

HODGKIN LYMPHOMA

- Malignant lymphoid neoplasms with:
 - Majority of specific neoplastic cells (Hodgkin cell & Reed-Sternberg cells)
 - Majority background of reactive non-neoplastic cells

DISTINCTIVE FEATURES:

- Distinctive neoplastic - RS cells
- strong, but ineffective host immune response to RS cells
- Typically spreads in stepwise fashion (HL arises in lymphoid & spreads to other sites)

CLASSIFICATIONS:

- classical Hodgkin lymphoma
- 5) nodular lymphocyte predominant Hodgkin lymphoma (NLPHL)

Classical Hodgkin lymphoma: - CD15, CD30 +ve

- 1 → Nodular sclerosing classical HL
 - 2 → Mixed cellularity CHL
 - 3 → Lymphocyte rich CHL
 - 4 → Lymphocyte depleted CHL
- } RS cell in these share same morphology & immunophenotypic features.

PATHOGENESIS:

- This neoplasm arises from germinal centre B cell

EBV infection & HL → EBV is present in RS cell in 70% of cases

↳ Activation of nuclear transcription factor (NF- κ B)

↓
Rescue germinal B cell from Apoptosis

↓
has on gene that promote the growth survival of Reed-Sternberg cells

secreted by:

EBV + tumor cell $\rightarrow$ express LMP-1 (latent membrane protein)
to upregulate NF- κ B

EBV - tumor cell $\rightarrow$ Activation of NF- κ B may also be due to loss of function
mutation TNF- α induced protein

$\rightarrow$ cytokine causing accumulation of Residual inflammatory cells infiltrate

include T_H-5/B₂, factors that helps growth of RS cell

$\rightarrow$ They escape from host immune response by inhibit the process for T cell activation.

Reed - Sternberg cell:

They are neoplastic cell pathognomonic of Hodgkin's lymphoma they are
necessary for diagnosis of HL.

$\rightarrow$ They represent minority of RS cells neoplastic cells

$\rightarrow$ RS is very large cell (15-45 μ m diameter) 4 to 5 times size of B cell and
with prominent eosinophilic nucleoli.

$\rightarrow$ centrally placed nucleoli surrounded by a perinuclear halo

$\rightarrow$ Typically have at least two nuclei. $\rightarrow$ have $\rightarrow$ Multilobate

$\rightarrow$ two mirror-image nuclei (contain large acidophilic
nucleus surrounded by clear zone (perinuclear halo).

This produces owl-eye
Appearance.

TYPES:

Pm - Leukocyte marker - CD45

Classic R cell



- Large cell,
Abundant eosinophilic cytoplasm.
Nucleus → Typically two large nuclei
surrounded by halo.

Hodgkin cell
Mononuclear cell



- Single large round nucleus with large eosinophilic nucleolus.

Lacunar cell variant

- Abundant watery clear cytoplasm
large multilobed nucleus.

Humified cell variant

- Dark eosinophilic cytoplasm
with pyknotic nucleus.

Anaplastic variant

- Highly pleomorphic cell. Large hyperchromatic nuclei.

Popcorn cell

- Abundant pale cytoplasm with popcorn nucleus.
seen in Nodular lymphocyte predominant HL

CLASSIC HODGKIN LYMPHOMA:

CHL is defined by presence of mononuclear HC & bi or multinucleated R cells within a characteristic non-neoplastic cellular microenvironment.

TYPES OF CELL FOUND

Neoplastic cell

Non-Neoplastic cell

- RB cells → Mononuclear
- " → Lacunar
- " → Humified
- " → Lymphoproliferation

- Reactive lymphocytes
- histiocytes
- Granulocytes
- Eosinophil
- Neutrophil
- Plasma cell

→ lymph nodes are Associated

↳ enlarged encapsulated with fish flesh appearance on cut surface.

1) NODULAR SCLEROSIS CLASSICAL HL

→ Most common → M. 91-94, side effect → ^{involve} lower cervical, supraclavicular, mediastinal lymph nodes

MORPHOLOGY:

collagen (sclerotic) bands surrounding nodules.

↓
These bands extend from capsule of divide lymphoid tissue into circumscribed cellular nodules of varying size & shape.

↓
loss of Architecture of lymph nodes.

→ The nodule consist of RS cells, lacunar cell, Hodgkin's cell.

→ Presence of lacunar cells → variant of RS cells (single multi-lobate nucleus with small nuclei) Abundant pale cytoplasm

→ Inflammatory Background → small lymphocyte, eosinophil, monocyte, neutrophils.

Immunopheno type

→ CD45 -ve

EBV -ve

CD15 & CD30 +ve.

Prognosis - excellent

MIXED CELLULARITY CHL

2nd common, seen in >50 year old M.

→ Strongly Associated with EBV of peripheral lymph node

MORPHOLOGY

→ Lymph node architecture is lost.

→ Plenty of RS cells.

→ Inflammatory background → hist, com, eosinophil

Immunophenotyping → CD15+, CD30 +ve EBV +ve

Lymphocyte Rich CHL

Uncommon, elderly, Associate with EBV is 40%
Scattered Hodgkin & RS cells seen.

MORPHOLOGY:

Growth Pattern $\left\{ \begin{array}{l} \text{nodular} \\ \text{diffuse (Rare)} \end{array} \right.$

- Only few RS cells
- Background - Abundant small lymphocyte

Immunophenotype $\rightarrow$ CD15+, CD30+, CD45- CD20-

Lymphocyte depleted CHL

Rich in H&I of RS cells.

→ Pauter - Older, HIV+ve patient.

→ Retroperitoneal lymph node, Abdominal organ, bone marrow.

MORPHOLOGY

- Plenty RS cell $\rightarrow$ Anaplastic variants.
- $\rightarrow$ Reticular: Numerous Hodgkin & RS cell.
- $\rightarrow$ Diffuse nodules.

Background: Paucity of lymphocytes.

NODULAR LYMPHOCYTE PRE DOMINANT

Not associated with EBV.
Involve cervical or Axillary lymph nodes.

NLPDL

- Partial or complete loss of lymph node
- Hodgkin & RS cell not found.

Lab finding

PS: N/A anemia

WBC $\rightarrow$ leukocytosis

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