

Ferning Test

Premature rupture of the membranes (PROM) may lead to fetal maternal complications, including premature labor and delivery, maternal or fetal infection, and umbilical cord compression or prolapse. These risks may be eliminated by inducing labor.

The Ferning Test is used to detect the leakage of amniotic fluid from the membranes surrounding the fetus during pregnancy. The Fern Test is performed by qualified individuals who have been trained and maintain annual competency in this procedure.

The Ferning Test is based upon the ability of amniotic fluid to form a microscopic crystalline pattern suggestive of fern leaves when the specimen is allowed to air dry on a glass slide.



Figure 1: Fern leaves

The ferning pattern is due to the interaction of high concentrations of electrolytes and protein in the amniotic fluid relative to other fluids that may be present in the posterior vagina.

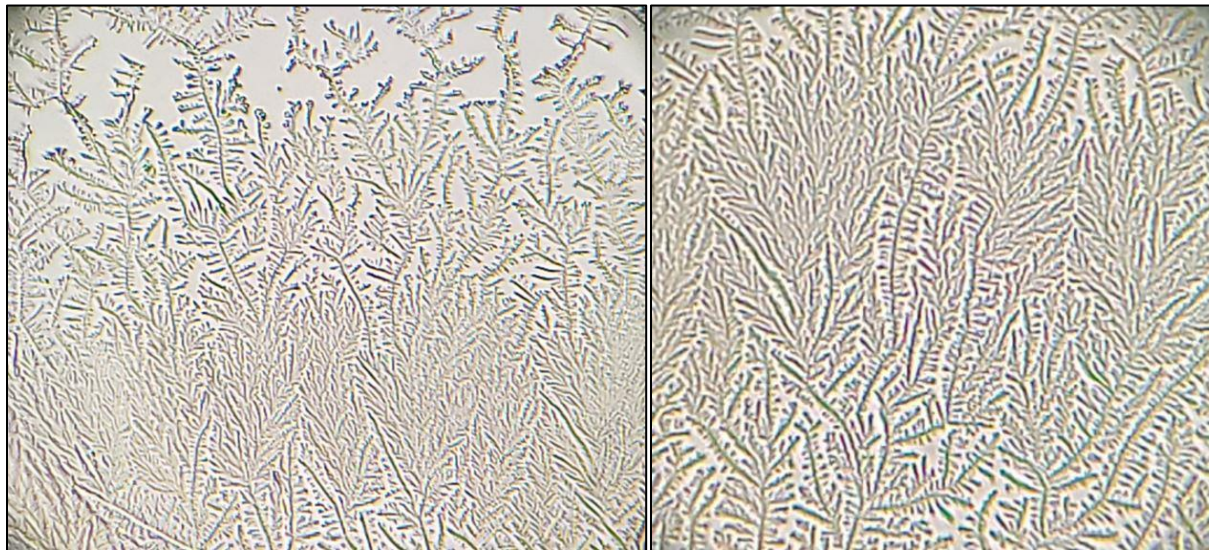


Figure 2: Positive ferning

The following equipment and supplies are required to perform the Fern Test:

- microscope with a 10x and 40x objective
- clean glass slide
- patient sample swab

No reagents are required for this test procedure. Store all equipment and supplies at room temperature (18 – 25°C). Follow Standard Precautions when handling potentially infectious specimens.

Note: Currently no commercial quality control materials are available for this procedure. Example photographs of positive and negative ferning test results should be compared to patient slides.

Patient Sample Collection:

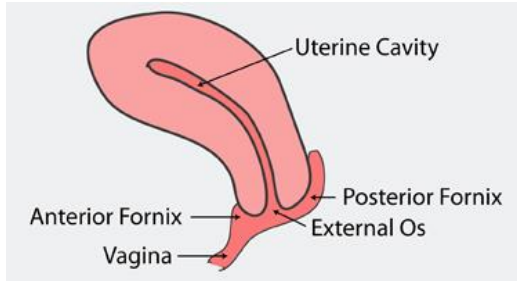


Figure 3: Collection site anatomy

Patient samples are to be collected by the provider:

- Vaginal secretion is collected from the posterior vaginal fornix with a sterile swab during the sterile speculum exam.
- Do not touch the mucous plug in the cervix.
- Do not use lubricant or antiseptic.
- Use a sterile swab to obtain the sample.

Slide preparation is to be done by the CLS:

- Label a clean glass slide with two patient identifiers.
- Roll the saturated swab tip across the slide while applying slight pressure to express the fluid.
- Spread the specimen to create a very thin smear.
- Place slide on a clean, flat surface.
- Allow the slide to dry in room air, at least 10 minutes.
- Do not wave or blow on the slide to assist drying.
- Do not apply heat to assist in drying.

Place the slide on the microscope stage without a coverslip. Examine the slide under low power for ferning pattern, and then examine the slide under high power for frond-like or crystalline pattern.

If ferning is difficult to locate, thoroughly examine all fields on the microscope.

