Ultrasound of the Abdomen

Your caregiver has ordered an ultrasound. This is a diagnostic procedure that uses high frequency sound waves. This is not the same as x-rays that use radiation. You will not feel the sound waves. These sound waves (echoes) bounce back from the internal organs to a hand held receiver (transducer). The technician holds the transducer against your body. These echoes are turned into an image of the area being examined. Permanent pictures are then made with a camera attached to the ultrasound machine.

Diagnostic ultrasound imaging is commonly called:
- Sonography.
- Ultrasonography.

In an abdominal exam, ultrasound produces images of the major organs, including the:
- Liver.
- Gallbladder.
- Bile ducts.
- Pancreas.
- Spleen.
- Kidneys.
- Large blood vessels.

There is no pain in this exam. Gel is applied to your abdomen. The transducer is placed on the skin surface. The gel gives better contact between the skin and transducer. The gel feels cool and can temporarily stain clothes. Wear easily washable clothing. The room is usually darkened during the examination. Examination times vary depending on difficulty of the exam.

In most cases, a sonographer or a vascular technologist trained in ultrasound will examine you. He or she obtains and records a series of images. The caregiver then:
1. Reviews the images.
2. May discuss your exam with the sonographer or vascular technologist.
3. Will give you an official explanation of the results.

This interpretation may not be available immediately after you have your exam. In some cases, the caregiver will also examine you to confirm or resolve uncertain or unclear findings.

Doppler Ultrasound
Doppler ultrasound is a special form of ultrasound. It is used to check blood flow to the various organs. It can be shown in different formats. These include an:
- Audible sound.
- Spectrum of colors within blood vessels.
- Graph showing changes.

Common reasons for checking the belly with an ultrasound are:
- To look for causes of upper abdominal pain. This includes:
  - Gallstones.
  - Inflammation of the gallbladder (*cholecystitis*).
  - Pancreatitis.
  - Kidney stones.
  - Blockage in blood vessels of the intestines.
- To look for causes of lower abdominal pain, such as:
  - Appendicitis.
  - Inflammation of the small and large intestines.
  - Hernias.
- To look for abnormalities that may be present in the abdominal organs, such as masses or enlargements in the spleen or liver.
- To check the nature of a mass or lump that may have been felt by the examining caregiver or seen on other

radiologic exams.

- To determine the cause of kidney failure, such as:
  - Kidney disease.
  - Urinary blockage.
  - Blockage of the kidneys' blood vessels.
- To check for the cause of jaundice or abnormal liver enzymes.
- To look for enlargements *(aneurysms)* of the abdominal aorta.
- To evaluate problems of flow in the blood vessels of the various abdominal organs.

Limitations of the Exam

Bone weakens sound waves so ultrasound cannot be used to examine bones. Sound is also weakened as it passes through layers of tissue. Results from patients who are overweight are not of the same quality as from those who are thin. Ultrasound cannot see images through gas. Bowel gas may limit detailed pictures of some structures of interest. An ultrasound examination may not provide all the information your caregiver needs. In these cases, additional studies may be required.

BEFORE THE PROCEDURE

You should refrain from eating, drinking, smoking, or chewing gum for 8 hours before an exam of the gallbladder, pancreas, or the upper abdominal blood vessels. These actions not only increase the amount of abdominal gas, but they alter blood flow in upper abdominal organs. They also cause the gallbladder to contract, preventing an adequate ultrasound examination.

RISKS & COMPLICATIONS OF THE PROCEDURE

Widespread clinical use of diagnostic ultrasound for many years has not revealed harmful effects. No relationships have been found between ultrasound and future problems. The possibility exists that effects may be identified in the future. The benefits to patients far outweigh the risks, if any, which may be present.

AFTER THE PROCEDURE

After the exam, you can safely drive home and return to regular diet and activities.

Most of this information is courtesy of American Institute of Ultrasound in Medicine

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