

OREGON HEALTH & SCIENCE UNIVERSITY  
Hospitals and Clinics  
Point of Care

**Fern Test Examination of Amniotic Fluid by Microscopy**

Principle

The Fern Test, used in conjunction with the Nitrazine test, detects the leakage of amniotic fluid from the membranes surrounding the fetus during pregnancy. This phenomenon is in part due to the fluid's protein and sodium chloride content. A positive test shows the presence of fern-like patterns characteristic of amniotic fluid crystals.

Premature rupture of the membranes may lead to fetal infection and subsequent mortality. The risk may be eliminated by the induction of labor.

Specimen Requirement

1. Vaginal secretion from the posterior vaginal pool collected with a sterile swab.
2. Do not touch the mucus plug in the cervix.
3. After collection, immediately rub the swab against a glass slide, creating a very thin smear.
4. Do not coverslip.
5. Allow slide to dry. Do not apply heat.

Interferences

1. False positive results may occur from specimens contaminated with blood, urine, or cervical mucus.
2. False negative results may occur from a prolonged rupture of the membranes (longer than 24 hours).
3. False negative results may occur if only a small volume of fluid has leaked.

Reference Range

N/A

Alert Values

N/A

## Test Accuracy and Reliability Verification

All providers performing Fern Testing must be enrolled in the on-line training with Medtraining. Please contact Point of Care at 4-6035 to be enrolled.

## Procedure

1. Using a microscope, examine the dried smear under low power without a cover slip.
2. If present, the amniotic fluid crystallizes to form a fern-like pattern due to the relative concentrations of sodium chloride, proteins, and carbohydrates in the fluid.
3. If ferning is difficult to locate, examine all fields on the slide thoroughly.

## Results Reporting

1. Report results as “Fern test positive for amniotic fluid” or “Fern Test negative for amniotic fluid”.
2. The Fern Test should be performed in conjunction with the Nitrazine Test.
3. If the Nitrazine Test and Fern Test are positive, probable membrane rupture has occurred.
4. If the Nitrazine Test is negative but the Fern Test is positive, there is probable rupture of the membranes due to the Fern Test’s greater specificity.
5. If the Nitrazine Test is positive but the Fern Test is negative, a second specimen should be collected and tested.

## Reagents

1. Sterile glass microscope slide.
2. Sterile swab.

## References

1. Addison, Lois Anne. Laboratory Medicine, July, 1999. P.451.
2. Fern Test (Amniotic Fluid Crystallization Test) CIOLA Guide to simple Laboratory Testing, February 1998.