

**Dr. Q's Question of the Month**

When is an amoeba not an amoeba?



**Peripheral Blood Lymphocytosis**

Lymphocytosis is a common finding in clinical practice. The most common causes of lymphocytosis in blood are viral infections, but other causes of reactive lymphocytosis have been described. In patients with systemic viral infections, clinical correlation along with serologic testing is generally sufficient for definitive diagnosis. The differential diagnosis of a patient with lymphocytosis includes neoplastic etiologies such as acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL) and other lymphoproliferative disorders.

**Age-related values for absolute lymphocyte count**

The age-related variations in the peripheral blood absolute lymphocyte count are well recognized especially in pediatric patients. In infancy and early childhood, the upper limit for absolute lymphocyte count is 10,000/ $\mu$ L, while the normal range in adults is 1,500 – 4,000/ $\mu$ L.

**General approach to peripheral blood lymphocytosis**

Once absolute lymphocytosis has been established, it is important to evaluate these lymphocytes for morphologic features. In viral infections, lymphocytes exhibit a broad morphologic spectrum associated with activation; a hallmark of a benign activated lymphocytosis is morphologic heterogeneity (Fig. 1). Generally, in malignant lymphocytosis, the lymphocytes appear more monotonous and either mature as in CLL (Fig. 2) or immature (lymphoblastic) in ALL (Fig. 3). Specialized studies such as flow cytometry (immunophenotyping) and cytogenetics can be used in selected clinical situations when the likelihood of a neoplastic process is high. These specialized techniques are not needed in the routine evaluation of patients with probable benign lymphocytosis based on assessment of hematologic, clinical, and other laboratory parameters.

**Causes of benign lymphocytosis in blood**

- Infectious mononucleosis caused by Epstein-Barr virus (EBV)
- Infectious mononucleosis-like syndromes
  - Toxoplasmosis
  - Cytomegalovirus
  - Adenovirus
  - Acute HIV-1 infection
  - Human herpesvirus-6
  - Viral hepatitis

- Other infections
  - Rubella
  - Roseola
  - Mumps
  - Chickenpox
  - Pertussis
- Smoking
- Polyclonal B lymphocytosis
- Drug effect (e.g. diphenylhydantoin)
- Post vaccination
- Transient stress lymphocytosis

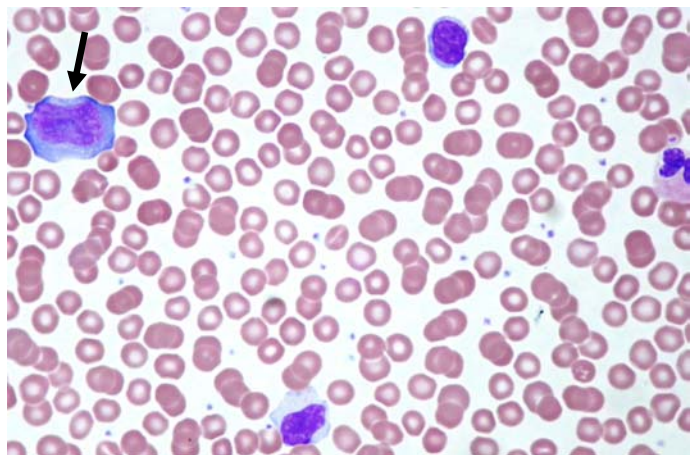


Figure 1. Infectious mononucleosis. Arrow indicates activated lymphocyte.

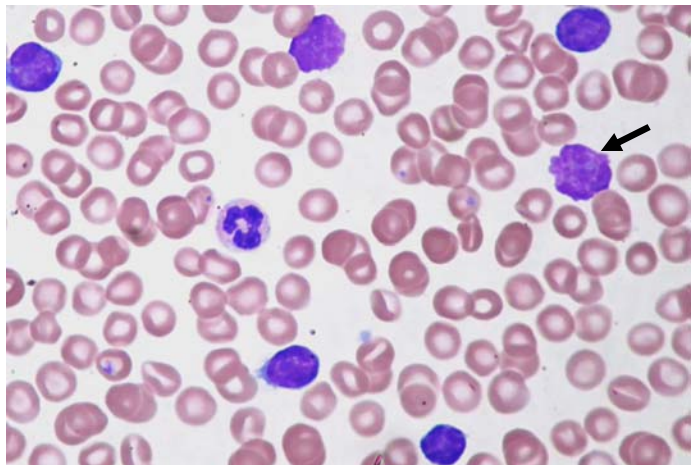


Figure 2. Chronic lymphocytic leukemia. Arrow indicates smudge cell.

**Treatment**

Lymphocytosis typically causes no symptoms and is often discovered incidentally on blood tests. No therapy is generally necessary to bring the lymphocyte count to normal range but therapy may be needed to address the specific underlying condition.

