

## 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

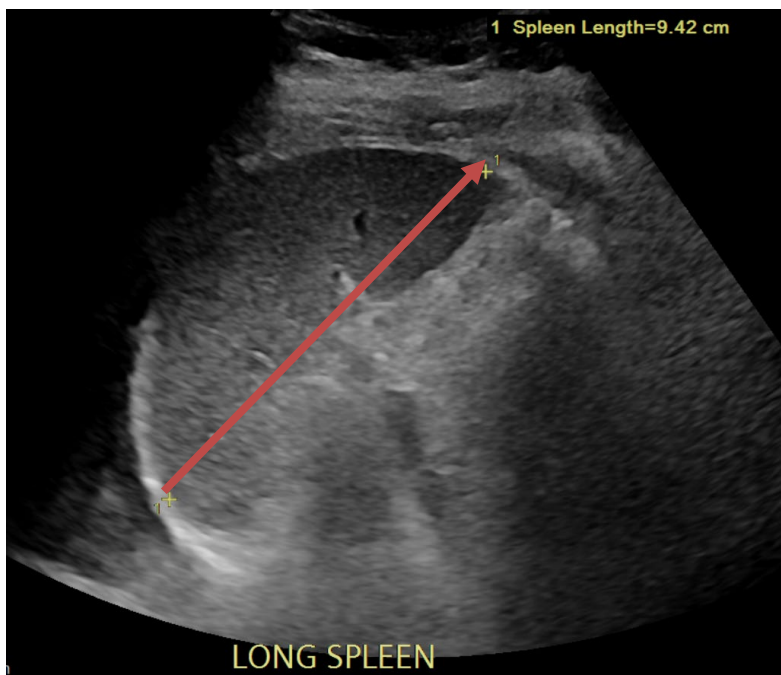
#### **TECHNIQUE CONSIDERATIONS:**

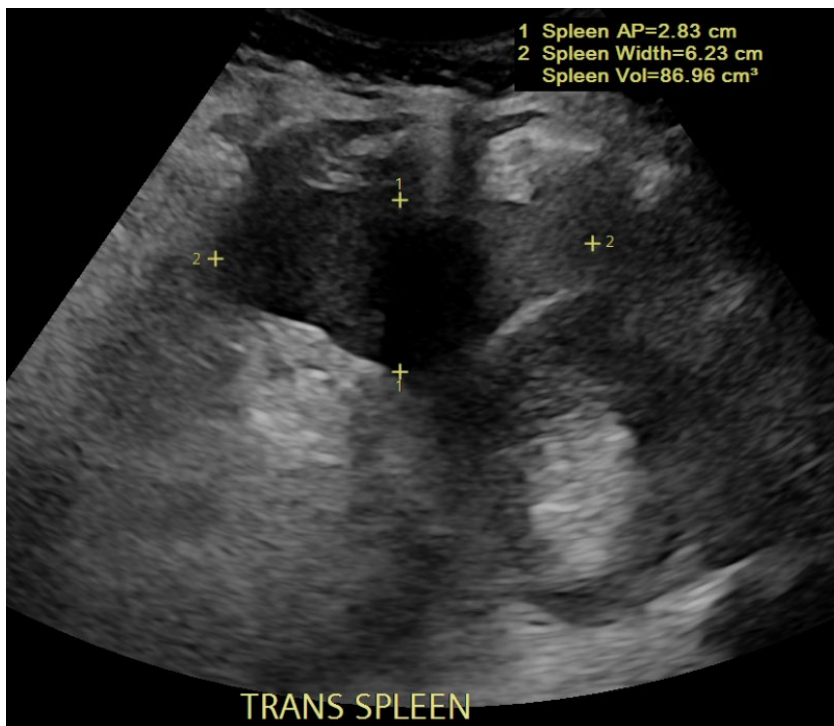
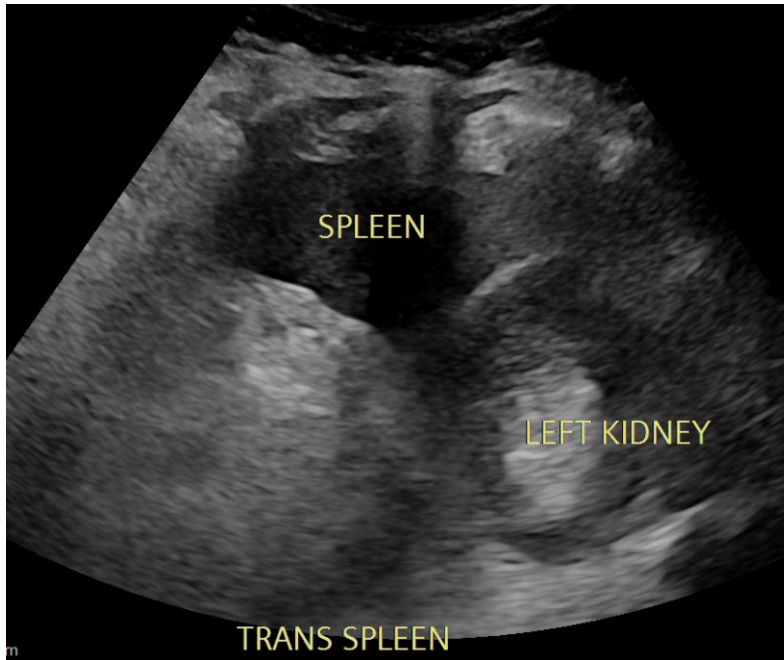
- Review any prior imaging, making note of abnormalities or other findings requiring further evaluation.
- Deep inspiration facilitates imaging of the spleen.
- Liberal use of cine sweeps allows for better evaluation of focal or indeterminate findings.
- Longitudinal spleen measurement: taken from inferior 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.
  - Attempt to rotate transducer along the axis of the splenic hilum/hilar vessels.

- 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 (+ **calipers**), *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 at the hilum/hilar vessels, calipers placed at greatest thickness (+<sup>1</sup> **calipers**). Width (+<sup>2</sup> **calipers**) 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<sup>+</sup>: 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<sup>+</sup> > 250 cc in females; > 300 cc in males

Definite splenomegaly when:

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

Volume<sup>+</sup> > 300 cc in females; > 350 cc in males

**REVISION HISTORY:**

STATUS	NAME & TITLE	DATE	BRIEF SUMMARY
<b>Submission</b>	David Fetzer, MD	6/9/2016	Submitted
<b>Approval</b>	David Fetzer, MD, Director	11/09/2015	Approved
<b>Review</b>	David Fetzer, MD	11/12/2018	Reviewed
<b>Revisions</b>	David Fetzer, MD	09/11/2016	New protocol for measuring spleen. Added new size cutoffs.
	David Fetzer, MD	07/10/2020	Removed NPO requirement.
	David Fetzer, MD	09/26/2023	Added long spleen cine and trans spleen cine
	Jana Smith, RDMS, RVT	05/01/2025	Added images for spleen measurement clarification. Added Parkland logo. Reformatted revision history table.