# Amniocentesis

## Overview

Amniocentesis is a procedure in which amniotic fluid is removed from the uterus for testing or treatment. Amniotic fluid is the fluid that surrounds and protects a baby during pregnancy. This fluid contains fetal cells and various proteins.

Although amniocentesis can provide valuable information about your baby's health, it's important to understand the risks of amniocentesis — and be prepared for the results.

## Why it's done

Amniocentesis can be done for various reasons:

- **Genetic testing.** Genetic amniocentesis involves taking a sample of amniotic fluid and testing it for certain conditions, such as Down syndrome.
- **Fetal lung testing.** Fetal lung maturity testing involves taking a sample of amniotic fluid and testing it to determine whether a baby's lungs are mature enough for birth.
- **Diagnosis of fetal infection.** Occasionally, amniocentesis is used to evaluate a baby for infection or other illness. The procedure can also be done to evaluate the severity of anemia in babies who have Rh sensitization — an uncommon condition in which a mother's immune system produces antibodies against a specific protein on the surface of the baby's blood cells.
- **Treatment.** If you accumulate too much amniotic fluid during pregnancy (polyhydramnios), amniocentesis might be done to drain excess amniotic fluid from your uterus.
- **Paternity testing.** Amniocentesis can collect DNA from the fetus that can then be compared to DNA from the potential father.

### Genetic amniocentesis

Genetic amniocentesis can provide information about your baby's genetic makeup. Generally, genetic amniocentesis is offered when the test results might have a significant impact on the management of the pregnancy or your desire to continue the pregnancy.

Genetic amniocentesis is usually done between weeks 15 and 20 of pregnancy.

Amniocentesis done before week 15 of pregnancy has been associated with a higher rate of complications.

You might consider genetic amniocentesis if:

- **You had positive results from a prenatal screening test.** If the results of a screening test — such as the first trimester screen or prenatal cell-free DNA screening — are positive or worrisome, you might opt for amniocentesis to confirm or rule out a diagnosis.
- **You had a chromosomal condition or a neural tube defect in a previous pregnancy.** If a previous pregnancy was affected by conditions such as Down syndrome or a neural tube defect — a serious condition affecting a baby's brain or spinal cord — your health care provider might suggest amniocentesis to confirm or rule out these disorders.
- **You're 35 or older.** Babies born to women 35 and older have a higher risk of chromosomal conditions, such as Down syndrome. Your health care provider might suggest amniocentesis to rule out these conditions.
- **You have a family history of a specific genetic condition, or you or your partner is a known carrier of a genetic condition.** In addition to identifying Down syndrome and the neural tube defect spina bifida, amniocentesis can be used to diagnose many other genetic conditions — such as cystic fibrosis.
- **You have abnormal ultrasound findings.** Your health care provider might recommend amniocentesis to diagnose or rule out genetic conditions associated with abnormal ultrasound findings.

### Fetal lung maturity amniocentesis

Fetal lung maturity amniocentesis can determine whether a baby's lungs are ready for birth. This type of amniocentesis is done only if early delivery — either through induction or C-section — is being considered to prevent pregnancy complications for the mother in a nonemergency situation. It's usually done between 32 and 39 weeks of pregnancy. Earlier than 32 weeks, a baby's lungs are unlikely to be fully developed.

Amniocentesis isn't appropriate for everyone, however. Your health care provider might discourage amniocentesis if you have an infection, such as HIV/AIDS, hepatitis B or hepatitis C. These infections can be transferred to your baby during amniocentesis.

## Risks

Amniocentesis carries various risks, including:

- **Leaking amniotic fluid.** Rarely, amniotic fluid leaks through the vagina after amniocentesis. However, in most cases the amount of fluid lost is small and stops within one week, and the pregnancy is likely to continue normally.
- **Miscarriage.** Second-trimester amniocentesis carries a slight risk of miscarriage — about 0.1 to 0.3 percent. Research suggests that the risk of pregnancy loss is higher for amniocentesis done before 15 weeks of pregnancy.

