

LAB 5: LYMPHOID TISSUE AND SKIN

The focus of this week's lab will be pathology of the lymphoid tissue and skin. The lymphoid organs include the thymus, spleen, and lymph nodes. Abnormalities in the lymph nodes account for the vast majority of lymphoid tissue pathology.

LYMPH TISSUE

Infections and nonmicrobial inflammatory stimuli can cause leukocytosis (as seen in Lab 1) as well as lymph node enlargement (*lymphadenopathy*).

The cases we will cover are:

- A. **Follicular Lymphoma** Refer to virtual slides: 1) b_90 human lymph node (normal) at <https://med-vmicro.med.illinois.edu/v/374/> ; 2) p_206 lymph node, follicular lymphoma at <https://med-vmicro.med.illinois.edu/v/386/>
- B. **Hodgkin Lymphoma (Nodular Sclerosis Type)** Refer to virtual slide p_202 lymph node, hodgkin's disease at <https://med-vmicro.med.illinois.edu/v/388/>

SKIN

The skin is an important protective layer against foreign materials. It is comprised of the *dermis*, *epidermis*, and *hypodermis*. The epidermis is composed of five (four in thin skin) layers. These layers are: 1) *Stratum Corneum*, 2) *Stratum Lucidum* (only in thick skin), 3) *Stratum Granulosum*, 4) *Stratum Spinosum*, and 5) *Stratum Basale*. The dermis lies deep to the epidermis and is separated from the epidermis by a basement membrane. The dermis is composed of two layers, a *superficial papillary layer* and a deep thicker area called the *reticular dermis*. The hypodermis lies deep to the dermis.

The cases we will cover are:

- C. **Basal Cell Carcinoma** Refer to virtual slide p_9 skin basal cell cancer at <https://med-vmicro.med.illinois.edu/v/389/>

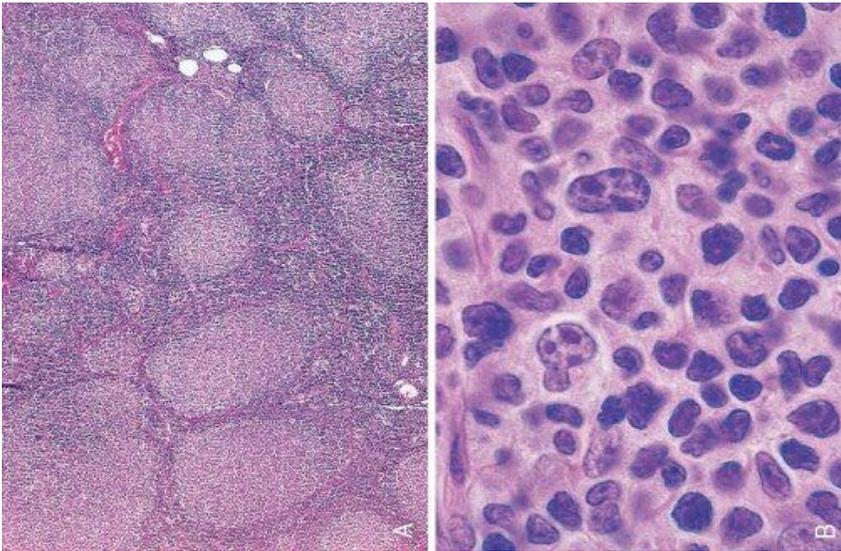
A. FOLLICULAR LYMPHOMA

CC/HPI: A 54-year-old white female notices painless lumps bilaterally in her neck that have slowly enlarged over the past three months. She denies any pain, but complains of a few episodes of mild fever, nocturnal hyperhidrosis, and weight loss in the past three months.

PE: Physical exam reveals bilateral cervical firm lymphadenopathy, pallor, and splenomegaly.

Labs: CBC demonstrates Coombs-positive hemolytic anemia and thrombocytopenia. Elevated serum LDH; hypergammaglobulinemia.

Pathology: A lymph node biopsy sample is shown:



What do the circular structures seen in the image on the left look like? What lymphocyte type are these structures mainly composed of?

Does the picture on the left have a normal number of these structures?

The cells in these structures express CD20. This is a marker for what type of cells?

These cells also express excess Bcl2 as a result of a translocation, specifically t(14; 18), between the Bcl2 gene on chromosome 18 and the IgH locus on chromosome 14. How does this translocation alter Bcl2 expression? Do these cells normally express Bcl2?

How does the function of Bcl2 correlate with the pathology seen here?

