Meconium Peritonitis

Patient Information Series – What you should know, what you should ask.

What is Meconium Peritonitis?

Meconium is the medical term for the fetal bowel content during intrauterine life, and it is also the common term for the baby's first bowel movement after delivery. Meconium peritonitis occurs when meconium leaks out of the intestine through a small perforation or hole. Many different things can cause these small holes. The abdominal cavity is covered by a thin layer called the peritoneum, and when meconium leaks out it reaches the peritoneum, giving rise to an inflammation of this covering called meconium peritonitis.

During the ultrasound exam, the doctor will see the leaked meconium as small bright spots (termed *echogenic spots* or *calcifications*) at various locations inside the fetal abdomen. During the scan, the doctor may observe additional findings including:

- *Ascites* - free fluid within the abdomen but outside the bowels (normally, the abdomen should not contain free fluid).
- *Dilation of bowel loops* - a point of blockage along the "gut tube" through which bowel content cannot pass, causing the bowel above the blockage to balloon out or dilate.
- *Intra-peritoneal cysts* - these are small pockets of fluid inside the abdomen, caused by cells in the baby's body that try to wall off or encapsulate the leak.
- *Polyhydramnios* – another word for an excessive amount of amniotic fluid within the pregnancy sac. This may occur when the first portion of the bowel is obstructed. In this condition, the fetus cannot swallow the normal amount of fluid as it usually does, leading to the accumulation of excess fluid outside the fetus.

How Does Meconium Peritonitis Happen?

Bowel perforation may result from a temporary reduction of blood flow to one small area of the bowel which results in a small hole forming in the bowel. Meconium can escape through this hole into the abdomen, where it doesn't belong. This scenario is termed "simple meconium peritonitis" since no additional abnormalities are found in the fetus, and the prognosis is good.

Sometimes, a variety of problems may eventually result in bowel obstruction and meconium peritonitis. This may be due to external mechanical pressure exerted on the bowel (for example, a kinking of the gut tube); a malformation in which one or more segments of the bowel failed to develop properly during the early weeks of pregnancy (the medical term is *bowel atresia*), or a problem within the bowel tube (for example thick, sticky meconium that "plugs" the bowel tube, as may happen in Cystic Fibrosis). In addition, certain viral infections may reach the fetus and cause a disease in which one of the signs is meconium peritonitis.

Should I have more tests done?

Since meconium peritonitis may represent the end-stage of various conditions, there are a few tests that should be done.

- You should have a detailed ultrasound scan, including a targeted exam of the baby's heart (called echocardiography) to rule out additional problems.

- You should have a genetic consultation and blood tests for Cystic Fibrosis (CF) carrier state. Cystic Fibrosis is a genetic disease involving multiple systems of the body. In a fetus who has CF, the meconium tends to be thick and sticky and may plug the small bowel leading to meconium peritonitis. You should be tested to see if you carry one of the CF mutations and discuss additional testing for the baby's father should you be found to be a CF carrier. Your baby can only be affected by CF if both parents are carriers of the altered gene that causes this disease. Consultation with a genetic counselor before your baby is born may be helpful.

- When the meconium peritonitis is not "simple", and other findings are visualized on the US scan besides the abdominal "white spots", you should have an amniocentesis. In this exam, a thin needle is inserted into the uterine cavity, under direct ultrasound guidance, and a small amount of amniotic fluid is aspirated. This enables to test the baby's chromosomes to be examined for abnormalities such as trisomy 21 (also known as Down syndrome) and can be used to test for CF.

- You should have a blood test to see whether you were infected with certain viruses during pregnancy or just before conception.

- If an underlying bowel abnormality is suspected, you may wish to talk with a pediatric surgeon and a neonatologist, who is a doctor who treats newborns with problems, before birth. Some babies will require close monitoring after birth, or even an operation to repair a blockage in the bowels. These doctors may be helpful for providing information about the timing and expected recovery of the baby after delivery.

What are the things to watch for during pregnancy?

Additional ultrasound examinations will be performed to re-evaluate the abdominal findings, the growth of the baby, and the amount of amniotic fluid. Symptoms of excessive fluid that you may feel are a rapid increase in your abdomen size and/or shortness of breath, especially when lying down.

If polyhydramnios develops and the uterus becomes bigger than it should, you may experience preterm contractions and possibly deliver earlier than expected. You should let your doctor know immediately if you have difficulty breathing, have an unusual increase in your abdominal size, break your water or have contractions.

What does it mean for my baby after it is born?

When the meconium peritonitis is simple, we expect normal feeding and bowel movements after birth. In some cases, the doctors may wish to perform an abdominal ultrasound or X-ray imaging. In more complex cases, when a fetal bowel obstruction is suspected, the doctors may advise delivering the baby in order to minimise intrauterine damage to the intestines. It may be recommended that you deliver the baby in a pediatric center with surgical and intensive care capabilities. After birth, the baby will need close monitoring and, in some cases, an operation.
If, in addition to meconium peritonitis, other malformations are diagnosed, the prognosis depends on the final diagnosis.

Will it happen again?

In most cases, meconium peritonitis does not happen again in the following pregnancies. When the meconium peritonitis is caused by another problem such as CF, for example, the chance of recurrence should be discussed with a geneticist. In CF, there is a 25% risk of CF in each following pregnancy, when both parents are carriers of a CF mutation.

What other questions should I ask?

- Are there only white spots dispersed in the abdomen, without additional findings?
- Do you see any other abnormalities outside the abdomen in my baby?
- How often will I have ultrasounds performed to follow up on this issue?
- May I meet the doctors who will be caring for the baby after birth?
- Where should I deliver the baby?

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