

Original Article: When is Abdominal and Pelvic Ultrasound Needed?

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ABSTRACT

Abdominal ultrasound is a non-invasive and safe method to examine the internal organs of the abdomen. Some of the organs found in the abdominal region include the liver, gallbladder, pancreas, bile ducts, spleen, and abdominal aorta. In the ultrasound method, ultrasound waves are used to examine the organs and structures of the abdomen. Unlike the X-ray device, ultrasound waves are very safe, they easily pass through the surface of the skin and reach the internal organs of the body. Research shows that ultrasound waves are not harmful even for pregnant mothers. Therefore, if you are suffering from some abdominal diseases such as fatty liver and things like this, you can diagnose your disease in the shortest possible time by using ultrasound of the liver, kidney and things like this. In addition to the organs, some blood vessels that lead to the abdominal organs can also be examined with the help of ultrasound. For example, inferior vena cava and aorta are examples of veins that cause a lot of problems for a person in case of swelling and congestion.

Introduction

This type of ultrasound is usually prescribed when the doctor is concerned about some outward symptoms of the disease, such as abdominal pain [1-3], frequent vomiting, abnormal liver and kidney function, and things like this [4-6]. In this case, diagnosing the origin of the disease will not be an easy task [7-9]. Because all the organs inside the abdomen are related to each other in some way and the damage to each of them leads to pain in other organs [10-12].

Abdominal ultrasound applications

Abdominal ultrasound has various uses as follows:

1- Examining the causes of abdominal pain:

One of the most important uses of abdominal ultrasound is that it determines the exact cause of abdominal pain [13-15]. As mentioned, damage to any of the internal organs of the abdomen leads to severe pain. Sometimes it is not easy to diagnose the cause of this pain. For this reason, ultrasound should be used for abdominal pain. In many women, abdominal pain is caused by ovarian cysts, uterine problems, and things like this [16-18].

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Sometimes it is also possible that the cause of abdominal pain is damage to the liver, kidney and urinary tract.

2- Diagnosing diseases of babies and children: One of the most important applications of abdominal ultrasound is the diagnosis of diseases related to babies and children. Considering that children's eating style and physical mechanism are different from adults. For this reason, ultrasound should be used to check and accurately diagnose diseases. One of the problems that most babies struggle with is vomiting and diarrhea after consuming milk and food. Fortunately, it is possible to use an ultrasound machine for babies who are only a few months old and diagnose diseases related to the abdominal area in them [19-21].

3- Examining the condition of the fetus: Undoubtedly, one of the most important applications of abdominal ultrasound is to check the condition of the fetus. By using abdominal ultrasound, you can easily diagnose diseases related to the fetus. In fact, the only method to check the health of the fetus is ultrasound. Because the doctor cannot examine the exact condition of the baby based on the external symptoms. It may be interesting for you to know that even the abdominal organs of the fetus can be examined using abdominal ultrasound. For example, kidney failure in the fetal period is a common complication that is easily diagnosed using ultrasound. Ultrasound devices can be used to perform nt ultrasound and check the physical structure of the fetus [22-24].

Types of abdominal ultrasound

There are different types of abdominal ultrasound, some of which are described below:

1- Kidney ultrasound: One of the types of abdominal ultrasound is kidney ultrasound, which only examines diseases related to the kidney and its failure. This method is performed exactly like other abdominal ultrasound methods. One of the most common reasons for abdominal ultrasound is to check for a kidney infection. Accumulation of bacteria in the bladder and urinary tract leads to kidney infection and causes severe damage to the abdominal area [25].

2- Intestinal ultrasound: the health of the intestines is necessary for the proper disposal of waste materials from the body. One of the common diseases that affects most people is colon obstruction, which is easily diagnosed with the help of an ultrasound machine. In this way, the doctor can diagnose the exact origin of the disease in the intestine [26].

