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

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 medi-dialward. The visceral surface is concave and directed medi-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.

Received Accepted
Med Ultrason
2010, Vol. 12, No 3, 253-254
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**Fig 1.** Normal spleen, left intercostal approach (longitudinal section)
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.

Selective references: