


# *Non Hodgkin's Lymphoma*

## ***NHL:***

Heterogeneous malignant proliferation of lymphoid cells and may be of B- cell ( 70%) or T- cell ( 30%) in origin.

## ***Epidemiology & Aetiology :***

### **- incidence :**

- . 12 new cases (100.000 population) yr.
- . Constitute 4 % of all cancer cases with  ing rate of 3-4 % / yr.
- . *Incidence increases with age*
- . *More in males 3:2.*

## ***- Aetiology :***

- . No single cause was described.**
- . There is risk factors with which the occurrence of lymphoma is increased :**
  - A. gastric lymphoma can be associated with H. pylori infection.**
  - B. lymphoma risk is high in patients with congenital immunodeficiency state and immunosuppressed patients post – organ transplantation.**

- C. Specific lymphoma types are associated with EBV  
Human herpes virus & HIV.
- D. Environmental toxins.
- E. familial.

### ***Clinical features :***

Almost same as HL. But usually they presented in advanced stage , extra- nodal disease is more common especially BM. , Brain , liver.

### ***Investigations :***

Same as HL. But in addition:

- A. BM. Aspiration & biopsy

**B. Immunoglobulin determination.**

**C. Viral serology especially HIV.**

**D. Immunophenotyping staining to distinguish  
T- and B- cell tumors and identify  
the sub types :**

**B- cell CD markers**

**( CD23 , CD20 , CD10 , CD79a , cyclin D1, CD5)**

**T- cell CD markers**

**( CD2 , CD3 , CD7)**



extranodal organ or site (I<sub>E</sub>).

Two or more lymph node regions on the same side of the diaphragm alone (II) or with involvement of limited, contiguous extralymphatic organ or tissue (II<sub>E</sub>).

Lymph node regions on both sides of the diaphragm (III), including one organ or area near the lymph nodes or the spleen (III<sub>E</sub>).

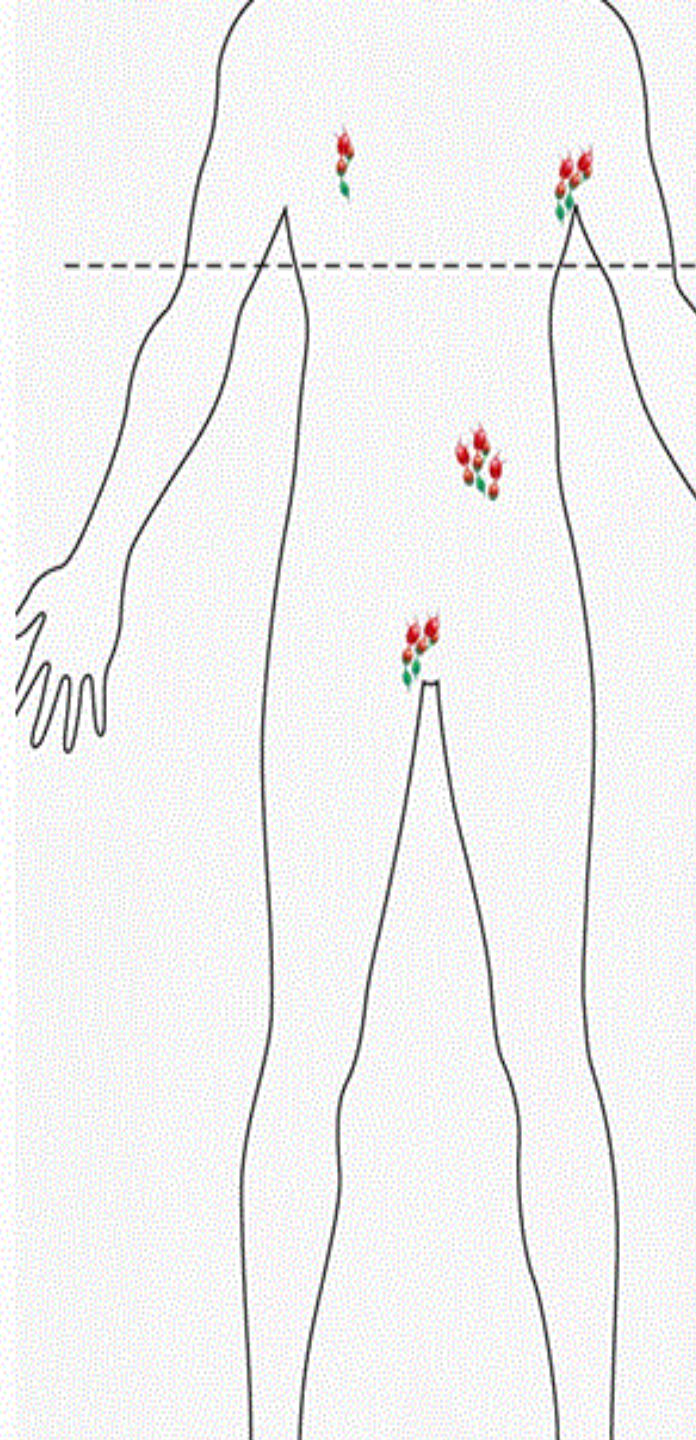
Dissemination to one or more extralymphatic organs or tissues, with or without involvement of nearby lymph nodes.

