APPLICABILITY: Name of Policy

**PROVIDENCE CLINIC**

**POLICY AND PROCEDURE MANUAL**

**EFFECTIVE DATE:**

**POLICY #: 215 Attachment F**

**TYPE**:

**SUBJECT**: FERN TEST (AKA ABORIZATION /CRYSTALLIZATION)

**APPROVAL**

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**Laboratory Director**

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**VP Physician Operations**

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**Executive Director**

**POLICY:**

The Fern test is a test used to detect Premature Rupture of the Membrane (PROM). PROM at term complicates 10% of all pregnancies and accounts for substantial neonatal infectious morbidity. Immediate diagnosis enhances favorable patient outcome. Although more sophisticated tests to detect amniotic fluid are available, the fern test in combination with history, physical examination and nitrazine positivity, provide a rapid screen of membrane status. Vaginal fluid from a patient suspected of having ruptured membrane can be collected and allowed to dry on a microscope slide. When dried and viewed under a microscope, amniotic fluid crystallizes to form a fernlike pattern. Ferning or arborization is believed to be due to the relative concentrations of sodium chloride, proteins, and carbohydrates in the fluid.

**PRINCIPLE:**

To identify amniotic fluid crystallization in a fern-like pattern when suspecting membrane rupture.

**SPECIMEN:**

A small sample of vaginal fluid is needed for testing. Ask the patient to lie recumbent for at least 15 minutes to allow fluid to pool in the posterior vaginal fornix. If fluid is not visible in the vaginal vault, slight fundal pressure or asking the patient to cough or bear down may induce leakage of amniotic fluid. Fluid should be collected from the posterior fornix with a sterile cotton-tipped swab. Care should be taken to avoid contamination by cervical mucus. The swab then should be streaked or rolled across a glass slide and allowed to air dry for 5-7 minutes.

**REAGENTS:**

* Microscope
* Sterile glass slide
* Sterile swab

**QUALITY CONTROL:**

There are no quality control materials for these procedures. Testing may only be performed by credentialed individuals under Provider-Performed Microscopy. Careful specimen collection, adherence to the specifications of the procedure, and assessment of the patient’s history are important factors for interpreting the test results.

**PROCEDURE:**

After the vaginal specimen is collected and allowed to dry on the microscope slide, examine the slide under the microscope. Amniotic fluid crystallizes when it is allowed to dry on a glass slide and it has a characteristic pattern (seen under low or high power) that is described as "ferning" or "arborization". Results of the fern test are documented in the electronic record.

**EXPECTED RESULTS:**

When free-flowing amniotic fluid is observed or when both the nitrazine and ferning tests are positive, PROM is confirmed. If free-flowing fluid is not observed and both tests are negative, the membranes presumably are still intact. Difficulty in test interpretation arises when fluid is not observed draining from the cervix and only one of the two tests is positive. In these situations, time and additional patient assessment (i.e., repeat pelvic examination) may be beneficial.

A. Interpretation:

 1. **Positive** -Any evidence of arborization or “ferning”.

 2. **Negative-** no detectable pattern of “ferning” on the slide.

B. Reporting

 1. Positive is reported as “Fern Positive”.

 2. Negative is reported as “Fern Negative”.

 3. The physician records the result in the patient’s progress notes.

**LIMITATIONS:**

False-positive results can occur due to scant fluid and/or the natural ferning of cervical mucus. In contrast to the delicate and discrete ferning of amniotic fluid, cervical mucus forms a thick, dark, wide arborization pattern.

Meconium at any concentration and blood at dilutions greater than or equal to one part of blood to 10 parts of amniotic fluid do not prevent arborization. Higher concentrations of blood interfere with arborization and alter the morphology of the crystals resulting in a "skeletonized" ferning pattern. Ferning is not seen with urine or other body fluids.

Use of lubricants or antiseptics should be avoided.

False negative results can be produced by prolonged rupture of membranes (longer than 24 hours).

**REFERENCE:**

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