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Meconium Plug

Patient and family information, brought to you by the Education Committee of APSA

Overview - “What is it?”

Meconium is the stool (intestinal contents) that collects in the intestines of fetuses (unborn babies). After birth, babies evacuate this stool over the first 24-48 hours, which is thicker and darker than normal baby poop.

- Meconium plug syndrome is a condition in newborn infants where the large intestine (colon) is blocked by solid pellets of meconium. It occurs equally in males and females.
- The underlying cause of meconium plugs is largely unknown, but there have been associations with Hirschsprung disease (condition where nerves controlling the motility of the intestines) and cystic fibrosis (disease where thick mucus in the lungs and intestines can cause life-long problems).

Signs and Symptoms - “What symptoms will my child have?”

The newborn does not pass meconium in the first 24 hours of life. There may be swelling of the belly, feeding intolerance, and vomiting.

Diagnosis - “What tests are done to find out what my child has?”

When a newborn does not pass meconium, a work-up is started.

Labs: Bloodwork is sent to look for infections and abnormalities in levels of electrolytes.

Testing for CF: There is an association between meconium plug syndrome and cystic fibrosis (CF).

X-rays: Abdomen x-rays will be performed to evaluate the intestine for clues as to the cause of intestinal blockage.

Contrast enema: Water-soluble contrast is instilled through the anal opening and x-rays are obtained to see the anatomy of the large intestine and where the blockage may be. If

meconium plugs are present in the colon, contrast mixes with the pellets and allows the stool to be evacuated.

Suction rectal biopsy: This is used to rule out Hirschsprung disease as the underlying cause of meconium plug syndrome. See below for more detail.

Conditions that mimic this condition: Hirschsprung disease, CF, intestinal atresia, small left colon syndrome (seen in infants of mothers with diabetes), infants whose mothers may have required medicine (magnesium) to stop premature labor, and other causes of newborn bowel obstruction.

Treatment - “What will be done to make my child better?”

Contrast enema: Contrast enema helps in both the diagnosis and treatment of meconium plugs. The water-soluble contrast pulls water into the intestine and thins the meconium plugs in order for them to pass. If successful, symptoms of blockage are relieved and the infant begins to eat and stool normally.

- During the time the newborn is not eating or stooling normally, s/he will be cared for in the neonatal intensive care unit (NICU). Intravenous fluids will be given and occasionally nutrition will be given by vein (total parenteral nutrition - TPN). If vomiting is a symptom, or the belly is really swollen, a tube may be placed into the nose down into the stomach (nasogastric tube) to drain air and fluid.

Surgery: Meconium plug syndrome is typically successfully treated non-operatively. In these babies, it is important rule to evaluate for Hirschsprung disease. Infants with Hirschsprung disease do not have normal nerves in the rectum and the intestine does not allow stool to pass normally. Hirschsprung disease is ruled out by a suction rectal biopsy.

- **Suction rectal biopsy:** A suction rectal biopsy is the definitive test for Hirschsprung disease. This is usually performed at the bedside of the baby and does not require anesthesia. In this procedure, a small instrument (size is slightly larger than a rectal thermometer) is inserted about 2 centimeters into the anal opening. A small piece of the rectal lining is cut. Samples are obtained and sent for microscopic analysis. The pathologist examines the specimens for presence of normal nerves.
- **Risks of suction rectal biopsy** include bleeding, getting a hole in the intestine and not obtaining adequate specimens.
- **Surgery and care** for babies with [Hirschsprung disease](#) is discussed in a separate section of this parent education site.

Home Care - “What do I need to do once my child goes home?”

Diet: Normal diet for age.

Activity: Activity should be normal.

When to call a doctor: Call for persistent vomiting, swelling of the belly or failure to pass stool.

Follow-up care: Follow up with the pediatrician at regular scheduled appointments after discharge to be sure the infant is eating normally, stooling and gaining weight.

Long Term Outcomes - “Are there future conditions to worry about?”

The long-term outcome for meconium plug syndrome is excellent. Infants have normal eating, stooling and growth. No further evaluation or treatment is needed.

If the patient is found to have Hirschsprung disease or CF, overall outcomes are different.

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