### Key features:

Asymptomatic.

Unexplained fever (> 38C); night sweats; loss of more than 10% body weight in 6 months.

Involvement of a single, contiguous or proximal extranodal site.



# ***Classifications :***

## ***REAL classifications :***

### ***Revised European American Lymphoma***

#### **1- Low grade lymphoma “ indolent lymphoma”**

- Follicular lymphoma FCL.
- Marginal zone B- cell MZL , MALT –Lymphoma.
- Small cell lymphocytic SCL lymphoma / CLL.
- Lymphoplasmacytic lymphoma.

## 2- Intermediate “ Aggressive” lymphoma

- Diffuse large B- cell lymphoma “ DLBCL”.
- Mantle cell lymphoma “ MCL”.
- Mediastinal large B- cell lymphoma “ MLBCL”.
- Anaplastic large B- cell lymphoma “ ALBCL”.

## 3- High “ very aggressive” lymphoma

- Burkitt lymphoma.
- precursor T- lymphoma.



## ***WHO classification :***

### **- B- cell Neoplasms :**

**A- precursor B – cell Neoplasms.**

**B- mature “ peripheral B- cell ” neoplasms:-**

**SLL , MALT , MZL ,FCL , MCL ,DLBCL ,**

**Burkitt lymphoma .**

### **- T- cell Neoplasms :**

**A- precursor T- cell Neoplasms.**

**B- Mature “ peripheral T- cell ” neoplasms**

**mycosis fungoides /sezary synd.**

**peripheral T- cell lymphoma.**



# Classification of Non-Hodgkin Lymphoma (selected common entities)

- Precursor B cell
  - Acute lymphoblastic lymphoma
- Peripheral B cell
  - Small lymphocytic lymphoma SLL, Chronic lymphocytic leukemia CLL
  - Mantle cell lymphoma
  - Follicular lymphoma
  - Marginal zone lymphoma
  - Diffuse large B cell lymphoma
  - Burkitt lymphoma
- Precursor T cell
  - Acute lymphoblastic lymphoma
- Peripheral T cell
  - Anaplastic large T cell lymphoma
  - Peripheral T cell lymphoma
  - Mycosis fungoides

## ***Treatment :***

They are three main treatment options of NHL. :

- Chemotherapy.
- Radiotherapy.
- Immunotherapy.

± Surgery Or stem cell transplantation.

## ***Watch\_wait “WW.” :***

For Asymptom & early stage of indolent lymphoma

## ***Chemotherapy :***

- single agent “ chlorambucil & cyclophosphamide”.
- Combination chemotherapy :

CVP , R- CVP , CHOP , R- CHOP , FCR.

## ***Immunotherapy :***

*Anti CD20 Ab. “ Mabthera → Rituximab”*

*either alone or in combination with CHOP.*

## ***Surgery :***

indicated in cases presented with intestinal obstruction or debulking in spinal cord compression , cases of pathological fractures.

## ***Autologous stem cell transplantation :***

indicated in cases of relapse or refractory.

*Thank you...*