

POC 9 Vaginal Discharge (Wet Prep) Procedure

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Type	Description	Date	Version	Performed By	Notes
Periodic review	Designated Reviewer	10/27/2022	1.0	Lisa G. Lee MT (ASCP) ATC Lisa Lee	
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Version History

Version	Status	Type	Date Added	Date Effective	Date Retired
1.0	Approved and Current	First version in Document Control	12/22/2021	1/22/2021	Indefinite



Vaginal Discharge (Wet Prep) Procedure

SCOPE OF USE:

Testing should be performed by licensed providers that meet designated educational and competency criteria approved by regulatory and accrediting agencies. Narrative results may be entered into the provider note as part of a provider performed examination. Diagnoses should be made in conjunction with other clinical information including patient history, symptoms and results from other laboratory and/or diagnostic tests.

PRINCIPLE:

The female genital tract has a complex “ecosystem” that must remain in balance. If this balance is upset by hormonal changes, antibiotics or sexually transmitted diseases, it will lead to symptoms that range from mild discomfort to life-threatening infections. Many of the most common problems can be identified with the use of simple tests at the point of care (Women’s Health Clinic). Microscopic observation of unfixed “wet mounts” of clinical specimens, either stained or unstained, can be useful for the rapid detection of the presence of bacterial, fungal, and parasitic organisms. Presumptive identification can be made, based on morphology and motility. The presence or absence of white blood cells and “clue cells” may also be demonstrated, and a number of well-recognized pathologic conditions may be identified.

SPECIMEN:

Specimen types include swabs of the vaginal mucosa and vaginal pool secretions that must be tested without delay at site of collection during physical examination and collected by provider.

Patient Preparation:

Specimens for direct wet mount are usually collected during an internal examination of the female genital tract. Specimens from other sources such as skin scrapings, hair, and nail analyses are collected during an appropriate exam.

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Preparation:

1. A slide can be prepared directly from the discharge, or
2. Swab can be placed in a small amount (<1.0ml) of non-bacteriostatic saline.

Performance Parameters:

KOH and pH strips must be checked for performance. There are no controls or proficiency tests for these analytes. However, proficiency testing is available and done for organism identification, presence or absence of organisms, and cell identification.

Storage Requirements:

Specimens must be fresh and kept at room temperature and read microscopically within 30 minutes of collection.

CALIBRATION:

N/a

Standard Preparation:

None

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Calibration Procedure:

None

QUALITY CONTROL:

Commercial controls are not currently available for wet mount preparations. Multiple examiners and/or pathology confirmation can help determine accuracy of the test results. Check normal saline solution for clarity of solution and no growth or precipitation.

PROCEDURE - STEPWISE:

1. Place 1 to 3 drops of normal saline onto a clean microscope slide.
2. Twirl swab onto slide.
3. Place a coverslip over sample and tamp down lightly.
4. Examine slide with a brightfield microscope.

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ANALYSIS:

1. Color:

When the vaginal discharge has been visualized, select the description that best matches the color of the discharged:

CLEAR

YELLOW

GREY

WHITE

GREEN

CLEAR

2. Consistency:

When the vaginal discharge has been visualized, select the description that best matches the consistency of the discharge:

FLOCCULAR

CHEESY

FROTHY (w/bubbles)

HOMOGENOUS

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C. Clue Cells:

“Clue cells” are squamous epithelial cells that are studded with bacteria, often to the point that the cell margins cannot be seen. The bacteria appear as tiny refractile spots on the cell.

D. White Cells:

White blood cells measure 14 to 16 μm and exhibit a granular cytoplasm. White blood cells (with characteristic multilobed nucleus) are usually present in vaginal specimens in rare to scanty numbers. If they appear to be 3+, abnormal flora may be suspected. Conditions usually associated with 3+ white blood cells include Trichomonas, vaginal Candidiasis, N. gonorrhoea, herpes simplex, and severe atrophic vaginitis.

E. Squamous Cells:

Squamous cells measure 25 to 70 μm and demonstrate a polygonal “flagstone” appearance. These cells are almost always present in vaginal fluid.

F. Red Blood Cells:

Red blood cells (RBCs) appear as biconcave discs measuring 7 to 8 μm in diameter. They are normally smooth, but may be greatly distorted in vaginal and urine specimens. The cytoplasm is clear and does not contain a nucleus. Red blood cells may be confused with yeast. They will lyse with addition of KOH, which is helpful in distinguishing between RBCs and yeast. RBCs may be present in vaginal fluid as a result of current or recent menses, or due to Desquamative inflammatory process.

G. Parabasal Cells:

Parabasal cells measure 16 to 40 μm in diameter and appear oval to round in shape. They have a nucleus to cytoplasm ratio of 1:1 to 1:2. Less mature epithelial cells may be found in increased numbers at the time of menstruation and postmenopause. Parabasal cells, if present with large numbers of WBCs and altered flora in vaginal fluid, are suggestive of Desquamative inflammatory vaginitis.