- **Needle injury.** During amniocentesis, the baby might move an arm or leg into the path of the needle. Serious needle injuries are rare, however.
- **Rh sensitization.** Rarely, amniocentesis might cause the baby's blood cells to enter the mother's bloodstream. If you have Rh negative blood and you haven't developed antibodies to Rh positive blood, you'll be given an injection of a blood product called Rh immune globulin after amniocentesis. This will prevent your body from producing Rh antibodies that can cross the placenta and damage your baby's red blood cells. A blood test can detect if you've begun to produce antibodies.
- **Infection.** Very rarely, amniocentesis might trigger a uterine infection.
- **Infection transmission.** If you have an infection — such as hepatitis C, toxoplasmosis or HIV/AIDS — the infection might be transferred to your baby during amniocentesis.

Remember, genetic amniocentesis is typically offered when the test results might have a significant impact on management of the pregnancy. Ultimately, the decision to have genetic amniocentesis is up to you. Your health care provider or genetic counselor can help you weigh all the factors in the decision.

# How you prepare

If you're having amniocentesis done before week 20 of pregnancy, it might be helpful to have your bladder full during the procedure to support the uterus. Drink plenty of fluids before your appointment. After 20 weeks of pregnancy, your bladder should be empty during amniocentesis to minimize the chance of puncture.

Your health care provider will explain the procedure and ask you to sign a consent form before the procedure begins. Consider asking someone to accompany you to the appointment for emotional support or to drive you home afterward.

# What you can expect

Amniocentesis is usually done in an outpatient obstetric facility.

## During the procedure

First, your health care provider will use ultrasound to determine the baby's exact location in your uterus. You'll lie on your back on an exam table and expose your abdomen. Your health care provider will apply a gel to your abdomen and then use a small device known as an ultrasound transducer to show your baby's position on a monitor.

Next, your health care provider will clean your abdomen with an antiseptic. Generally, anesthetic isn't used. Most women report only mild discomfort during the procedure.

Guided by ultrasound, your health care provider will insert a thin, hollow needle through your abdominal wall and into the uterus. A small amount of amniotic fluid will be withdrawn into a syringe, and the needle will be removed. The specific amount of amniotic fluid withdrawn depends on the number of weeks the pregnancy has progressed.

You'll need to lie still while the needle is inserted and the amniotic fluid is withdrawn. You might notice a stinging sensation when the needle enters your skin, and you might feel cramping when the needle enters your uterus.

## After the procedure

After amniocentesis, your health care provider will continue using the ultrasound to monitor your baby's heart rate. You might experience cramping or mild pelvic discomfort after an amniocentesis.

You can resume your normal activity level after the procedure. However, you might consider avoiding strenuous exercise and sexual activity for a day or two.

Meanwhile, the sample of amniotic fluid will be analyzed in a lab. Some results might be available within a few days. Other results might take up to four weeks.

Contact your health care provider if you have:

- Loss of or vaginal bleeding or loss of amniotic fluid through the vagina
- Severe uterine cramping that lasts more than a few hours
- Fever
- Redness and inflammation where the needle was inserted
- Unusual fetal activity or a lack of fetal movement

# Results

Your health care provider or a genetic counselor will help you understand your amniocentesis results.

For genetic amniocentesis, test results can reliably rule out or diagnose various genetic conditions, such as Down syndrome. However, amniocentesis can't identify all genetic conditions and birth defects.

If amniocentesis indicates that your baby has a chromosomal or genetic condition that can't be treated, you might face wrenching decisions — such as whether to continue the pregnancy. Seek support from your health care team and your loved ones.

For fetal lung maturity amniocentesis, test results can reliably indicate a baby's lung maturity. If you need to deliver the baby early, this information can offer reassurance that your baby is ready for birth.

By Mayo Clinic Staff