

## Table of Contents – Print Version

Learning Objectives

### Clinical Microscopy

Provider Performed Microscopy

- Proficiency Testing
- Facility Administration for Nonwaived Testing
- Quality Systems for Nonwaived Testing
- Personnel Requirements
- Inspections

Urine Sediment Cells

- Erythrocyte
- Leukocyte
- Renal tubular epithelial (RTE) cell
- Renal tubular epithelial cell with fat globules (oval fat body)
- Squamous epithelial cell
- Transitional epithelial (urothelial) cell

Urine Sediment – Casts

- Broad cast
- Cellular (WBC, RTE, epithelial) casts
- Fatty (fat globules) cast
- Granular cast
- Hyaline cast
- Red blood cell/blood/hemoglobin cast
- Waxy cast

Urine Sediment – Crystals

Acid Urine

- Amorphous urates crystals
- Calcium oxalate crystals
- Uric Acid crystals

Alkaline Urine

- Ammonium biurate crystals
- Ammonium magnesium phosphate (triple phosphate) crystals
- Calcium carbonate crystals
- Calcium phosphate crystals

Abnormal Urine Crystals

Metabolic

- Bilirubin crystals
- Cholesterol crystals
- Cystine crystals
- Hippuric acid crystals
- Leucine crystals
- Tyrosine crystals

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## Iatrogenic

- Ampicillin crystals
- Sulfonamide crystals
- Radiographic dye crystals

## Urine Sediment – Organisms

- Bacteria
- Trichomonas vaginalis*
- Yeast/Fungi

## Urine Sediment – Other

- Fat droplets or globules, free
- Fiber/fecal contamination
- Mucus strands
- Pollen grain
- Starch granule

## Vaginal Wet Preparation – Cells

- Clue cell
- Erythrocyte
- Leukocyte
- Squamous epithelial cell

## Vaginal Wet Preparation – Organisms

- Bacteria
- Trichomonas Vaginalis*
- Yeast/fungi

## Vaginal Wet Preparation – Other

- Fiber/fecal contamination
- Mucus strand
- Pollen grain
- Spermatozoa
- Starch granules

## Stool Fecal Leukocytes

## Nasal Smears

## Skin KOH Preparation

- Hair Nit
- Lice
- Mite
- Scabies
- Yeast/Fungal elements

## Pinworm Preparation

## Blood Cell Identifications

### Granulocytic Series

- Auer rod
- Band neutrophil
- Basophil
- Eosinophil
- Hypersegmented neutrophil
- Myelocyte
- Metamyelocyte (juvenile)
- Pelger Huet
- Segmented neutrophil
- Segmented neutrophil with Dohle body
- Segmented neutrophil with toxic granulation
- Vacuoles

### Lymphocytic or Plasmacytic Series

- Lymphocyte
- Lymphocyte, reactive (atypical, variant, Downey cell)
- Plasma cell

### Monocytic Series

- Monocyte

### Cellular Artifacts

- Basket cell/Smudge cell
- Degenerated neutrophil

### Functional Disorders of WBCs

### Erythrocytic Series

- Red Blood Cell Indices
- Acanthocyte
- Anisocytosis
- Bite cell
- Blister cell
- Echinocyte (burr cell, crenated cell)
- Erythrocyte, normal
- Fragmented cell (schistocyte, helmet cell, keratocyte)
- Hypochromasia
- Macrocyte
- Microcyte
- Nucleated red cell
- Ovalocyte (elliptocyte)
- Poikilocytosis
- Polychromatophilic red cell
- Rouleaux
- Sickle cell
- Spherocyte
- Stomatocyte
- Target cell
- Tear drop cell

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Hemoglobin C crystal

Erythrocytic with Inclusions  
Basophilic stippling  
Howell-Jolly body

Megakaryocytic Series  
Platelet, normal  
Platelet, giant (macrothrombocyte)  
Platelet Abnormalities  
Platelet clumping  
Platelet satellitosis

Urine Sediment Procedure  
Vaginal Wet Preps/Potassium Hydroxide Preps Procedures  
Performing a Manual Differential

References

## Learning Objectives

The overall objective of the *POL Microscopy Atlas* is to gain microscopic identification skills through studying the written material and correlating that information to the photographs featuring the various cellular elements.

Following completion of the self-instructional material, the participant will be able to:

1. Identify the cellular elements found in urine sediment and discuss their clinical associations.
2. Identify the casts found in urine sediment and discuss their clinical associations.
3. Identify the crystals found in urine sediment and discuss their clinical associations.
4. Identify the organisms found in urine sediment.
5. Identify the cells found in vaginal wet preparation and discuss their clinical associations.
6. Identify the organisms found in vaginal wet preparation and discuss their clinical associations.
7. Identify other elements found in vaginal wet preparation and discuss their clinical associations.
8. Identify the presence or absence of leukocytes in a stool specimen and discuss their clinical associations.
9. Identify the presence or absence of eosinophils in nasal specimens and discuss their clinical associations.
10. Identify the presence or absence of yeast/fungal elements in a skin preparation and discuss their clinical associations.
11. Identify the granulocytic cells found in a peripheral blood smear and discuss their clinical associations.
12. Identify the lymphocytic cells found in a peripheral blood smear and discuss their clinical associations.
13. Identify the monocytic cells found in a peripheral blood smear and discuss their clinical associations.
14. Identify the granulocytic cells found in a peripheral blood smear and discuss their clinical associations.

## The POL Microscopy Atlas

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15. Explain the various functional disorders of white blood cells.
16. Identify the erythrocytic cells found in a peripheral blood smear and discuss their clinical associations.
17. Identify the megakaryocytic cells found in a peripheral blood smear.
18. Perform an examination of urine sediment according to the specified procedure.
19. Perform an examination of a vaginal wet preparation according to the specified procedure.
20. Perform an examination of a manual differential.