Ultrasound of the Thyroid Gland

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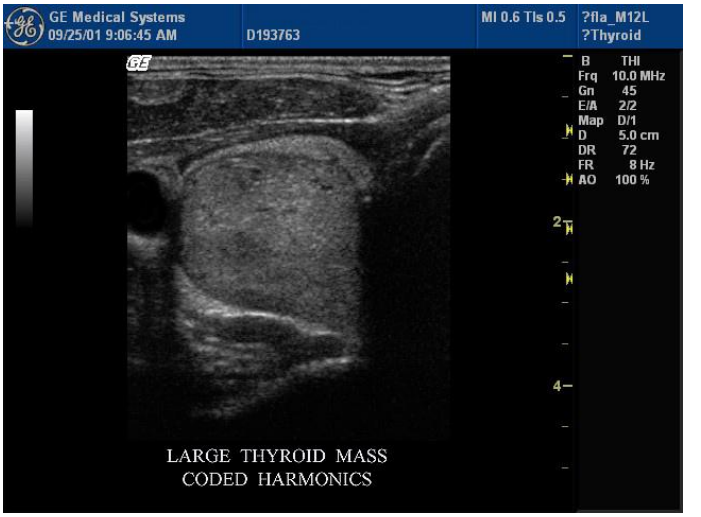
What is Ultrasound of the Thyroid?

Ultrasound imaging, also called ultrasound scanning or sonography, is a method of obtaining images of internal organs by sending high-frequency sound waves into the body. The reflected sound waves produce echoes that are displayed and recorded as a real-time, visual image. No ionizing radiation (x-ray) is involved in ultrasound imaging.



Ultrasound: Large thyroid mass coded harmonics.

Because ultrasound images are captured in real-time, they can show movement of internal tissues and organs, and enable physicians to see blood flow. As a result, ultrasound can help to diagnose a variety of conditions and to assess organ damage following illness. Ultrasound imaging can help a physician determine the source of pain, swelling, or infection in many parts of the body.

Ultrasound is a painless, useful way of examining many of the body's internal organs, including the thyroid.

What are some common uses of Ultrasound of the Thyroid?

A physician may use an ultrasound examination of the neck to help diagnosis a lump in the thyroid or a thyroid that is not functioning properly. The thyroid gland is located in front of the neck just below the Adam's apple and is shaped like a butterfly, with two lobes on either side of the neck connected by a narrow band of tissue. It is one of nine endocrine glands located throughout the body that make and send hormones into the bloodstream. These hormones target specific body functions and affect virtually every organ, tissue and cell in the body.

The thyroid gland produces thyroid hormones. Thyroid hormones set the rate at which your body carries on its necessary functions (metabolic rate). Some of the functions controlled by thyroid hormones include heart rate, cholesterol level, body weight, energy level, muscle strength, skin condition and vision.

The most common diseases of this gland result when the thyroid becomes overactive or underactive. An overactive thyroid, also called hyperthyroidism and Grave's disease, produces more thyroid hormone than is needed. The underactive thyroid, called hypothyroidism, does not produce enough hormone. Other common conditions of the thyroid include an enlarged thyroid, often called a goiter, and lump in the gland.

How should I prepare for my Ultrasound of the Thyroid?

You should wear comfortable, loose-fitting clothing for your ultrasound exam.

How does the Ultrasound of the Thyroid procedure work?

Ultrasound imaging is based on the same principles involved in the sonar used by bats, ships at sea, and anglers with fish detectors. As the sound passes through the body, echoes are produced that can be used to identify how far away an object is, how large it is, its shape, and its consistency (fluid, solid or mixed).

The ultrasound transducer functions as both a generator of sound (like a speaker) and a detector (like a microphone). When the transducer is pressed against the skin, it directs inaudible, high-frequency sound waves into the body. As the sound echoes from the body's fluids and tissues, the

transducer records the strength and character of the reflected waves—with Doppler ultrasound the microphone captures and records tiny changes in the sound wave's pitch and direction of the sound. These echoes are instantly measured and displayed by a computer, which in turn creates a real-time picture on the monitor. The live images of the examination are usually recorded for a permanent record.

How is Ultrasound of the Thyroid performed?

You will be positioned on an examination table. A clear gel will then be applied to your neck, to help the transducer make secure contact with the skin. The sound waves produced by the transducer cannot penetrate air, so the gel helps eliminate air pockets between the transducer and the skin. The technologist or radiologist presses the transducer firmly against the skin and sweeps it back and forth over the thyroid area. When the examination is complete, the patient may be asked to dress and wait while the ultrasound images are reviewed. Often, though, the technologist or radiologist is able to review the ultrasound images in real-time as they are acquired, and the patient can be released immediately.

What will I experience during my Ultrasound of the Thyroid?

Most ultrasound examinations are painless, fast, and easy. You will lie on your back on an examining table. The technologist or doctor will spread some warm gel on your skin and then press the transducer firmly against your neck, moving it until the desired images are captured. The examination usually takes less than 30 minutes.

What are the benefits vs. risks of Ultrasound of the Thyroid?

Benefits

- Ultrasound scanning is noninvasive (no needles or injections, in most cases) and is usually painless.
- Ultrasound is widely available.
- Ultrasound uses no ionizing radiation.
- Ultrasound images can visualize structure, movement and live function in the body's organs and blood vessels.

Risks

- There are no known harmful effects for diagnostic ultrasound.

What are the limitations of Ultrasound of the Thyroid?

You will need to extend your neck to gain appropriate access, which may be mildly uncomfortable.