Barium Enema

Test Overview

A barium enema, or lower gastrointestinal (GI) examination, is an X-ray examination of the large intestine (colon and rectum). The test is used to help diagnose diseases and other problems that affect the large intestine. To make the intestine visible on an X-ray picture, the colon is filled with a contrast material containing barium. This is done by pouring the contrast material through a tube inserted into the anus (hence the name barium enema). The barium blocks X-rays, causing the barium-filled colon to show up clearly on the X-ray picture.

There are two types of barium enema.

• In a single-contrast study, the colon is filled with barium, which outlines the intestine and reveals large abnormalities.
• In a double-contrast or "air-contrast" study, the colon is first filled with barium and then the barium is drained out, leaving only a thin layer of barium on the wall of the colon. The colon is then filled with air. This provides a much more detailed view of the inner surface of the colon, making it easier to see small polyps, tumors, or inflammation.

In some cases, the single-contrast study may be preferred for specific medical reasons or for older people who may not be able to tolerate the time-consuming and somewhat more uncomfortable double-contrast study. However, if the results are not clear or if there is a strong suspicion of colon cancer, a double-contrast study may also be done.

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Why It Is Done

A barium enema is done to:

• Screen for colon polyps or cancer. Medical experts disagree about routine screening for colorectal cancer.
  o The American Cancer Society and the American Gastroenterological Association recommend that people older than age 50 who are at average risk for colon cancer undergo regular screening that includes yearly fecal occult blood testing (FOBT) combined with flexible sigmoidoscopy testing every 5 years (see the medical tests Fecal Occult Blood Test and Sigmoidoscopy). If results from either FOBT or
sigmoidoscopy are abnormal, a follow-up colonoscopy is recommended. Flexible sigmoidoscopy combined with a double-contrast barium enema may be offered as an alternative to colonoscopy.

- The American Gastroenterological Association recommends that people at increased risk for colon cancer start FOBT and sigmoidoscopy screening at age 40. If results from either FOBT or sigmoidoscopy are abnormal, follow-up colonoscopy is recommended. Flexible sigmoidoscopy plus a double-contrast barium enema may be recommended as an alternative to colonoscopy.
- The U.S. Preventive Services Task Force (USPSTF) recommends annual FOBT screening for people age 50 and older at average risk of colorectal cancer. The USPSTF believes there is insufficient evidence to recommend for or against routine screening with digital rectal examination, barium enema, sigmoidoscopy, or colonoscopy. The USPSTF recommends that people discuss their risk factors with their doctor to determine which colorectal screening is best for them. For people at high risk of developing colorectal cancer, the USPSTF recommends regular screening with a doctor who specializes in problems of the digestive system (gastroenterologist).

- Identify inflammation of the intestinal wall that occurs in inflammatory bowel diseases, such as ulcerative colitis or granulomatous colitis (Crohn's disease). Also, a barium enema may be done to monitor the progression of these conditions.
- Detect structural abnormalities in the large intestine, such as narrowed areas (strictures) or pockets or sacs (diverticula) in the intestinal wall.
- Evaluate the possibility of appendicitis.
- Help correct the situation in which the end of the small intestine protrudes into the large intestine (ileocolic intussusception) in a child.
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Results

During the test, the fluoroscopic monitor provides the radiologist with some results, which are recorded on X-ray films. The radiologist then examines all the X-ray films and interprets the results. Final results may be available immediately after the test or the following day.

<table>
<thead>
<tr>
<th>Barium enema</th>
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<tbody>
<tr>
<td>Normal:</td>
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<tr>
<td>The colon appears normal. A normal-appearing appendix rules out a diagnosis of appendicitis.</td>
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<tr>
<td>Abnormal:</td>
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<tr>
<td>One or more problems in the colon are detected.</td>
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  - Failure of a section of colon to fill with barium (filling defects) may be caused by spasms in the colon wall, polyps, cancer, or retained stool. |
  - The barium enema can detect a growth that may be causing an obstruction or narrowing (stricture) in the bowel. |
  - If any polyps or growths on the inner wall of the colon are found, they may need to be evaluated using colonoscopy, and a biopsy may be done to determine whether they are cancerous. |
| Sacs in the colon wall (diverticulosis) may be detected. These can sometimes become inflamed or infected (diverticulitis). |
| Other structural defects and inflammation (colitis) of the lining of the colon may indicate the presence of inflammatory bowel disease (ulcerative colitis or Crohn's disease). |
| A narrowed segment or a twisted loop of bowel (causing an obstruction) may also be seen on this test. |