

Wet Mount Proficiency Test 2006B Critique

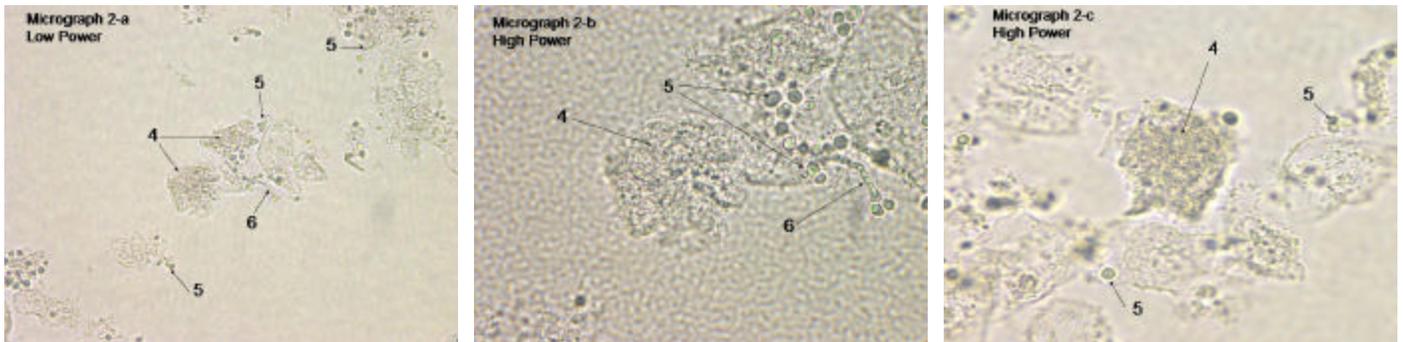
Patient 1



Expected Answers:

- 1 - Red Blood Cell
- 2 - Yeast Cell
- 3 - Squamous Epithelial, not a clue cell

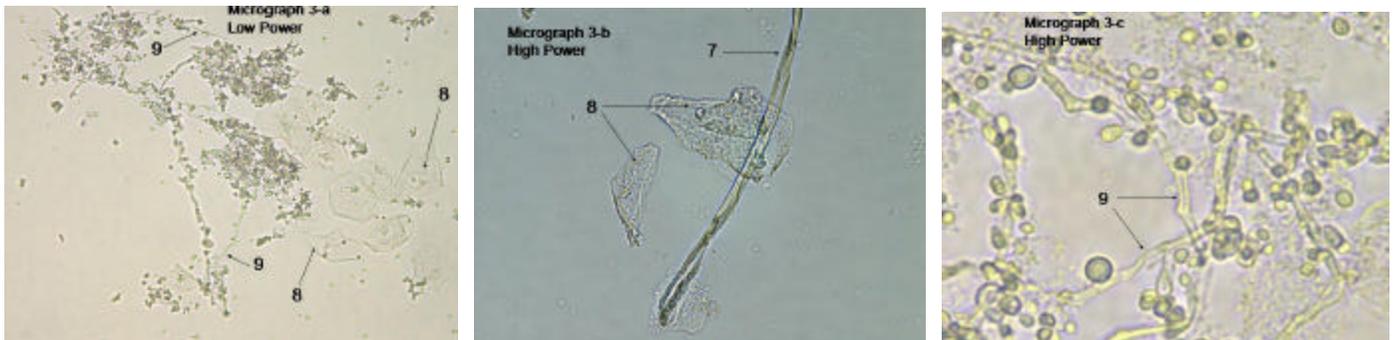
Patient 2



Expected Answers:

- 4 - Clue Cell
- 5 - Yeast Cell
- 6 - Pseudohyphae

Patient 3



Expected Answers:

- 7 - Artifact
- 8 - Squamous epithelial, not a clue cell
- 9 - Pseudohyphae

DISCUSSION

Red Blood Cell (Item #1)

The cells are approximately 8 microns in diameter (smaller than white blood cells by about half, but larger than yeast cells). RBC possess a cell membrane, while yeast have a thick cell wall. Red blood cells are slightly larger and more uniform in shape than yeast cells. In fresh samples, RBC will be round. Because of the biconcave nature of RBC, a dimple may be observed in the middle of the cell. After 5-10 minutes, the RBC will crenate and get a jagged appearance. The RBC in Micrographs 1-a and 1-b have not begun to crenate. The RBC in micrograph 1-c is severely crenated. It is therefore best to analyze the wet mount sample as quickly as possible. The longer you wait, the more likely it is that RBC will crenate and lose their characteristic appearance (while not included in this challenge, *Trichomonas* will lose their viability and will round up after approximately 5-10 minutes).

Yeast Cell (Items #2 and #5)

The cells vary in shape from circular to oval and are approximately 7.5 microns (μm) in diameter, making them slightly smaller than red blood cells. Yeast cells are more variable in shape than a red blood cell (which is). It is often possible to pick out the thick cell wall of the yeast cell. In budding yeast cells, a single bud is observed.

Pseudohyphae (Items #6 and #9)

These are fragile tube-like structures that arise through elongation of the yeast form of *Candida*. Pseudohyphae may demonstrate a terminal swollen remnant of the original yeast cell. They are called pseudohyphae because they lack true branching as seen with mold like fungi. The side walls are parallel to each other which is an important characteristic that helps separate pseudohyphae from artifact whose side walls vary in width. Small oval structures called blastoconidia are often seen attached along the length of the pseudohyphae. The blastoconidia are smaller in size when compared to the yeast form of *Candida*. While pseudohyphae are usually seen along with yeast cells or budding yeast, it is also possible to see pseudohyphae in the absence of yeast cells.

Squamous Epithelial Cell, Not a Clue Cell (Items #3 and #8)

The examples shown here are typical of a normal squamous epithelial cell. The cell nucleus and the cell boundary are clearly observed.

Clue Cell (Item # 4)

Clue cells are squamous epithelial cells that are covered with a thick mat of bacterial cells and are associated with bacterial vaginosis. The traditional definition of a clue cell is that the bacterial overgrowth is so thick that all cell detail (such as the cell nucleus and the cellular edge) is totally obscured. As described in the Wet Mount 2006A critique, it is sometimes possible to detect the nucleus in a clue cell by using the fine focus knob to focus throughout the cell.

Artifact (Item #7)

One of the more troublesome artifacts is fibers that are sometimes confused with pseudohyphae. There are a few tips that may help in the differentiation.

1. Fibers are generally larger in size than pseudohyphae
2. Pseudohyphae have parallel sides with a consistent dimension between the sides while fibers show variable widths along the fiber.
3. Fibers tend to be birefringent. That is they change color when focusing up and down on the object. Colors are often gold or blue and result from the microscope light being refracted by the fiber.

Differentiation of cellular elements by size

The nucleus of the squamous epithelial cell is a handy tool in differentiating cellular elements by size.

Approximate diameter of cellular elements typically seen in wet mount analysis :

Nucleus of squamous epithelial cell:	15 microns
Trichomonas:	20 microns
White blood cell:	15 microns
Red Blood Cell:	6-8 microns
Yeast cell:	5-7 microns

Reviewed:

Date: _____

Date: _____

Date: _____

Date: _____