Antroduodenal Manometry

What is antroduodenal manometry?
The antrum is the lower part of the stomach. The pylorus is the ring-like muscle at the outlet of the stomach, and the duodenum is the first part of the small intestine. See illustration below. Antroduodenal manometry (mah-NOM-eh-tree) is a test that records the pressure waves produced when the muscles of the stomach, pylorus and small intestine contract to move food from the stomach into the intestine. These muscles are involuntary. Your child cannot control them.

Why is this test done?
Antroduodenal manometry is done to measure the strength and coordination of the stomach and small intestinal muscles and nerves. This test will only be recommended if results will be useful to guide treatment of problems such as ongoing vomiting, abdominal distention (gassy stomach), gastroparesis (poor working stomach), rumination (re-chewing food that has already been lightly chewed and swallowed), feeding difficulties, abnormalities of the small intestine or other GI problems.

Taken from the patient information website of Cancer Research UK: http://www.cancerresearchuk.org/about-cancer/
**What happens before the test?**

This test requires placement of a manometry catheter (a thin tube) into your child’s stomach and small intestine. To place this tube, your child will need to have an endoscopy. See our handout Endoscopy: Preparing your Child PE884 for more details on how to prepare for this test. Your child will need to stop solid foods the day or night before the procedure.

Some medicines may interfere with the manometry test. Your child may be asked to stop certain medicines up to 72 hours before the manometry test. We will remind you before the test to stop these medicines.

**How long does the procedure take?**

The hospital stay is usually 24 hours (one overnight stay), or sometimes longer if this test is combined with other testing. The endoscopy and motility catheter placement are done in the Surgery Center on the day before the antroduodenal manometry test. You and your child will need to sleep at the hospital the night after the endoscopy to allow the anesthesia medicine to wear off. On the next morning, the actual manometry test is done in your hospital room and will take 6 to 8 hours. You can go home after that.

**How do I prepare my child for this test?**

- Explain the test ahead of time in a way that is appropriate to the age and temperament of your child. Use simple, honest language. If you feel relaxed, reassuring and confident about the procedure, your child will feel more secure, too.

- Assure your child that one parent can stay with them for the entire hospital stay. You can stay with your child in the Surgery Center until they are asleep for the procedure.

- Tell your child that a tube the size of a piece of spaghetti will be placed through their nose (or G-tube if they have one) during the endoscopy. They will be asleep for this procedure. The tube is smaller than their throat so they will not feel it. But, be honest that it may feel a little strange to have a tube coming out of their nose. Your child will need to stay in bed after the catheter is placed so it does not come out.

- Help your child relax. Helping to reduce their fear will help make the experience easier on them.

- Bring a favorite toy and/or blanket.

- Let your child know that the test is important for their health. You and the doctor are doing the test to keep your child well and help them solve their stomach problem. The doctors and nurses do this test often with other children so they are very experienced.

- The antroduodenal manometry test is not difficult, but it is probably uncomfortable. It may feel like pressure in the intestine and your child will be eliminating a lot of stool. Your loving support is essential for the test to be successfully completed. You will need to stay with your child to help them lie still all day.
• Talk to your child about the importance of staying still in bed for the test. A TV and DVD player are in the room to help provide distraction. You may bring a DVD of your choice from home or ask for a list the hospital stocks.

**Where do we go for the test?**

If your child is coming for an overnight stay first, the procedure scheduler will tell you the time, date and location for checking in.

If your child is not going to be admitted overnight before the test, you come to the Surgery Center on the morning of the procedure. You will park in the Ocean parking garage and check in at the main Registration desk on level 6.

After checking in, the nurse will take your child’s temperature and blood pressure. The anesthesiologist (a doctor who gives patients medicine to keep your child comfortable or asleep during surgeries and procedures) will talk to you about how they will keep your child comfortable during the procedure. When it is time for your child’s endoscopy, they will be taken into a Surgery Center room. This is a comfortable, child-friendly room.

