Echogenic Bowel

What is echogenic bowel?

Echogenic bowel is a bright area, in the baby’s intestine, shown on the ultrasound.

What are the chances that my baby will be healthy?

There is a 53% to 85% chance that everything is fine. There is such a variable difference in this percentage because different sonograms and sonographers may designate different degrees of echogenic bowel differently. (See the next question.) Thus, if your baby is diagnosed with a mild echogenic bowel on one machine, with one sonographer, it may not be diagnosed at all in a different situation or it may be diagnosed as more (or less) severe than what it really is.

How reliable is an “echogenic bowel” diagnosis from a sonographer?

An ultrasound machine uses soundwaves (not radiation) to look at your baby. These soundwaves bounce back at different speeds – like an echo in a cave. Soundwaves that connect with solid tissue (like bone) bounce back faster and show up brighter than soundwaves that connect with less dense structures (like liver). Echogenic bowel simply means that the baby’s bowel appears more dense than usual and looks brighter than normal on the ultrasound.

Now, it's important to note that the ultrasound machines can be set to different frequencies and that this can cause differentiations in the "brightness" of the results. In one study, using an 8 MHz frequency, the radiologists interpreted 31% of cases as having echogenic bowel, whereas using the 5 MHz frequency, the radiologists interpreted only 3% of the cases as having echogenic bowel. Using the 8 MHz frequency, at least one of the radiologists interpreted echogenic bowel in 62% of the cases! (9)

What causes echogenic bowel?

There can be many reasons why the baby’s bowel is bright on ultrasound:

Some non-harmful reasons:

- Some consider an echogenic bowel “a normal variant in second-trimester fetuses”. (5)(7)
- One common reason that a bowel might appear bright is immaturity of the baby's intestine.
- The baby may have swallowed a little amount of blood. (4) Swallowing a small amount of blood is not harmful to the fetus. In most cases, echogenic bowel goes away over time.
- Another cause could be an inaccurate sonogram reading.
- Altered meconium composition (3)

Some more serious problems:

- Chromosome abnormalities (including Downs Syndrome)
- 1% chance for Cystic fibrosis (a genetic disease)(6)(7)
- 15-20% incidence rate for viral infections (most commonly CMV and TORCH)(7)
- Bowel wall ischaemia (fetal disease)(4).
- Placental failure (5)
- 5% risk for cytogenetic problems, such as Trisomy 21(7)
- Intestinal obstruction

A genetic counselor can discuss more specific risks for having a baby with one of these problems depending on the individual situation.

Are there different degrees of echogenic bowel?

3 (three) different degree or grades of echogenic bowel:

1. **Grade 1** echogenic bowel is very close to normal and the bowel is not very bright.
2. **Grade 2** echogenic bowel describes a bowel that is slightly echogenic and is about as bright as liver.
3. **Grade 3** echogenic bowel, which is the highest level, looks as bright as bone.

What sort of tests should be done if an echogenic bowel was found in our first sonogram?

Additional sonograms should be ordered to make sure of the accurateness of the first sonogram and because the echogenic bowel may spontaneously resolve itself and cause no problems for the newborn.(7) "Serial sonograms may help to clarify the findings with special attention directed to abdominal ascites and other bowel findings such as dilatation or development of a meconium pseudocyst" (7)
Will I be offered special testing?
When echogenic bowel is seen, a special test called an amniocentesis is offered. The amniocentesis test is done by removing a small amount of amniotic fluid surrounding the baby. This fluid can then be tested for chromosome abnormalities, infections and cystic fibrosis if appropriate. Your genetic counselor will discuss with you more about the benefits and risks of amniocentesis. Sometimes, blood tests can be done to check the risk of infection or cystic fibrosis. The tests that are offered are different for each couple. The testing that will be offered will depend upon family history, medical history, ethnic background and the grade or degree of echogenicity seen on the ultrasound.
A genetic counselor can discuss the specific testing options available to you in more detail.

What if all the test results are negative (normal)?
After all the necessary test results are received, your genetic counselor can discuss what follow-up, if any, is needed. The follow-up will vary depending on the individual situation.

What if I have other positive markers?

1. In the presence of other risk factors, an amniocentesis should be discussed with your doctor.
2. Echogenic bowel with other signs of placental failure will require further growth/liver/Doppler assessment.
3. Any other markers or risk factors should prompt discussion of karyotyping.
4. Blood should be taken for TORCH screen and parvovirus serology in some situations. (It is reasonable to send maternal serum CMV IgG and IgM to rule out a primary infection. Because CMV has other clinical implications it is important to have this information prior to delivery.) (7)
5. If amniocentesis is offered in the presence of other soft markers, consideration should be given to DNA analysis for cystic fibrosis. Alternatively, parental carrier status may be offered on the understanding that any DNA analysis will only detect the known mutations. Testing after the baby is born should be considered if prenatal testing is declined or negative. (These cases are complex and may require referral to fetal medicine centres).
6. Because CF mutation screening is readily available and reasonably accurate, clinicians may decide on a case by case basis whether or not to pursue this testing. It is best done when both parents are available and may assist the paediatricians in caring for the infant at birth. (7) If this testing comes back positive, the babies chances for having cystic fibrosis jumps from 1% to slightly under 12% following DNA analysis. (8)

What complications are associated with echogenic bowel?
Within one study group, adverse outcomes occurred in 40 of the 64 fetuses (62%) with grade 2 or 3 bowel echogenicity, compared with five of the 31 fetuses (16%) with grade 1 echogenicity. Echogenic bowel is associated with an increased risk of adverse fetal outcome and this risk is confined primarily to grades 2 and 3 echogenicity.

Some of the complications included (see above "What causes echogenic bowel?" as well for more associations):

- 23% chance for Intrauterine growth retardation (IUGR)
- Low birth weight
- 16.7% chance for fetal or neonatal death
- Other fetal anomalies

Stories from Moms whose babies were diagnosed with echogenic bowel via ultrasound:

1. **Echogenic Bowel**. This is a forum post with very brief info regarding echogenic bowel; however, it does offer a positive outlook from another mother whose child is fine.
2. **Old Timer with Happy Ending to Echogenic Bowel** from the Choroid Plexus Cyst Message Board. Three positive outcomes are archived here.

References:

1. Echogenic Bowl: A second trimester ultrasound finding. Oakland Kaiser Permanente. Frequently Asked Questions about the Echogenic Bowl. All questions should have been answered above, in this article.
7. Beth A. Pletcher, MD. University of Medicine & Dentistry of New Jersey.
9. A report by Dick et al., in 1992, stated 16.7% incidence of fetal or neonatal death complicating those fetuses with echogenic bowel, as compared with 1.9% in the general population. In this study, the incidence of intrauterine growth delay 23% compared with 1.9% in their control group. A subsequent study by Hill et al. (1994) also demonstrated increased adverse fetal outcome in fetuses with second trimester echogenic bowel http://mchneighborhood.chp.edu/pancrgo/CGN/31997/31997CGN_geneweb.pdf