

Ultrasound – Spleen

PURPOSE:

To measure spleen size and to evaluate for focal abnormalities such as masses or infarctions.

SCOPE:

Applies to all US Spleen studies performed in Imaging Services / Radiology

INDICATIONS:

- Left upper quadrant mass or tenderness
- Palpable spleen
- Thrombocytopenia or other conditions associated with splenomegaly (portal hypertension, lymphoproliferative disorders, infiltrative disorders, infections, etc)
- Follow up known splenomegaly

CONTRAINDICATIONS:

No absolute contraindications

EQUIPMENT:

Curvilinear array transducer with a frequency range of approximately 2-9 MHz that allows for appropriate penetration and resolution depending on patient's body habitus.

PATIENT PREPARATION:

- None

EXAMINATION:

GENERAL GUIDELINES:

A complete examination includes evaluation of the spleen including the left hemidiaphragm and adjacent pleural space if possible

EXAM INITIATION:

- Introduce yourself to the patient
- Verify patient identity using patient name and DOB
- Explain test
- Obtain patient history including symptoms
- Place patient in supine and/or right lateral decubitus (RLD) positions

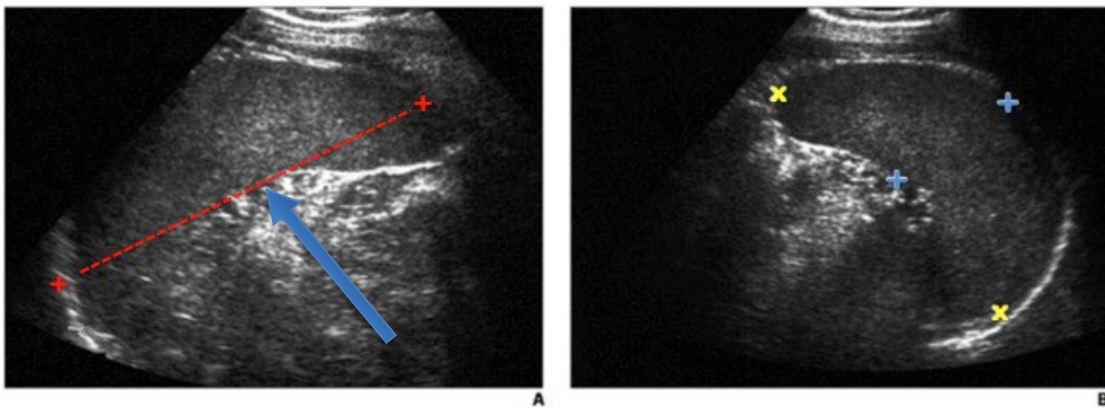
TECHNIQUE CONSIDERATIONS:

- Review any prior imaging, making note of abnormalities or other findings requiring further evaluation.
- Deep inspiration facilitates imaging of the spleen.
- Liberal use of cine sweeps allows for better evaluation of focal or indeterminate findings.
- Longitudinal spleen measurement: taken from inferior most tip to highest point along diaphragm, *crossing through the splenic hilum*.
- Transverse measurements: *oriented 90 degrees* relative to longitudinal measurement, calipers placed at greatest thickness and width at the same level.
- Focal abnormalities should be documented with size measurements and color Doppler.

- Evaluate for splenic vein thrombosis and perisplenic varices with color Doppler at the hilum, with spectral Doppler, if abnormal.

DOCUMENTATION:

- Spleen
 - Longitudinal images:
 - Representative images from medial to lateral, including left hemidiaphragm and adjacent pleural space if possible, with cine sweep of any focal abnormality.
 - Longitudinal spleen measurement, from inferior most tip to highest point along diaphragm (+), *crossing through the splenic hilum (arrow)*.
 - Cine
 - Transverse images:
 - Representative images of the spleen from dome to tip, with cine sweep of any focal abnormality.
 - Transverse measurements: *oriented 90 degrees* relative to longitudinal measurement, calipers placed at greatest thickness (X). Width (+) measured transverse to longitudinal measurements at same position.
 - Cine
 - Color Doppler evaluation at splenic hilum to document vessel patency, check for varices.
 - Color and/or Power Doppler evaluation of splenic parenchyma to evaluate for segmental hypoperfusion/infarction.



PROCESSING:

- Review examination images and data
- Export all images to PACS
- Document relevant history and any study limitations

REFERENCES:

ACR-AIUM Practice Guideline (Revised 2007) Chow, et al. Radiology 2016
 Arora et al. JASI 2013
 Spielmann, et al. AJR 2005
 De Odorico, JUM 1999

APPENDIX:

NORMAL

Normal Length: < 12 cm in most patients

Normal volumes⁺: 209, SD +/- 76 cc (< 231 cc in women; < 334 cc in men)

SPLENOMEGALY

Consider splenomegaly (“borderline”) when:

Length \geq 12 cm in women; \geq 13 cm in men –or–

Volume⁺ > 250 cc in females; > 300 cc in males

Definite splenomegaly when:

Length \geq 13 cm in women; \geq 14 cm in men –or–

Volume⁺ > 300 cc in females; > 350 cc in males

REVISION HISTORY:

SUBMITTED BY:	David T. Fetzer, MD	Title	Medical Director
APPROVED BY:	David T. Fetzer, MD	Title	Medical Director
APPROVAL DATE:	11-09-2015		
REVIEW DATE(S):	11-12-2018		David T. Fetzer, MD
REVISION DATE(S):	09-11-2016	Brief Summary	New protocol for measuring spleen. Added new size cutoffs.
	07-10-2020		Removed NPO requirement
	09-26-2023		Added long spleen cine and trans spleen cine