	Cervical, mediastinal, para-aortic are commonly involved
Mesenteric nodes and Waldeyer ring are commonly involved.	Mesenteric nodes and Waldeyer ring are rarely involved.
Frequent peri-nodal extension	Less frequent peri-nodal extension
Usually non-contiguous spread.	Usually contiguous spread.
Extension to extra-nodal sites is common.	Extension of extra-nodal sites is uncommon.

TUMOURS OF LNs

Secondary (Metastatic)

- **Carcinoma** — Commonest
- **Melanoma** — Less common
- **Sarcoma** — Much less common

Primary (Lymphoma)

- **Hodgkin`s**
- **Non-Hodgkin`s**

Metastatic carcinoma of the lymph nodes

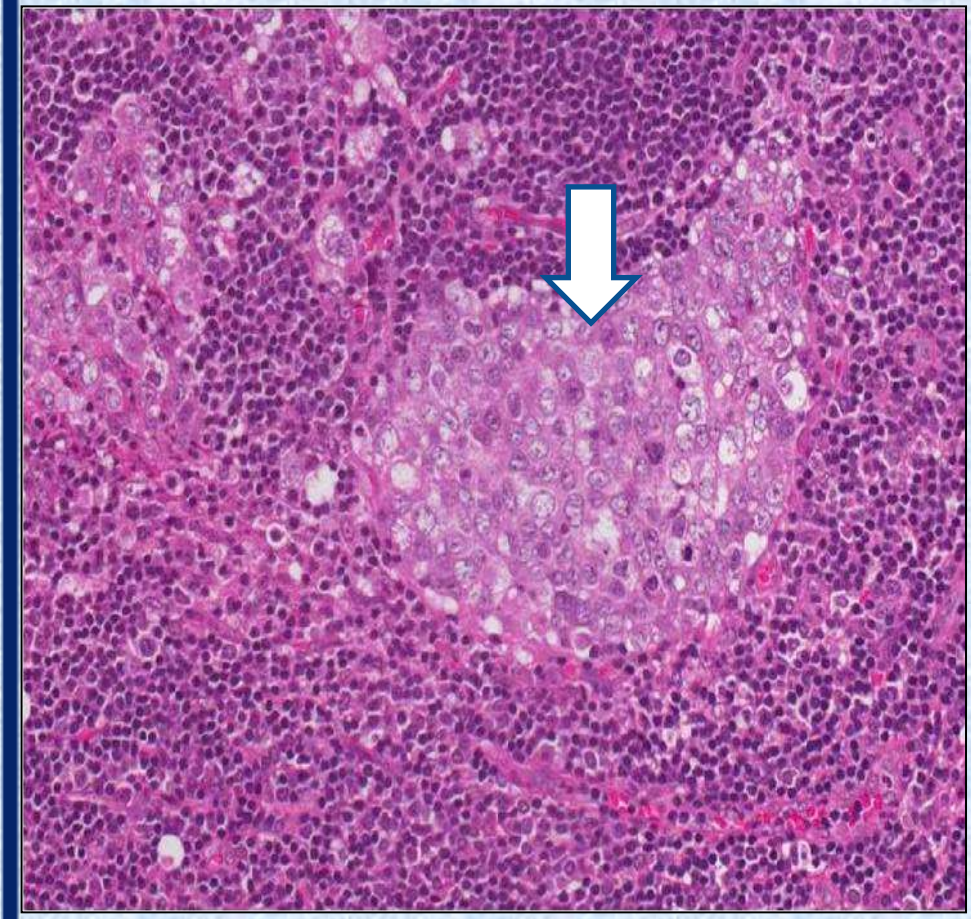
Metastatic carcinoma of LNs

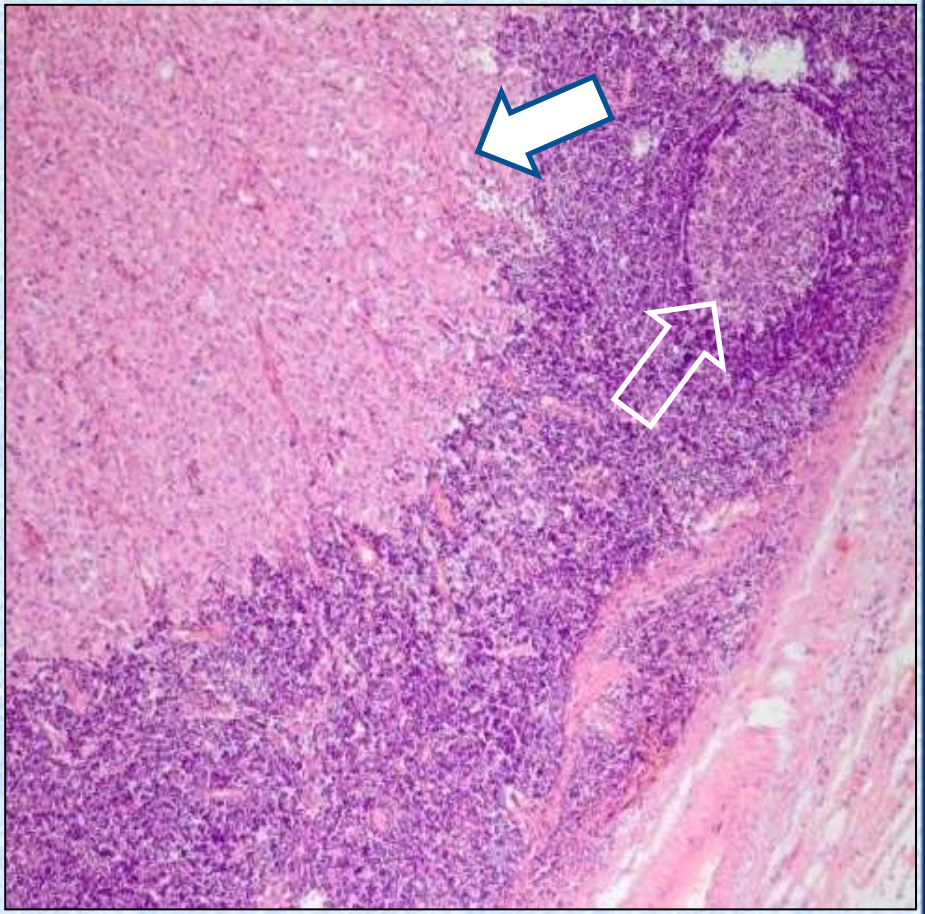
- **Definition:**
  - Involvement of lymph nodal tissue by malignant epithelial cells
- **Commonly involved LN groups and common primary sites:**
  - Axillary LN: in breast cancer
  - Cervical LN: in thyroid, naso-phareyngeal, hypo-pahryngeal and salivary carcinomas
  - Porta-hepatis LN: in hepatic, gall bladder and pancreatic cancers
  - Mesenteric LNs: in cancer colon and rectum
  - Iliac and para-aortic LN: as in cancer bladder and cancer cervix

Metastatic carcinoma of LNs

- ***Grossly***
  - Multiple, enlarged discrete or fused LN with greyish white cut section
- ***Microscopically***
  - Early: deposition of malignant epithelial cells in the sub-capsular lymphoid sinuses (mention features of malignancy)
  - In advanced cases: lymph node is partially, sub-totally or totally replaced by the neoplastic cells
  - The metastatic cells are similar to the primary tumour cells (arrange in sheets, nests, glands, papillae according to tumor origin)
  - The lymphoid tissue (if present) show lymphoid hyperplasia
- **Clinical importance:**
  - LN metastasis is essential for TNM staging of the tumor
  - Involvement of LN is essential to decide treatment and prognosis of cancer patients

Metastatic carcinoma of LNs





Comment ???

Thank you

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Good luck

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