



# HEMATOLOGY AND ONCOLOGY FOR USMLE



## Hodgkin Lymphoma

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### Definition & Hallmark

- Malignant lymphoma characterized by Reed-Sternberg (RS) cells
- RS cells: large, bilobed nuclei with the halves as mirror images → "owl eyes" 🦉
- RS cells are CD15<sup>+</sup>, CD30<sup>+</sup>, usually of B-cell origin
- RS cells represent 1-5% of cells in affected lymph nodes; the majority are reactive inflammatory cells

Mnemonic: 2 "owl eyes" × 15 = 30 (RS cells: CD15<sup>+</sup> CD30<sup>+</sup>)

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### Subtypes of Hodgkin Lymphoma

Subtype	Key Features	Clinical Note / Mnemonic
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Nodular sclerosis	Most common (60-80%)	Often in women, mediastinal mass, lacunar RS cells
Mixed cellularity	Eosinophilia; neutrophils, plasma cells, macrophages	Seen in immunocompromised patients
Lymphocyte-rich	High lymphocytes	Best prognosis → "the rich have better bank accounts 💰"
Lymphocyte-depleted	Low lymphocytes, many RS cells	Worst prognosis → "the poor have worse bank accounts 📉"; seen in immunocompromised
Nodular lymphocyte predominant (LP)	Rare; "popcorn cells" 🍿; CD20 <sup>+</sup> , CD15 <sup>-</sup> , CD30 <sup>-</sup>	Lymphocyte-predominant; indolent course

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## Clinical Features 🩺

- Enlarged, painless lymph nodes (commonly cervical)

- B symptoms: Fever, night sweats, weight loss
  - Systemic signs: Chills, pruritus, fatigue
  - Spread pattern: Predictable, orderly from node to node
  - Extranodal involvement: Rare (unlike non-Hodgkin lymphoma)
  - Age distribution: Bimodal → peaks at 20 and 65 years
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## Risk Factors

- Prior EBV infection (virus infects B cells)
  - Immunosuppression (HIV, transplant)
  - Autoimmune diseases: Rheumatoid arthritis, lupus
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## Reed-Sternberg Cells (RS Cells)

- Morphology: Large, multinucleated, mirror-image nuclei ("owl eyes")

- Origin: Usually B cells (rarely T cells)
- Markers:
  - Positive: CD15<sup>+</sup>, CD30<sup>+</sup>
  - Negative: B-cell markers (CD19, CD20, CD21, CD22)
- Function: RS cells release cytokines → recruit reactive cells → most cells in node are reactive

Fun fact: Activated macrophages can cause hypercalcemia via  $1\alpha$ -hydroxylase → ↑  $1,25-(OH)_2$  vitamin D

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## Hodgkin vs Non-Hodgkin Lymphoma

### Clinical & Spread Comparison:

Hodgkin HL ●	Non-Hodgkin NHL ●
Often localized	Often multiple peripheral sites
Orderly, contiguous spread	Noncontiguous spread

Extranodal involvement rare	Extranodal involvement common (GI, skin)
Commonly B symptoms	Less common

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## Classification of Hodgkin Lymphoma

### Flowchart

Classical HL (most common) →

- Nodular sclerosis → Mediastinal mass, lacunar RS cells
- Mixed cellularity → Immunocompromised, eosinophilia
- Lymphocyte-rich → Best prognosis
- Lymphocyte-depleted → Worst prognosis

Nodular lymphocyte predominant HL →

- Rare, LP cells ("popcorn cells"), CD20<sup>+</sup>, CD15<sup>-</sup>, CD30<sup>-</sup>

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## Treatment

### ABVD regimen:

- A: Adriamycin (doxorubicin) → cytotoxic antibiotic
- B: Bleomycin → cytotoxic antibiotic
- V: Vinblastine → microtubule inhibitor
- D: Dacarbazine → alkylating agent

Note: Stage is strongest predictor of prognosis.  
Limited disease is highly curable.

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## Summary Points

- RS cells are the hallmark, "owl eyes" 
- Most common subtype: Nodular sclerosis
- Bimodal age peaks: 20 & 65
- B symptoms more common than in NHL
- Spread predictable → localized involvement
- ABVD chemotherapy is standard first-line

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Resources:

- First Aid for the USMLE
- Boards and Beyond Hematology Book

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The End