

## ***GENESIS Obstetrics & Gynecology***

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### **Amniocentesis**

Amniocentesis is a test to analyze the liquid (amniotic fluid) that surrounds your baby (fetus). Amniotic fluid contains cells and other substances that can give clues about your baby. Amniocentesis is usually done between weeks 15 and 18 (during your second trimester) or later in your pregnancy.

Amniocentesis is performed for women whose pregnancies may be high-risk. Women:

- over 35 years old;
- who are severely overweight (obese);
- who have had several miscarriages;
- with diabetes;
- with other children who have a genetic problem;
- with an abnormal triple screen test (alpha-fetoprotein, estriol, and human chorionic gonadotropin); and/or
- with Rh sensitization.

### **Amniocentesis in early pregnancy**

Amniocentesis is usually done between weeks 15 and 18 to determine whether your baby has certain types of birth defects.

Amniotic fluid contains cells that have been shed by your developing baby. These cells can be tested for more than 100 types of defects that are associated with inherited (genetic) diseases (such as Down syndrome or cystic fibrosis) or neural tube defects. Testing for these diseases is most commonly done between the 15th and 18th weeks of pregnancy, when the pregnancy can be ended if your baby is severely disabled. However, amniocentesis cannot detect many common birth defects, such as cleft lip, cleft palate, heart problems, and some types of mental retardation.

Amniocentesis in early pregnancy is not done as a general screening test for birth defects because it carries some risk to your baby and cannot detect some common birth defects. There is a slight chance (about 1 in 200) that amniocentesis may cause a miscarriage. Amniocentesis is done when the risk of a birth defect or disease outweighs the risk of the procedure. Amniocentesis can be done to help you prepare for a possible birth defect or to help you make a decision about ending the pregnancy if a serious problem is found.

Amniocentesis can also be done during the second trimester if blood type incompatibilities are present (such as Rh sensitization). Rh sensitization is possible if you have Rh-negative blood and your baby has Rh-positive blood. Amniocentesis usually is done between the 18th and 22nd weeks, to monitor the severity of the sensitization and to evaluate the health of your baby. Repeated amniocentesis testing may be needed to monitor how much your baby is affected by sensitization.

### **Amniocentesis in late pregnancy**

Amniocentesis may be done late in pregnancy (during the third trimester) to determine whether your baby's lungs are mature enough for early delivery. Your developing baby produces substances that can be detected and measured in amniotic fluid. The amounts of these substances indicate the maturity of your baby's lungs and the ability of your baby to breathe without assistance if delivered early. Amniocentesis may also be done later in pregnancy if an infection of the amniotic fluid (amnionitis) is suspected.

### **Why It Is Done**

Amniocentesis may be done during your second trimester of pregnancy (between weeks 15 and 18) to detect some birth defects when one or both parents have any of the following risk factors:

- You are over age 35. This makes you more likely than a younger woman to have a baby with a problem such as Down syndrome.
- Either you or the father has a family history of birth defects.
- Both you and the father are known carriers of an inherited disease, such as Tay-Sachs disease, sickle cell anemia, or thalassemia (Mediterranean anemia).
- You have a history of recurrent miscarriages.
- You had an abnormal triple or quadruple test. The substances measured in a triple test are alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), and estriol. An additional substance, the hormone Inhibin-A, is measured in the quadruple test.

Amniocentesis can be done to determine the sex of your baby. This is important when you or the father may be able to pass on a disease that occurs mainly in one sex (sex-linked), like hemophilia or Duchenne muscular dystrophy, both of which occur mainly in males.

Amniocentesis can be done during your second trimester if blood type incompatibilities are present (such as Rh sensitization). Amniocentesis will usually be done at 27 weeks or before to monitor the severity of the sensitization by measuring the bilirubin level. The test may be repeated every 1 to 2 weeks until delivery. This will help evaluate the health of your baby.

Amniocentesis may be done during your third trimester to:

- Determine your baby's lung maturity. This is done when your baby may need to be delivered early.
- Determine whether the amniotic fluid is infected (amnionitis).
- Monitor the health of your baby if Rh sensitization has occurred.

### **How To Prepare**

You will be asked to urinate just before the test. No other special preparation is required before having this test. You will need to sign a consent form that says you understand the risks of amniocentesis and agree to have the test done. Talk to your doctor about any concerns you have regarding the need for the test, its risks, how it will be done, or what the results will indicate.

If you have a history of premature labor or pregnancy problems, such as placenta previa or placenta abruptio, an amniocentesis will probably not be done because of your increased risk for complications.

### **How It Is Done**

Amniocentesis is performed by your obstetrician in his or her office or in the hospital. An overnight stay in the hospital usually is not required unless problems occur during the test. You will be instructed to take off your clothes below the waist and drape a paper or cloth covering around your waist. You will then lie on your back with your upper body slightly raised to relax your stomach muscles. Your lower abdomen will be cleaned with antiseptic and you may be given a shot of medication to numb the skin where the collection needle will be inserted.

