

PROTOCOL #20 - Maternal Fetal Medicine, University of New Mexico

AMNIOCENTESIS

Amniocentesis is normally performed in the mid-trimester between 15-20 weeks of gestation. This procedure can be performed at multiple periods throughout pregnancy. It is best to avoid performing an amniocentesis too early (in the first trimester).

“Early amniocentesis” is used to describe the use of this procedure between 11 and 13 weeks. The performance of this test early can lead to injury of the fetal limbs.¹

In January 2007, the American College of Obstetricians and Gynecologists (ACOG) recommended that “all women, regardless of age should have the option of invasive testing.”

A. Potential early indications for amniocentesis in pregnancy:

Indications for genetic amniocentesis:

- Abnormal prenatal screen
- Abnormal ultrasound findings
- Previous pregnancy affected by a serious abnormality
- Advanced maternal age (AMA)

Family history of a specific genetic disorder or known carrier of a single gene disorder amenable to prenatal diagnosis.

Neural tube defects (anencephaly, spina bifida, etc.)

B. Later indications for amniocentesis:

- Infection (fetal, uterine)
- Evaluate severity of fetal anemia (Rh alloimmunization)
- Fetal lung maturity (FLM)
- Amnioreduction

C. Risks associated with amniocentesis:

- Bleeding
- Infection
- PPROM
- Miscarriage (1 in 400)²
- Preterm labor/Preterm delivery (PTL/PTD)
- Fetal trauma
- Rh sensitization
- Postural deformities
- Infection transmission (Hepatitis B, C, HIV)³

PROTOCOL #20 - AMNIOCENTESIS

There exists a paucity of evidence to determine the impact of amniocentesis on risk of vertical transmission. Available evidence suggests the risk of vertical transmission with amniocentesis is not greatly increased. However, every effort should be made to avoid inserting the needle through the placenta.

D. Equipment

- Sterile gloves
- Sterile gel and transducer sleeve
- 2% iodine
- Sterile gauze
- 21 or 22 g beveled spinal needle with stylet
- Sterile test tubes (typically two 10 ml tubes)
- Lidocaine 1%, optional
- 5ml syringe with 22 g needle for administration of local anesthetic, optional
- Light-tight container (i.e., if measuring bilirubin)

E. Procedure

1. Ultrasound examination is obligatory in order to determine:
 - Gestational age
 - Placental position
 - Amniotic fluid location
2. A 'Time-Out' should be performed prior to commencement of procedure to properly identify the patient and to announce the planned procedure.
3. Injection of a local anesthetic at the desired puncture site is optional.
4. A 21- or 22-gauge spinal needle with stylet is percutaneously inserted under ultrasound guidance, avoiding the fetus, cord, and placenta.
5. Approximately 20 ml of amniotic fluid is aspirated, the first 1-2 ml is discarded to avoid maternal cell contamination.
6. Aspirate slowly and steadily in order to avoid needle displacement.
7. Rh-immune globulin should be administered to the Rh-negative, Du-negative, unsensitized patient.
8. If blood is obtained:
 - Try to clear by aspiration with clean syringe
 - If blood does not clear after the above step is implemented and it is a late amnio (third trimester) - then careful fetal surveillance for ~ two hours is required.
 - Remember that blood may hinder the accuracy of L/S ratios, bilirubin determinations, AFP determination and may interfere with culturing of fetal cells.
9. If bilirubin is to be determined the fluid must be immediately shielded from light (light-tight container).
10. If cell cultures are to be done, the fluid container must be sterile.
11. No more than two "taps" should be attempted at one time.
12. Check fetal status post-procedure by documenting FHR.
13. After completion of the procedure, another 'Time-Out' should be performed to confirm that the correct name, DOB, medical record number is on the labels that are to be placed on the specimen tubes.

F. Storing

May store at room temperature for a maximum of 7 days.

CONSULTATION: Twenty-four hour consultation is available by calling the Maternal Fetal Medicine service at the University of New Mexico Hospital. 1-888-866-7257.

References:

1. American College of Obstetricians and Gynecologists. Invasive prenatal testing for aneuploidy. ACOG Practice Bulletin No. 88. *Obstetrics and Gynecology*. 2007;110:1459.
2. Caughey A, Hopkins L, Norton M. Chorionic Villus Sampling Compared with Amniocentesis and the Difference in the Rate of Pregnancy Loss. *Obstet Gynecol*. 2006; 108:3.
3. Davies G, Wilson RD, et al. "Amniocentesis and Women with Hepatitis B, Hepatitis C, or Human immunodeficiency Virus." *J Obstet Gynaecol Canada*. 2003; 123: 1-4.
4. Eddleman KA, Malone FD, Sullivan L, et al. "Pregnancy loss rates after midtrimester amniocentesis". *Obstet Gynecol*. 2006 ;108 (5): 1067–72.
5. Simpson JL, et al. Prenatal genetic diagnosis. In: Gabbe SG, et al. *Obstetrics: Normal and Problem Pregnancies*. 5th ed. Philadelphia, Pa.: Churchill Livingstone Elsevier; 2007:1.