

DIAGNOSING CROHN'S DISEASE AND ULCERATIVE COLITIS

A variety of tests are used to diagnose and monitor Crohn's disease and ulcerative colitis, the two main types of inflammatory bowel disease (IBD). Procedures range from simple blood tests to barium x-rays and colonoscopy, which require preparation the day before the tests. A proper diagnosis of IBD involves determining the disease type (Crohn's disease or ulcerative colitis), extent and severity of disease, and any related complications.

Before any medical test, you may want to ask your doctor the following questions:

- What type of information will the test provide?
- What can I expect during the test?
- Will I feel any discomfort?
- How do I prepare for the test?
- How safe is the test? How accurate?
- When can I expect to receive the test results?

X-RAYS

X-rays take a picture of the inside of the body. There are two different types of x-rays:

Plain x-rays of the abdomen are a quick, easy, and inexpensive way to show narrowing of the intestines or an intestinal blockage, possibly from inflammation or scarring.

Contrast x-rays track the movement of a thick, chalky liquid called *barium* through the intestines. If you are having contrast x-rays of the small intestine (small bowel series), you will be asked to drink barium when you arrive for the test. If you are having contrast x-rays of the large intestine, barium will be inserted into your rectum (a barium enema). (You will also need to follow a bowel cleansing routine the day before the test.) Barium should not be given if you have had a sudden, recent bowel obstruction or if you have a hole (perforation) in your intestines. Barium can cause constipation, so be sure to drink plenty of fluids after your test.

COMPUTERIZED TOMOGRAPHY (CT)

CT scans, also called CAT scans, take simultaneous x-rays from several different angles to create a cross-sectional image of a certain body area, like slices of a bread loaf. CT scans are mainly used to detect complications of the diseases, including abscesses, fistulas, and intestinal blockages. CT scans can also help rule out other conditions that cause symptoms similar to those associated with Crohn's disease and ulcerative colitis, such as appendicitis. You will be asked to drink an oral contrast when you arrive for the CT scan, which may cause diarrhea. Intravenous contrast may also be injected into a vein in your arm just prior to the test; as this contrast may rarely be toxic to your kidneys, you may be asked to get a blood test to check your kidney function before the CT scan to make sure it is normal.

CT Enterography

MR Enterography

MRI of Pelvis

LEUKOCYTE SCINTIGRAPHY (WHITE BLOOD CELL SCAN)

The main characteristic of Crohn's disease and ulcerative colitis is inflammation in the gastrointestinal tract. White blood cells are attracted to sites of inflammation. This test can see where in your body white blood cells gather, and can therefore tell how much inflammation is present. Blood is taken from your arm, and white blood cells in the sample are tagged with a harmless amount of a radioactive substance. The blood is injected back into your body and a special camera is used to see where the radioactive white blood cells travel.

ENDOSCOPY

Endoscopy uses a thin, flexible tube called a scope to explore parts of the gastrointestinal tract. For exploration of the lower intestine or colon, the scope is inserted through the anus. To examine the esophagus, stomach and first part of your small intestine, your doctor will insert the scope through your mouth. In both instances, you'll be sedated to minimize discomfort.

The scope has a lighted camera inside the tip, so your doctor can look directly at the lining of the esophagus, stomach, and intestines. A new type of endoscopy called capsule enteroscopy places a mini-camera inside a tiny capsule, which you swallow like a pill. The mini-camera sends approximately 50,000 images of the portion of your small intestine that is not seen on traditional upper endoscopy or colonoscopy to a recorder that you wear on a belt, and your doctor later downloads the pictures. You pass the camera capsule painlessly through your stool.

Specific types of endoscopy are named based on the part of the GI tract examined:

- *Sigmoidoscopy* examines the lining of the lower third of the large intestine (the rectum and sigmoid colon). A flexible sigmoidoscopy exam can confirm a diagnosis of ulcerative colitis, Crohn's disease of the lower part of the colon, the presence of inflammation, or the source of bleeding.
- *Colonoscopy* examines the lining of the entire large intestine (colon) and may be used to peek into the very end of the small intestine (ileum). This exam can help determine the severity of ulcerative colitis and Crohn's disease as well as distinguish between the two diseases or other types of intestinal conditions. When used with biopsy (removal of a small amount of tissue), colonoscopy can detect precancerous changes and colon cancer.
- *EGD (Esophagogastroduodenoscopy)* examines the lining of the esophagus, stomach, and duodenum (first part of the small intestine). Crohn's disease can affect these areas.
- *Capsule Enteroscopy*:
- *ERCP (Endoscopic retrograde cholangiopancreatography)* examines the bile ducts in the liver and the pancreatic duct. A very small number of people with Crohn's disease or ulcerative colitis may have liver disease called Primary Sclerosing Cholangitis (PSC) that can be seen with this test.

Preparation for endoscopy will depend on the area being examined. If you're having an EGD or ERCP, you may be told not to eat or drink anything after midnight before the test.