Positive Ferning:

Amniotic fluid forms a crystallization pattern that resembles a delicate, fern-like pattern when it is air dried on a slide and is present in most microscopic fields. The ferning pattern is fine, with multiple branches.

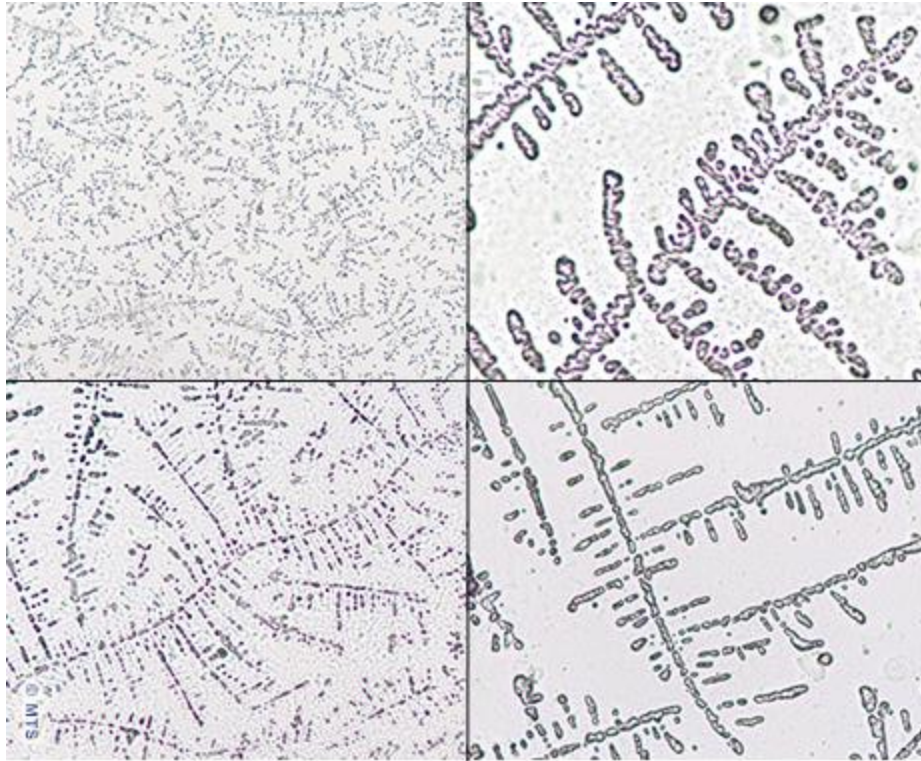


Figure 4: Positive ferning

Negative Ferning

No fern-like pattern is present in any of the microscopic fields.

NOTE: Cellular mucous has a beaded or cellular appearance.

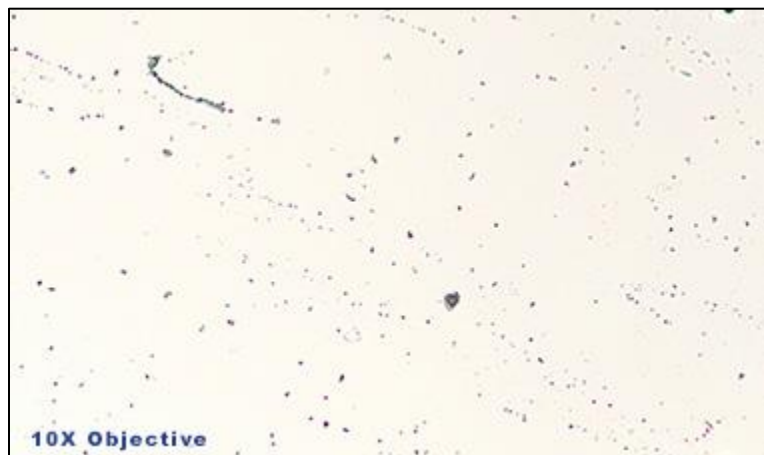


Figure 5: Negative ferning

Reporting:

Documentation must include patient identification, the physician's identification (collector ID), the date and time of the collection, the test result, the reference interval or interpretive notes, and any additional comments on specimen quality, as appropriate.

The reference interval (normal value) for the fern test is Negative. There will be no evidence of fern pattern on the slide.

A negative result is reported as: "Ferning Negative."

A positive result is reported as: "Ferning Positive."

Limitations:

False positive results may occur from specimens contaminated with blood, urine, semen, or cervical mucous. A fingerprint on the slide and some antiseptic solutions may also cause a false positive result.

Cervical mucous may or may not fern. If it does, the ferning has a coarse pattern.

False negative results may occur from prolonged rupture of the membranes, longer than 24 hours, or if only a small volume of amniotic fluid has leaked.

Erroneous results may result when the slide is examined before it is completely dried or if a dirty slide is used.

Absence of ferning may alert staff to the possibility that the amount of specimen was inadequate or that the specimen was urine, vaginal discharge, or blood.