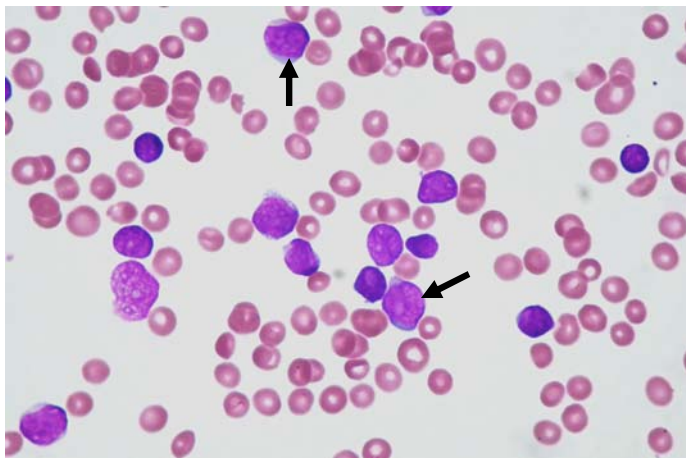


Figure 3. Acute lymphoblastic leukemia. Arrows indicate lymphoblasts.

Dr. Zohra Daw, Hematopathologist

### Photo ID for Urine Drug Screening

Please be aware that LifeLabs will be asking urine drug testing patients for photo identification starting in October. Misrepresentation of patient identity is a significant source of perceived laboratory error in urine drug testing, so we frequently receive inquiries from physicians about laboratory results which appear to contradict a patient's claims or clinical presentation.

With the support of the BC College of Physicians and Surgeons, we will be requesting patients presenting at a LifeLabs collection site to provide current government-issued photo identification such as a driver's licence or student card. If not provided (for whatever reason), or where samples are collected by an external clinic, we will add an appropriate comment to the lab report. We hasten to add that **this policy does not mean we will refuse to perform testing if photo ID is not provided.**

Photo identification requirements for medico-legal drug testing will remain as before.

Dr. Jan Palaty, Clinical Biochemist

### Urine Albumin : Creatinine Ratio (ACR)

Beginning in October, urine ACR values will appear as e.g. <4.7 mg/mmol (reference interval <2.0 (males) or <2.8 (females)) when albumin is below the detection limit of 10 mg/L. In the past, we did not report an ACR even though useful clinical information was present i.e. urine albumin undetectable. Our current practice is to divide the albumin detection limit (10 mg/L) by the creatinine result (in mmol/L) and report the resulting ratio: thus, albumin of <10 mg/L and creatinine of 4 mmol/L yield an ACR of <2.5 mg/mmol.

Dr. Jan Palaty, Clinical Biochemist

## Laboratory Testing for Vaginitis

Are you sometimes unsure about which option to choose on the lab requisition form when ordering testing for **vaginitis**? Below is a list of tests the lab will perform based on the clinical condition (**in blue**) indicated on the requisition form under **Genital Specimens**.

### Vagina Initial (smear only)

- When to order**
- On initial presentation with vaginitis
- Routine lab testing performed**
- Stained smear for bacterial vaginosis score and Candida
  - \*Trichomonas testing will be done only if specifically requested:

Vagina  Trichomonas

### Vagina Recurrent/Chronic (smear & culture)

- When to order**
- Recurrent or chronic vaginitis
  - Failed treatment (including self-R<sub>x</sub>)
- Routine lab testing performed**
- Stained smear for bacterial vaginosis score and Candida
  - Candida culture
  - Trichomonas examination
  - Culture for other pathogens

**Please note:** For the diagnosis of vaginitis, culture will only be performed if the Vagina Recurrent/Chronic box is checked on the requisition.

### Specimen collection

- Vagina Initial** : Please submit **1 Copan swab**  
**Vagina Trichomonas** : Please submit **1 Copan swab**  
**Vagina Recurrent/Chronic** : Please submit **2 Copan swabs**



Dr. Colette Pienaar, Medical Microbiologist

## Answer to Dr. Q's Question

When it is *Dientamoeba fragilis*. This parasite, despite its name, is actually a flagellate and not an amoeba at all. The organism usually looks like an amoeba in parasite examinations of stool, and, as its name also implies, it is fragile and easily missed if specimens are not properly collected and preserved. Recognizing it in the lab is also difficult and requires skilled technologists. *D. fragilis* is associated with persistent diarrhea, abdominal pain and loss of appetite as well as weight loss, flatulence and anal pruritis. The drug of choice for treatment is iodoquinol; tetracycline is the second drug of choice.

Trophozoite of *D. fragilis*  
 Courtesy of the CDC



Dr. Michael T. Kelly,  
 Medical Microbiologist