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D. *Lactobacilli*:

Lactobacilli are present as normal flora in the vaginal fluid of postpubescent females and produce lactic acid. It is this metabolic waste which helps maintain the pH in the acidic range of 3.8 to 4.2 in the normal vaginal environment. They are relatively large, nonmotile rods (gram positive). Hydrogen peroxide-producing strains are thought to be responsible for protection against pathogenic organisms. If lactobacilli are absent or rare relative to squamous cells, abnormal flora may be suspected.

8. Yeast and Fungi:

The two basic structures used to confirm the presence of yeast and fungi are:

1) **Hyphae** – long filaments which grow and form a mat (mycelium); and

2) **Blastospores** – buds formed during the reproductive process of yeasts. Multiple buds that do not detach can form chains known as pseudohyphae.

Some fungi will produce both forms (although usually not both at the same time) in tissue depending upon environmental conditions – these are the dimorphic fungi; others will produce only one form or the other. Most pathogenic fungi are dimorphic.

Fungal hyphae, spores, and other fungal forms can be distorted in clinical specimens by the host's inflammatory response.

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DIFFERENTIAL DIAGNOSIS OF VULVOVAGINITIS:

DIAGNOSIS	HISTORY	PHYSICAL FEATURES	LAB FINDINGS
Bacterial vaginosis	Mildly odorous discharge	Gray, mucoid, pasty discharge, pH 5-6	Studded with clue cells
Candidiasis	Recurrent pruritic discharge	Creamy, curdly discharge, pH 4-5	KOH prep: mycelia, buds, culture as needed
Trichomonas vaginitis	Odorous leucorrhea, dysuria	Greenish yellow discharge, pH 5-6.5, friable hyperemic cervix	Motile flagellate protozoa
Reactive vaginitis	Use of hygienic sprays and douches, odorous discharge	Foreign bodies, erythema	None
Atrophic vaginitis	Dyspareunia, burning	Sticky brown discharge, thin vaginal tissue	None
Normal cervical or vaginal discharge vaginitis	Minimal discharge	Clear mucoid discharge, pH 4.5, ectropion	Few leukocytes and epithelial cells

CALCULATIONS:

N/A

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REPORTING RESULTS:

QUANTITATION, DIRECT EXAMS	
Rare	<than 1-2 organisms or cells/hpf
Few	>than 1-5 organism or cell/hpf
Moderate	>5 to 30 organisms or cells/hpf
Many	>than 30 organisms or cells/hpf

Per Microbiology Standard Reporting

The “Vaginal Discharge Analysis” is a profile that consists of 8 individual tests that will each be documented separately. They are:

COLOR

CONSISTENCY

BLOOD

WHIFF TEST

YEAST

TRICHOMONAS

CLUE CELLS

PMNs

Results will be entered manually in the ‘Progress Notes’ of the patient record. (There is no computer Laboratory report – only Progress Note documented by provider.)

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Interpretation of Microscopic Observations of Vaginal Fluid					
Finding	Abnormal Due to Bacterial Vaginitis w/Gardnerella	Abnormal Due to Vaginal Candidiasis	Abnormal Due to Trichomonas Vaginitis	Abnormal Due to Desquamative Inflammatory Vaginitis	Reference Values
White Blood Cells	Rare	3+ to 4+	2+ to 4+	3+ to 4+	≤2+
Lacto-Bacilli	Rare	Present	Present/Absent	Reduced/Absent	Predominant
“Clue Cells”	Occasional to 4+	Absent	Absent/ Present		Absent
Other Cells		Large clumps of epithelial cells		Occasional parabasal/ Basal cells	Absent (except RBCs during menses)
Other Organisms	Predominant Gardnerella morphotypes	Budding yeast pseudohyphae	Trichomonas	2+ bacteria	Other lactobacilli subgroups & occasional yeast

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Procedures for Abnormal Results:

A specimen may be sent to the clinical Laboratory, Microbiology department, for confirmation of preliminary results if needed.

Reporting Format:

Progress Note

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LIMITATIONS OF THE PROCEDURE:

1. Interpretation by individuals performing the test
2. Degree of color change
3. Accurate recognition of cellular elements
4. Many intravaginal medications will leave oil droplets which can make interpretation of direct wet mounts difficult. It is often useful in such situations to perform a gram stain. If there are any unusual circumstances, a gram stain can be a very helpful aid.
5. Primary Care Service Line Manager is responsible for supervising and ensuring personnel performing tests are in accordance with ancillary testing and hospital policies.
6. Only authorized staff will perform testing.
7. Annual competency will be assessed on at least two of the following: proficiency testing results, direct observation, review of QC and test records, or written assessment.
8. Inadequate smear/slide/specimen quality.

REFERENCES:

1. "Women's Primary Care Guide", Department of Veterans Affairs, 1st edition, 2001.
2. Rakel, R.E. (1993), *Essentials of Family Practice*, W.B. Saunders: Philadelphia, p. 297.

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