



## Hemepath Case 23: 52-Year-Old Male

### HISTORY

A 52-year-old male presents with a gradual onset of fatigue and abdominal discomfort. He has lost 3 kg in the past month and complains of drenching night sweats, approximately 1-2 episodes per week. He has a persistent mild fever and gets sick very easily, although he was previously in good health. Whenever he eats, he feels full after only a few bites.

Physical examination reveals a pale, tired man with mild tachycardia. Massive enlargement of the spleen, with the tip palpable in the pelvis, is noted. The liver is firm and palpated 7 cm below the right costal margin. No lymphadenopathy is found.

### CBC

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

### DESCRIPTION OF SLIDES

#### Peripheral Blood Smear (Slide 23a)

The peripheral blood smear shows mild anemia, mild poikilocytosis (including elliptocytes), and lymphocytosis. There are several lymphocytes with moderately abundant gray cytoplasm, and some show cytoplasmic projections (hairy cells; see circles). Neutrophils and platelets are morphologically unremarkable.

#### Spleen (Slide 23b)

The histological section from the spleen shows massive infiltration of the red pulp by leukemic cells (see circle). You can compare this slide to Slide 23c, a histological section of normal splenic tissue.

\*\*\* 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

Hairy cell leukemia

## **DISCUSSION**

Hairy cell leukemia is a clonal B-cell malignancy typically presenting with symptoms of pancytopenia (e.g. pallor and fatigue from anemia, recurrent infections from neutropenia, petechiae and ecchymoses from thrombocytopenia) and marked splenomegaly (e.g. abdominal discomfort, early satiety). Malignant cells proliferate and infiltrate the reticuloendothelial system, resulting in bone marrow failure and hepatosplenomegaly. The presence of hairy cells with cytoplasmic projections on peripheral blood smear and/or bone marrow aspirate/biopsy is highly suggestive of this malignancy. Diagnosis is established via flow cytometry (or cytochemical stains in the absence of flow).