

The ultrasound examination of the spleen

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Abstract

The spleen is a parenchymatous organ located in the left upper quadrant of the abdomen, in the splenic lodge. The normal spleen is 10-12 cm long and 3-5 cm thick. The ultrasound examination of the spleen is better performed in a fasting patient, in supine or right lateral position, using an intercostal approach, with a 3.5 to 5 MHz transducer. Due to the high position of this organ, covered by the ribs, inviting the patient to take a deep breath could be useful.

Keywords: spleen, ultrasonography, examination technique

Rezumat

Splina este organul parenchimatos situat în hipocondrul stâng, în loja splenică. Dimensiunile normale ale splinei sunt 10-12 cm în axul lung și 3-5 cm în grosime. Examinarea splinei se va face în condiții a jeun, în decubit dorsal sau lateral drept prin secțiuni intercostale, cu transductor de 3,5-5 MHz. Folosirea inspirului permite o mai bună examinare a splinei datorită situației sale înalte, acoperită de rebordul costal.

Cuvinte cheie: splina, ecografia, tehnica de examinare

Spleen is the largest lymphoid organ in the body, with a parenchymal structure. Its shape can be compared with a “coffee bean” or “bean” (fig 1), but sometimes it can be globular, comma-shaped (fig 2) or triangular. An accessory spleen (supernumerary spleen) is a small nodule of splenic tissue found apart from the main body of the spleen (fig 3). Accessory spleens are found in approximately 10 percent of the population and are typically around 1 centimeter in diameter.

Anatomically speaking, the spleen has 2 surfaces, 2 borders and 2 extremities. The diaphragmatic surface is convex and is directed upward, backward, and to the left, except at its upper end, where it is directed slightly medialward. The visceral surface is concave and directed me-

dialward and contains the splenic hilum with the splenic artery and vein, lymph vessels and nerves.

The superior extremity is in contact with the diaphragm and the inferior one rests upon the left flexure of the colon and the phrenicocolic ligament, and is generally in contact with the tail of the pancreas.



Fig 1. Normal spleen, left intercostal approach (longitudinal section)

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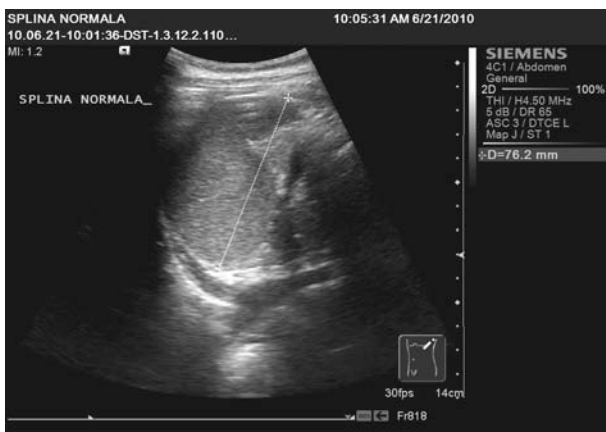


Fig 2. Comma-shaped spleen, left intercostal approach

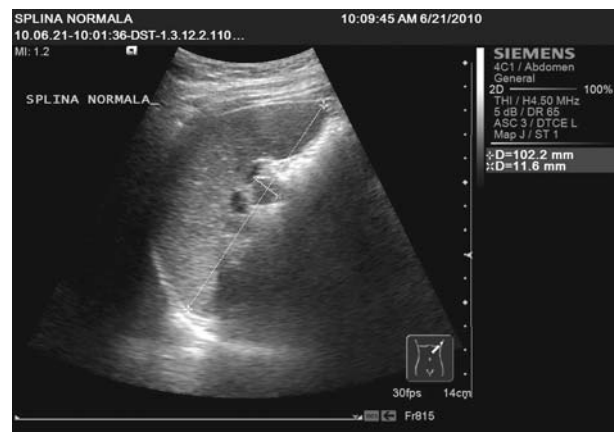


Fig 3. Normal spleen with accessory spleen



Fig 4. Longitudinal section, normal spleen



Fig 5. Normal spleen

The normal spleen is located entirely in the thoracic cavity and is covered by the ribs.

The size of the spleen is liable to very extreme variations at different periods of life, in different individuals, and in the same individual under different conditions. In the adult it is usually about 12 cm in length and 3 or 5 cm in thickness (fig 4-6). The size may vary from one individual to another, depending on the individual's height, so that people taller than 1.8 m can have a spleen of 13 cm that can be still considered normal.

Ultrasound examination of the spleen is better to be done in a fasting patient, using a left intercostal approach (in the IX-XI space), using a coronary or an oblique approach. The patient is examined both in supine position and on right lateral decubitus, lifting the left arm above the head in order to offer a better window for the ultrasound examination. Due to its location under the ribs, taking a deep breath allows a better examination. During the examination, changing the position of the transducer allows an overview of the spleen and the detection of possible changes in the splenic parenchyma.

For the ultrasound examination of the spleen 3.5-5MHz transducers are used. The echogeneity of the normal splenic parenchyma is slightly reduced (hypoechoic) as compared to the one of the liver parenchyma.

The presence of the colon, stomach and lung near the spleen (organs that contain a great amount of air) makes the examination difficult, but the intercostal approach allows a better examination.

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