

X-RAY DIGESTIVE TRACTS

What is the radiological study of the digestive tract

It consists in examining the pharynx, esophagus, stomach, first part of the small intestine, called duodenum and the prohibition of the soft and colon. The examination consists in an X-ray form called fluoroscopy and the administration of a contrast medium called barium.

Radiology is a pain-free diagnostic technique that helps in diagnosing of pathological situations and involves exposure of a part of the body to small doses of ionizing radiation to produce images of the body's interior.

X-rays are the "oldest" and most used technique for obtaining medical images.

Fluoroscopy allows to evaluate some internal organs in motion. When the gastro-intestinal tract is "painted" by barium the radiologist can see it and evaluate anatomy and function of pharynx, oesophagus, stomach and duodenum.

The only assessment of pharynx and oesophagus is called barium meal.

In addition to the oral intake of barium to the patient it is also required to ingest soda crystals that produce air stretch the visceral walls improving the quality of the images (Rx digestive tract in double contrast).

When is it required?

The doctor may prescribe such examination in the suspicion of:

- ulcers
- neoplasms
- oesophagus inflammation
- hiatal hernia
- erosions
- swallowing obstacles

The procedure is performed to help diagnose in symptom situations such as:

- swallowing difficulties
- reflux
- unexplained vomiting
- bad digestion
- blood in the stool

How should I prepare for the exam?

You will need to inform your doctor of any major illnesses or allergies in particular to medium contrast.

To get the best picture quality your stomach must be empty **so you will be asked not to drink and not eat anything from midnight before the exam. Do not even take oral medication, especially anti-acids and also avoid chewing gum. Refrain from smoking.**

You may be asked to remove your clothes and wear a tunic in order to avoid any metal objects interfering in the taking of the radiological image.

Women must warn the radiology technician of the possibility of pregnancy since ionizing radiation can be harmful to the fetus.

What is the exam?



The equipment commonly used consists of a table connected to an emitter and mobile tube in various directions on which the patient is placed. The radiology technician controls the equipment from a room protected by X-rays by monitoring the patient through a window of leaded glass. The Staff access the table periodically to replace the radiological cassettes and position the patient correctly.

X-rays are electromagnetic waves similar to those of the radio and are focused in a beam. X-rays can traverse many objects including the human body with varying intensity depending on the density of the body thus producing an image linked to the difference in density (natural or provoked) among the various anatomical structures.



Fluoroscopy uses a continuous beam of X-rays to create a sequence of images represented on a monitor that allows anatomical evaluation "in motion".

Images can be captured for later reanalysis. Radiological images are stored on photographic or electronic media

Normally the patient is outpatient and the exam is performed in the morning to reduce the discomfort of fasting.

The radiologist and the radiology technician are specifically trained to perform the examination and guide the patient to make them take the most suitable positions at the proper end of the examination.

The patient is placed on the examination table and the technician/nurse makes the patient take a generally white liquid (barium) similar to a milkshake. While the patient drinks the radiologist evaluates the bolus passage in the pharynx and oesophagus and assumes the most significant images. During this procedure, the patient will be required not to breathe to prevent the radiograms from being "wavy". The patient assumes various positions for the correct performance of the exam and a compression can be exerted on the abdomen.

After the examination, the patient will wait until the radiologist evaluates the images and considers that he can close the study (usually the duration is 20 minutes).

The patient will be recalled in the room during the $\frac{3}{4}$ consecutive hours for the execution of Radiograms for the evaluation of colon filling.

What do I feel during the examination?

The oral intake of barium associated with the change of position of the table or abdominal compression may be unwelcome to the patient. You can feel nausea and vomiting. After the intake of soda crystals (Duogas) there may be a stimulus for belching, but the radiologist will invite you to hold the air in the stomach, eventually swallowing spittle.

While taking the images you will have to maintain the positions established by the radiologist, sometimes pressure could be exerted on the abdomen and the table can be put in vertical position.

Normally at the end of the examination the patient can conduct the attend to usual occupations without limits of driving and/or diet (except for different prescriptions of his own treatment).

It is normal that in the days following the examination the stool is white; sometimes the examination is followed by constipation that can be treated with laxatives and increasing the intake of liquids.

Who evaluates the exam?

The radiologist is the supervisor and interprets the investigation; the report accompanied by the images is addressed to the Doctor who will share the results with you and may request clarification or ask questions to the radiologist.

Benefits vs risks

Benefits

- The study of the first ways of the digestive tract is an extremely safe and non-invasive examination
- The results lead to an accurate analysis of the oesophagus, stomach and duodenum
- The barium is not absorbed and therefore allergic reactions are rare
- Radiation does not remain in the patient at the end of the exam
- The X radiation does not generally have local effects.

Risks

- There is always a limited statistical probability of radiation damage the cells; however, this risk is very low compared to potential benefits.
- The actual dose of the procedure is about 2 mSv, which corresponds to the natural dose to which a person is naturally exposed in 6 months.
- Some patients may be allergic to the products added to the barium to improve its taste and therefore if you have had allergic reactions by taking chocolate, berries, lemon, please warn the radiology technician before the examination.
- Patients suspected of intestinal occlusion must perform the digestive tract using a water-soluble contrast medium.

Pregnant women must not perform this examination.

A particular attention is given to the use of the radiations in the lowest possible dose (compatibly with the diagnostic result) and therefore iconographically poor radiograms are not repeated as long as they are acceptable from a diagnostic point of view.

The remote control has beam, filtration and limitation collimation systems in order to minimise the radiant dose, secondary radiation and human error.

Exam limitations

The irritation of the oesophagus is difficult to evaluate like the ulcers of less than 5-7mm diameter. The method detects the ulcer but not its main cause (HELICOBACTER PYLORI), also it is not possible to perform biopsies.

The patient claims to have read and understood the information regarding the examination.

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