

Why is barium used with X-rays?

Barium is a dry, white, chalky, metallic powder that is mixed with water to make a thick, milkshake-like drink. Barium is an X-ray absorber and appears white on X-ray film. When swallowed, a barium drink coats the inside walls of the pharynx and esophagus so that the swallowing motion, inside wall lining, and size and shape of these organs is visible on X-ray. This process shows differences that might not be seen on standard X-rays. Barium is used only for diagnostic studies of the GI tract.

The use of barium with X-rays contributes to the visibility of various characteristics of the pharynx and esophagus. Some abnormalities of the pharynx and/or esophagus that may be detected by a barium swallow include tumors, ulcers, hernias, diverticula (pouches), strictures (narrowing), inflammation, and swallowing difficulties.

One of the main functions of the pharynx is swallowing. The main function of the esophagus is the forward propulsion of foods to the stomach.

Reasons for the procedure

A barium swallow may be performed to diagnose structural or functional abnormalities of the pharynx and esophagus. These abnormalities may include, but are not limited to, the following:

- Cancers of the head, neck, pharynx, and esophagus
- Tumors
- Hiatal hernia, which is upward movement of the stomach, either into or alongside the esophagus
- Structural problems, such as diverticula, strictures, or polyps (growths)
- Esophageal varices (enlarged veins)
- Muscle disorders (pharyngeal or esophageal), such as dysphagia (difficulty swallowing) or spasms (pharyngeal or esophageal)
- Achalasia -- a condition in which the lower esophageal sphincter muscle does not relax and allow food to pass into the stomach

There may be other reasons for your physician to recommend a barium swallow.

Before the procedure:

Your physician will explain the procedure to you and offer you the opportunity to ask any questions that you might have about the procedure.

- You may be asked to sign a consent form that gives your permission to do the procedure. Read the form and ask questions if something is not clear.
- You will be asked to not eat or drink liquids for eight hours before the procedure, generally after midnight.
- If you are pregnant or suspect that you may be pregnant, you should notify your physician.
- Notify your physician if you are sensitive to or are allergic to any medications, latex, tape, and anesthetic agents (local and general).
- Notify your physician of all medications (prescribed and over-the-counter) and herbal supplements that you are taking. Your physician may advise you to withhold certain medications prior to the procedure.
- Notify the radiologist if you have had a recent barium X-ray or cholangiography procedure, as this may interfere with obtaining an optimal X-ray exposure of the upper GI area.

Based upon your medical condition, your physician may request other specific preparation.

During the procedure:

A barium swallow may be performed on an outpatient basis or as part of your stay in a hospital. Procedures may vary, depending on your condition and your physician's practices.

Generally, a barium swallow follows this process:

- You will be asked to remove any clothing, jewelry, or other objects that may interfere with the procedure.
- If you are asked to remove clothing, you will be given a gown to wear.
- You will be positioned on an X-ray table that can tilt you from a horizontal to an upright position. You may also be asked to change positions (e.g., lying on your side, back, or stomach) at intervals during the procedure.
- The radiologist will ask you to take a swallow of a thickened barium drink. The barium is usually flavored, although it may not be very pleasant tasting.

- As you swallow the barium, the radiologist will take single pictures, a series of X-rays, or a video (fluoroscopy) to observe the barium moving through the pharynx.
- You may be asked to hold your breath at certain times during the procedure.
- You will be given a thinner barium drink to swallow. X-rays and/or fluoroscopy will be used to observe the barium's passage down the esophagus. You may also be asked to swallow a barium tablet -- a small, solid pill, which can help to visualize certain structural problems of the esophagus.
- If an additional procedure called a small bowel follow-through has been requested, it will be performed after the barium swallow has been completed.
- Once all required X-rays have been taken, you will be assisted from the table.

After the procedure:

- You may resume your normal diet and activities after a barium swallow, unless your physician advises you differently.
- Barium may cause constipation or possible impaction after the procedure if it is not completely eliminated from your body. You may be advised to drink plenty of fluids and eat foods high in fiber to expel the barium from the body. You may also be given a cathartic or laxative to help expel the barium.
- Since barium is not absorbed into the body but passes through the entire intestinal tract, your bowel movements may be lighter in color until all of the barium has been excreted.

Notify your physician to report any of the following:

- Difficulty with bowel movements or inability to have a bowel movement
- Pain and/or distention of the abdomen