Your doctor determines the position of your baby and the placenta by using a fetal ultrasound. Ultrasound uses sound waves to create a picture of the uterus, fetus, and placenta on a video screen. Your baby's heart rate can also be monitored during the procedure using ultrasound. For more information, see the medical test Fetal Ultrasound. With the ultrasound picture as a guide, your doctor selects the safest position to insert a long thin needle through your abdomen and into your uterus without hurting your baby or the placenta. If your baby moves too close to the needle, the needle will be removed and your doctor will try again in another spot. Approximately 2 Tbsp (29.57 mL) of amniotic fluid is withdrawn into a syringe attached to the needle, and then the needle is removed. The puncture site is covered with a bandage.

The procedure takes about 15 to 20 minutes. Your baby's heart rate and your blood pressure, pulse, and breathing will be monitored after the test.

### **How It Feels**

You will feel a sharp stinging or burning sensation in your abdomen if you are given a shot (local anesthetic) to numb the area where the collection needle will be inserted. This sensation will last for only a few seconds. When the collection needle is inserted into your uterus, you will again feel a sharp pain for a few seconds, similar to having your blood drawn. When the amniotic fluid is withdrawn, you may get a feeling of pulling or pressure in your abdomen. To keep yourself comfortable, breath slowly and relax your stomach muscles while the fluid is collected.

### **Risks**

Amniocentesis is usually very safe. Usually the risk of having an abnormal baby is greater than the risk of the procedure in high-risk pregnancies. However, there is a slight chance (about 1 in 200) that this procedure may cause a miscarriage or early labor (premature). There is also a slight risk of excessive bleeding (hemorrhage), infection of the amniotic fluid (amnionitis), or leakage of amniotic fluid. Rarely, your baby may be injured by the needle during the procedure. Every attempt is made to place the needle in a safe location. Your baby usually floats away from the needle tip.

Amniocentesis has a very small risk of causing bleeding that could lead to mixing your blood and your baby's. Therefore, if you have Rh-negative blood, you will be given the Rh immune globulin vaccine (such as RhoGAM) to prevent Rh sensitization which could harm your baby if he or she has Rh-positive blood).

### **After the procedure**

After the test, you may feel a little weak or nauseous or have some mild abdominal cramping. You should not do any strenuous activity for an hour after the test. Then you can continue your normal activities, unless your doctor advises otherwise.

Notify your doctor right away if:

- You have moderate or severe abdominal pain or cramping.
- You develop chills or a fever.
- You become dizzy.
- Fluid or blood leaks from your vagina or from the needle puncture site.
- You notice any change in your baby's activity.
- Redness or swelling develops at the needle puncture site.

### What To Think About

- Normal results from amniocentesis do not guarantee that your baby will be healthy.
- Amniocentesis between the 15th and 18th weeks is not done as a general screening test because it carries some risk to you and your baby and cannot detect some common birth defects. There is a slight chance (about 1 in 200) that amniocentesis in early pregnancy may cause a miscarriage. Amniocentesis is done when the risk of a birth defect or disease outweighs the risk of the procedure. Amniocentesis can be done to help you prepare for a possible birth defect or to help you make a decision about ending the pregnancy if a serious problem is found. For more information about amniocentesis in early pregnancy,
- In some cases amniocentesis can be done between the 12th and 15th weeks of pregnancy. However, there is an increased risk of limb deformities (such as clubfoot) and a decrease in reliability of test results when amniocentesis is done too early in pregnancy.
- Amniocentesis cannot be done if the amount of amniotic fluid is very small or if the placenta is in front of your baby.
- Chorionic villus sampling (CVS) is another test that can detect many fetal problems. CVS can be done earlier in pregnancy (sometimes as early as 8 weeks) than amniocentesis, and results are available faster. It can identify more than 100 inherited diseases. However, CVS has a slightly higher risk of miscarriage (about 1 in 100) than amniocentesis (about 1 in 200). Also, CVS cannot be used to detect neural tube defects. Talk to Dr. Baniyas about this option.
- Fetoscopy is a new test that allows your doctor to look at your baby using a long, thin tube inserted through a small cut in your abdomen. Samples of your baby's blood and tissue also can be collected. Fetoscopy carries a higher risk of miscarriage than amniocentesis and is not widely available. Talk with Dr. Baniyas about this option.
- Amniocentesis has a very small risk of causing bleeding that could lead to mixing your blood and your baby's. Therefore, if you have Rh-negative blood, you will be given a vaccine (RhoGAM) to prevent Rh sensitization which could harm your baby if he or she has Rh-positive blood. If Rh incompatibility is a concern, amniocentesis may be done several times throughout your pregnancy to evaluate the possible effects of Rh sensitization.
- If you have abnormal results from amniocentesis, you should ask your doctor or a genetic counselor for help in evaluating the likelihood of fetal problems and in making decisions about continuing the pregnancy.
- The triple test is another test for women over the age of 35 whose average risk of having a baby with a chromosome defect is low. The three substances measured in a triple test are alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), and estriol. The triple test does not identify birth defects as accurately as amniocentesis. Amniocentesis may be recommended if triple test results are abnormal. For more information, see the medical tests Alpha-Fetoprotein (AFP) in the Blood, Human Chorionic Gonadotropin (hCG), and Estrogens.

### Credits

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Patient Initials

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