3- Ovary and uterus ultrasound: Ovary and uterus ultrasound is another type of abdominal ultrasound that is used to check diseases such as cervical cancer, ovarian cysts, tumors, and similar cases. Also, uterine infections can be easily diagnosed with the help of abdominal ultrasound. Of course, sometimes it is possible to use vaginal ultrasound to check the state of the ovary and uterus, which is different from abdominal ultrasound. Abdominal ultrasound is also used to check the state of the fetus or to confirm that a person is pregnant [27].

4- Liver ultrasound: Another type of abdominal ultrasound is the liver ultrasound, which is performed to check liver and gallbladder diseases. The spleen or gall bladder is located under the liver and if damaged, it causes severe pain in the abdomen. For example, gallstones are one of the annoying diseases that must be diagnosed quickly with the help of an ultrasound machine [28].



Figure 1. Abdominal Ultrasound Made Easy: Systematic

When is abdominal and pelvic ultrasound needed?

Abdominal and pelvic ultrasound is usually performed when the doctor is unable to determine the exact origin of the disease in the body according to the patient's symptoms. In this case, an ultrasound test is prescribed for you. Also, when severe and annoying pains occur in the abdomen, the exact origin of which is not completely clear, an ultrasound test should be performed. Abdominal ultrasound is also performed to check the status of the fetus and its growth rate. In general, abdominal ultrasound does not harm the body and is very safe and low risk. Therefore, you can use ultrasound for a general checkup of abdominal organs [29].

Abdominal ultrasound procedure

To perform an abdominal ultrasound, you first need to lie on your back on the bed. Then pull up your shirt or wear a hospital gown for the ultrasound. In the next step, the ultrasound technician or doctor places a special gel on the abdomen. This gel-like substance should be rubbed on the surface of the abdominal skin so that ultrasound waves can easily pass through it. You may feel cold when the skin comes into contact with the gel. In any case, this gel does

not harm your body and is completely safe. In the next step, the technician moves the ultrasound probe on the surface of the abdominal skin [30].

This movement should be done in all areas of the abdomen so that the exact origin of the disease can be identified. In this case, ultrasound waves are emitted from the ultrasound device and after passing through the skin, they hit the internal organs of the body such as the abdomen and kidneys. Then they are reflected from the internal organs of the body to the outside. When ultrasound waves reflect from the body, they can be seen as an image on the screen. In this way, the ultrasound technician and the doctor can easily examine the internal organs of the abdomen [31].

Necessary preparations before abdominal ultrasound

Before performing an abdominal ultrasound, it is necessary to perform some actions:

- ✓ One of the most important steps you should take before the abdominal ultrasound is to fast and avoid eating for a few hours before the ultrasound.
- ✓ It is better if the bladder is full during the ultrasound. For this reason, you should drink enough water and fluids a few hours before the abdominal ultrasound.
- ✓ Avoid eating foods that contain saturated fat and legumes for about a day before the abdominal ultrasound.
- ✓ Shave the surface of the abdominal skin so that the ultrasound waves pass through the skin easily and a better image can be seen on the screen [32].

What problems can be diagnosed with abdominal ultrasound?

As mentioned, many problems related to the internal organs of the abdomen can be diagnosed using an ultrasound machine.

Dangerous diseases such as cervical cancer and similar cases will be detected quickly with the help of ultrasound. In addition, blood disorders can be checked using abdominal and pelvic ultrasound. It is also possible to identify the area of damage in the organs located in the upper part of the abdomen with ultrasound [33].

Conclusion

For men, abdominal and pelvic ultrasound can provide detailed images of the liver, gallbladder, pancreas, spleen, kidneys, and bladder. It can be used to diagnose various diseases including liver disease, gallstones, pancreatitis and kidney stones. Pelvic ultrasound for men specifically focuses on the prostate gland, which is located between the bladder and the rectum. This test helps detect abnormalities in the size, shape, or texture of the prostate and may indicate conditions such as prostate cancer or benign prostatic hyperplasia (BPH). During an abdominal or pelvic ultrasound, the patient lies on a table and the technician applies a gel to the skin of the area being examined. Then a hand-held device called a transducer moves over the gel-covered skin and emits high-frequency sound waves that bounce off internal organs and tissues and create images on a computer screen.

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