



The Society for Maternal-Fetal Medicine (SMFM) with the assistance of Dr. Yair Blumenfeld and the SMFM Education Committee

What are chorionic villus sampling (CVS) and amniocentesis?

Chorionic villus sampling (CVS) and amniocentesis are prenatal diagnostic tests that provide information about the genetic makeup of a fetus. CVS is a procedure in which a needle is placed through the mother's abdomen or a narrow plastic catheter is inserted through her cervix into the placenta. A small sample of tissue from the placenta (chorionic villi) is collected, and the tissue is sent for genetic testing. CVS is done between 10 and 13 weeks' gestation.

For amniocentesis, a needle is placed through the mother's abdomen into the amniotic fluid. A small amount of amniotic fluid is collected and sent for genetic testing. Amniocentesis for prenatal diagnosis of genetic abnormalities in a fetus is usually performed between 15 and 18 weeks' gestation, although it can be done at any gestational age at or beyond 15 weeks.

How accurate are these procedures?

CVS and amniocentesis are diagnostic tests that provide definitive information about whether a fetus has a genetic disorder. The samples collected during CVS and amniocentesis contain genetic material from the fetus. Through karyotype analysis of that material, scientists can tell if the fetus's chromosomes are normal. In addition to the general karyotyping, the samples also are often analyzed for specific fetal gene abnormalities or small variations in the fetus's DNA.

Is there a risk of miscarriage with CVS and amniocentesis?

Rates of miscarriage after amniocentesis and CVS appear to be similar and are approximately 1 in 300 to 1 in 500 procedures. The risks may be even lower, however, when the tests are done at centers with more experience with the procedures.

What are some other complications associated with these procedures?

CVS performed at very early gestational ages (less than 10 weeks' gestation) has been shown to increase the risk of fetal limb defects. However, multiple studies have shown this is not a risk when CVS is performed after 10 weeks' gestation. Amniocentesis performed before 15 weeks has also been shown to lead to higher rates of fetal limb abnormalities and amniotic fluid leakage. Therefore amniocentesis is not recommended before 15 weeks' gestation.

Can the needles and catheters used in CVS and amniocentesis hurt my baby?

Both CVS and amniocentesis are performed under ultrasound guidance, and direct injury to the fetus is extremely rare.

What are the risks of transmission of hepatitis and HIV after CVS or amniocentesis?

There is estimated to be a less than 5% risk that a mother with known hepatitis B or C will transmit it to her baby during amniocentesis, and some studies even report no transmission risk. It is important to recognize that data are limited and the precise risk may vary.

HIV can be transmitted from the mother to the fetus during amniocentesis but the risk can be lowered if the mother is taking antiviral therapy. A consultation with a specialist is recommended before diagnostic tests are performed on a mother with hepatitis or HIV.

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