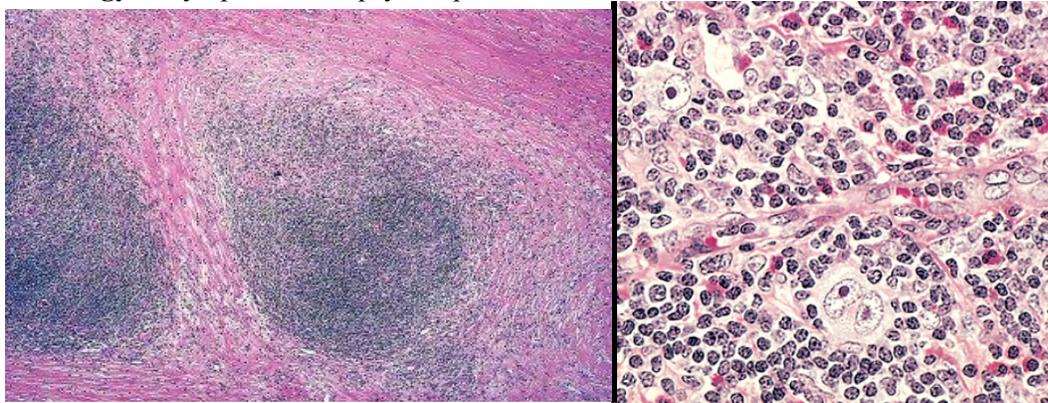
B. HODGKIN LYMPHOMA (NODULAR SCLEROSIS TYPE)

CC/HPI: A 25-year-old white female complains of a painless lump in her neck that has grown over the past two months. She also complains of rapid enlargement of her abdomen, intermittent fever, nocturnal hyperhidrosis, pruritis, and significant weight loss.

PE: Physical exam reveals pallor, unilateral nontender, rubbery, enlarged cervical lymph nodes; splenomegaly.

Labs/Imaging: CBC demonstrates neutrophilic leukocytosis with lymphopenia; normocytic anemia. Elevated ESR and LDH. Chest X Ray shows bilateral hilar lymphadenopathy. CT shows mediastinal lymphadenopathy, splenomegaly, enlarged lymph nodes and mild hepatomegaly.

Pathology: A lymph node biopsy sample is shown:



Collagen stains pink (eosinophilic) in the image on the left. What type of collagen is normally found in lymph node?

Two cell types are seen in the image on the right. Which one is NOT normally seen in a lymph node?

Note the large cells that don't stain well in right image, and that one has two nuclei. What are these cells called?

From what normal cell type are these cells derived?

C. BASAL CELL CARCINOMA

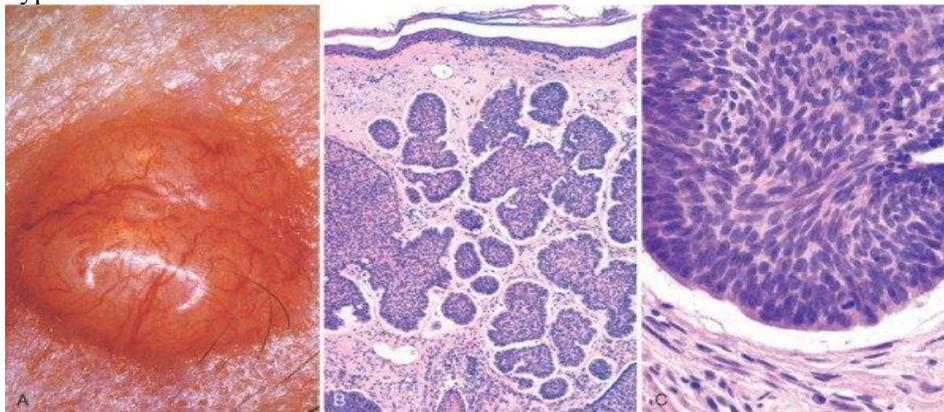
CC/HPI: A 68-year-old red-haired white man presents with a three-month history of a progressively raised, bleeding, ulcerated lesion in front of his ear that has not responded to various ointments. He is a sailor and has always sailed without a hat; he occasionally smokes but does not drink.

PE: Physical exam reveals a large ill-defined, telangiectatic and ulcerated nodule (“pearly papule”) with heaped-up borders located anterior to the right ear; no regional lymphadenopathy.

Basal cell carcinoma is associated with mutation of which gene? How is this mutation inherited?

Describe the signaling pathway that this gene is involved in and how it results in carcinoma.

Pathology: A skin biopsy reveals nodular lesions of basaloid cells with scant cytoplasm and hyperchromatic nuclei:



What kind of cells do the cells in the nodules shown in the middle and right images look like?

The nodules in the middle image are in what part of the skin?