Colonoscopy and sigmoidoscopy (and usually capsule enteroscopy) require bowel preparation the day prior to the test to entirely cleanse the intestines. Preparation for colonoscopy is more intensive than for sigmoidoscopy. In fact, the preparation phase turns out to be more challenging than the procedure itself.

If you are having a colonoscopy, EGD, or ERCP, you will receive a narcotic – a drug normally derived from opium or its derivatives – to prevent pain, and a mild sedative to help you relax. Sometimes gastroenterologists work with anesthesiologists and/or nurse anesthetists to administer a slightly deeper sedative (called propofol). Sigmoidoscopy is a shorter exam, and is usually done without sedation.

ENDOSCOPIC ULTRASOUND (EUS)

EUS is a relatively new technique in which an ultrasound probe attached to an endoscope is used to look deep below the lining of the intestines. In the setting of Crohn's disease, EUS is most often used to look at fistulae in the rectal area, a complication of Crohn's disease. A fistula is an abnormal channel that can occur between different parts of your intestine, such as between your intestine and skin; or between your intestine and other organs such as the bladder and vagina. These channels can easily become infected, so it's critically important for your doctor to detect and treat them.

SPECIAL CONSIDERATIONS

- If you have already been diagnosed with Crohn's disease or ulcerative colitis, you may need additional tests from time to time to monitor the disease or diagnose possible complications, including medication side effects.
- It's important to follow the preparation instructions your doctor gives you for your procedure. Failure to prepare properly could lead to inaccurate results, or you may need to postpone or repeat the test.
- In some people with severe Crohn's disease or ulcerative colitis, barium x-rays, colonoscopy, and bowel cleansing preparations can make symptoms worse or lead to a life-threatening complication called toxic megacolon. It is important to discuss the need for such tests and any possible complications with your doctor.

ROUTINE BLOOD TESTS

At present, Crohn's disease and ulcerative colitis cannot be diagnosed through simple blood tests. However, blood tests are still very important as they may be supportive of the diagnosis and can also be used to monitor the activity of your disease. They may help determine how well your medicines are working and/or monitor for complications associated with your medicines. Routine blood tests for IBD may include:

- Complete blood count (CBC) to detect infection and anemia
- Inflammation markers such as C-reactive protein (CRP) and Erythrocyte Sedimentation Rate (ESR)
- Liver function tests to screen for liver and bile duct problems, which are occasionally seen in some people with Crohn's disease or ulcerative colitis. Some medications used to treat IBD may be associated with liver test abnormalities and thus need to be monitored on a regular basis.
- Electrolyte panel to measure the levels of certain minerals (e.g., potassium), which can drop with IBD-associated diarrhea
- Vitamin B-12, which may be low if the small intestine isn't properly absorbing nutrients due to Crohn's disease.

ANTIBODY BLOOD TESTS (BIOMARKERS)

More sophisticated blood tests are now being used to help distinguish between Crohn's disease and ulcerative colitis. The newer tests look at proteins called antibodies, which are produced by the immune system. There are two antibodies of long-standing interest:

- Perinuclear anti-neutrophil antibodies (pANCA)
- Anti-Saccharomyces Cerevisiae antibody (ASCA)

These antibodies are considered biomarkers, defined as measurable substances in the body that indicate the presence of disease. Many patients with ulcerative colitis have the pANCA antibody in their blood; patients with Crohn's disease are more likely to have ASCA in their blood. However, these antibody tests are not foolproof. In some cases, patients have neither antibody, while others who carry one type may actually have the opposite or neither disease.

Researchers are investigating other possible biomarkers that could be used to easily and inexpensively screen for Crohn's disease or ulcerative colitis and their complications. For example:

- A protein called calprotectin, measured in the stool, may predict relapse.
- High levels of C-reactive protein (CRP) have been shown to predict patients' response to biologic therapies (e.g., infliximab or adalimumab).
- Anti-flagellin antibody (CBir1) may be a marker of Crohn's disease complicated by fistulas, perforations, or other serious problems.

Some of these markers are clinically available, and doctors are using them to measure disease activity and response to treatment. However, none of them are without shortcomings.

Even after you are diagnosed as having Crohn's disease or ulcerative colitis and your disease type has been confirmed, you may still periodically need to undergo many of these tests. They are necessary for providing information to your doctor on any complications you may have and for determining how your treatment plan is working. These tests are valuable tools that help your doctor take care of you. Understanding how they fit into your overall care allows you to be an active participant in decisions about your health.

Finally, don't go it alone. The Crohn's & Colitis Foundation is perhaps your best resource of all, offering support, guidance, and the latest clinical and scientific information in the field. Take the time to learn about us at www.ccfa.org. Join your local chapter, make common cause with others living with these diseases, and get involved. Most of all, know that we're here for you whenever you need us. You can reach us at our Information Resource Center at **888.MY.GUT.PAIN** (888.694.8872).

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