**What happens during the test?**

**The manometry catheter is placed by endoscopy**

Children are given general anesthesia so they will be asleep for the entire procedure. Before the test your child will have:

• An IV placed in their arm to give the anesthesia, fluids and medicines used in the manometry test the next day.
• Electrodes (sticker-like patches) placed on their chest to check their heart rate and breathing.
• A small painless probe taped to their toe or finger to monitor the oxygen level during the procedure.
• A blood pressure cuff on their arm or leg.
• After your child is asleep, you will be shown to the waiting room.
• The GI doctor then inserts a long flexible tube called a motility catheter down your child’s nose and throat to the stomach. This tubing is placed using an endoscope. The endoscope is a hose-like tube with a light and camera at the end used to look at the esophagus. The endoscope is passed through the pylorus into the duodenum. The scope is taken out and the catheter is left inside overnight. The other end of the catheter that comes out the nose is taped to your child’s cheek.
• If your child has a G-tube, the G-tube will be removed during the procedure and the motility catheter will be placed using an endoscope through the gastrostomy (G-tube) site. The G-tube will be placed back after the completion of the test. If your child has a GJ tube, the GJ tube will be removed during the procedure and the motility catheter will be placed in its place through the gastrostomy (G-tube) site. The motility catheter will be removed and the GJ tube will be placed by Interventional Radiology after the completion of the motility testing.
• The endoscopy and tube placement procedure takes about 60 minutes, although time can vary. After the procedure, your child will go to the recovery room to wake up. As soon as your child is awake, you may join them in the recovery room. Your child will be watched for about 1 hour.
• When your child is fully awake, you and your child will be taken to the medical unit for the night.
• For the rest of the evening, your child will be free to do activities that can be done in bed. It is extremely important that your child remain on strict bedrest.
• The actual computer test (manometry) will begin early the next morning.
• Your child will NOT be allowed to eat or drink anything by mouth until instructed to do so by the GI motility nurse.

**The manometry test is done**

• On the morning of the motility test the manometry computer cart is brought into your child’s room. The motility catheter tube that is taped to your child’s cheek is connected to a small water pump that will very slowly push water through the tube. Your child does not feel this water since it is a very small amount. The pump is connected to the manometry computer. The involuntary muscle activity of your child’s stomach and small intestine will be recorded by the computer.
• No anesthesis is needed or used for this part of the test.
• A GI nurse will visit your room every so often to check the activity on the computer and check on your child during the test.
• The Child Life staff can help provide activities, but it is important for you to be with your child to keep them company during the test.
• As part of the test, your child will be given a meal. In this meal, your child should eat as much as possible over 30 minutes. If your child has particular foods they prefer, certain dietary restrictions, or receives specific formula or blended feeds via a G-tube or the GJ tube, then please bring these foods/formula with you for this 30-minute meal. It is very important for the test that your child receives the full amount of calories instructed during this time.
• Later, your child will be given Erythromycin by IV (or Augmentin IV or Azithromycin IV) to cause the stomach to start emptying. A second medicine, Octreotide, may be given later as an injection. This medicine stimulates small intestinal activity. Both medicines can cause cramping.
• During the test your child will have to remain in bed for the full 6 to 8 hours. They will need to use a bedpan instead of getting up to use the toilet. Your help with keeping your child still is essential for the test to work.
• The GI nurse will remove the tube when the manometry test is finished. If your child had a previous G-tube, we will replace the G-tube button. If your child had a previous GJ-tube, we will arrange for Interventional Radiology to remove the motility catheter and replace the GJ-tube.
Will my child have pain?
The manometry does not cause pain, but it can be awkward to lie still for so long with a catheter. Your child may have cramping discomfort when given the medicines to stimulate stomach emptying. Also, after the test, removing the tape that holds the motility tube in place may be uncomfortable. You may ask for baby oil to assist you in removing the adhesive. Removing the motility catheter itself is not painful. Your child may feel pain from the IV needle placed to give the anesthesia medicine for the endoscopy. You know your child best. We partner with you and your child to prevent and relieve pain as completely as possible.

What happens after the test?
Your child can go home the same day as the test and return to a normal diet, play and activities right away. A nurse and doctor on the unit will create a follow-up plan for your child before you leave the hospital.

When can I expect the results?
The information recorded in the manometry computer will be read by the GI doctor caring for your child. This takes about 2 weeks. The results will be discussed at your next clinic appointment. The manometry results will also be shared with your primary care doctor or primary pediatric gastroenterologist. If you have not heard back from us in two weeks, give GI clinic a call or call your referring care provider.

What are the risks and possible complications?
There are some slight risks with any procedure:
• A tear or hole in the colon. This can happen if the esophagus or stomach are extremely diseased and thin. Tears usually require surgery to repair the hole.
• Hematoma (bruising of the stomach or small intestine). This may cause the procedure to be stopped.
• Infection. This is rare unless your child has a heart problem or problems with the immune system. In these cases, antibiotics are usually given.
• The catheter may move or come out overnight, in which case the study will either be canceled or information obtained will be limited.
• This test requires a certain amount of cooperation from the child. If it is too hard for your child to cooperate, the manometry test may not work.

Part of this handout adapted from Cincinnati Children's Hospital Medical Center with permission.