Hemepath Case 32: 17-Year-Old Male

HISTORY

A 17-year-old male presents with recurrent fever and chills, as well as weight loss of 2 kg, over the past 3 weeks. Four days ago, he started complaining of pain in his left wrist. He was previously in good health, with no significant past medical history or family medical history.

Physical examination reveals an ill-appearing adolescent male with a swollen left wrist, tender to palpation. Several red, warm, pruritic nodules are observed on his right thigh. Axillary and inguinal lymphadenopathy are also noted. Radiologic imaging of his left wrist shows a 3 cm osteolytic lesion in the ulnar head.

CBC

Hgb (g/L)	Low
MCV	N
Reticulocyte Count	Low
WBC	Low
Plt	Low

DESCRIPTION OF SLIDES

Lymph Node Biopsy (Slide 32a)

The biopsy shows effacement of normal lymph node architecture. Normal nodal histology is replaced by large, pleomorphic eosinophilic cells (see circles) with fine chromatin and prominent nucleoli. The mitotic rate is very high.

Bone Marrow Aspirate (Slide 32c)

There are numerous large cells with very abnormal pleomorphic nuclear morphology (see circles). They are dyshesive and do not form clumps.

Bone Marrow Biopsy (Slide 32b)

The marrow is hypocellular with patchy involvement by tumor cells (see circles), which form loose aggregates interstitially.

These findings overall suggest a metastatic hematopoietic neoplasm, most likely a large cell lymphoma. Further characterization of this lesion would require immunohistochemistry and/or flow cytometry.

*** To see the slide annotations in Imagescope, click on VIEW, then ANNOTATIONS, and then on the "eye" icon adjacent to the word "Layers". In the “Layer Attributes” box, a brief description of the annotations is provided. You

may also click on individual layer region (e.g. region 1) in the "Layer Regions" box to locate each annotation – this is especially helpful in identifying annotations when the slide is not zoomed in. ***

MORPHOLOGICAL DIAGNOSIS

Anaplastic large cell lymphoma

DISCUSSION

Anaplastic large cell lymphoma (ALCL) is a type of non-Hodgkin lymphoma characterized by large, anaplastic lymphoid cells with CD30 expression. Most have a T-cell or null-cell phenotype (note: tumor cells with a B-cell phenotype are no longer included in the ALCL category, but are instead grouped with diffuse large B-cell lymphoma). A t(2;5) translocation is commonly found in patients; this produces a *NPM-ALK* fusion oncogene with constitutive activation of a signaling cascade, bringing about malignant transformation. Patients typically present in an advanced stage, with B-symptoms and systemic involvement.

Malignant cells in ALCL are large cells containing abundant cytoplasm, kidney-shaped nuclei, and prominent nucleoli. They tend to grow cohesively and have a predilection for the sinuses and paracortical regions of lymph nodes. ALCL can be further divided into different variants with distinctive histopathological characteristics.