

Mesenteric Artery US Protocol

PURPOSE:

- To evaluate the mesenteric arteries for hemodynamically significant stenosis.

INDICATIONS:

- Evaluation of patients with postprandial pain, weight loss, nausea, vomiting and diarrhea or those patients only able to eat small meals.

EQUIPMENT:

- 3-5 MHz linear or curved probe

PATIENT PREPARATION & ASSESSMENT:

- The patient should be NPO after midnight or 6-8 hours prior to examination.
- Introduce yourself to the patient.
- Verify patient identity via two patient identifiers (name and date of birth) per hospital policy.
- Explain the examination, its purpose and how long it will take.
- Answer any questions the patient may have regarding the examination.
- Obtain patient history including symptoms, signs, risk factors and other relevant history.

GENERAL GUIDELINES:

- Optimize equipment gain and display settings with respect to depth, dynamic range and focal zones while imaging vessels.
- Add color Doppler to supplement grayscale images with proper color scale to demonstrate areas of high flow and color aliasing.
- Use power Doppler to validate low flow states or occlusions.
- Set spectral Doppler gains to allow a spectral window and optimized to reduce artifacts.
- Cursor sample size will be small and positioned parallel to the vessel wall and/or direction of blood flow.
- A spectral Doppler angle of 45-60 degrees or less will be used to measure velocities. Note exceptions to these angles on the technologist worksheet.
- Send the measurements screenshot page if your machine is capable.
- Any deviations from the standard protocol and any limitations to the examination should be documented on the technologist worksheet for future reference and for repeatability in follow-up studies.
- Report preliminary critical findings to the referring clinician when appropriate (i.e. immediate medical attention may be warranted) and according to hospital policy.
- Use Cerner order US Abdomen Art/Venous Duplex Limited.

DOCUMENTATION:

Celiac Artery

- Document longitudinal images of the proximal aspect of the celiac artery.
- Document longitudinal color Doppler images of the proximal aspect of the celiac artery.
- Document longitudinal spectral Doppler images of the proximal aspect of the celiac artery with PSV measurements of the following:
 - Supine at end inspiration
 - Supine at end expiration
 - Standing at end inspiration

Superior Mesenteric Artery

- Document longitudinal images of the proximal aspect of the superior mesenteric artery.
- Document longitudinal color Doppler images of the proximal aspect of the superior mesenteric artery.
- Document longitudinal spectral Doppler images of the proximal aspect of the superior mesenteric artery with PSV measurement.

Inferior Mesenteric Artery

- Document longitudinal images of the proximal aspect of the inferior mesenteric artery.
- Document longitudinal color Doppler images of the proximal aspect of the inferior mesenteric artery.
- Document longitudinal spectral Doppler images of the proximal aspect of the inferior mesenteric artery with PSV measurement.

Abdominal Aorta

- Document longitudinal images of the proximal aspect of the abdominal aorta.
- Document longitudinal color Doppler images of the proximal aspect of the abdominal aorta.
- Document longitudinal spectral Doppler images of the proximal aspect of the abdominal aorta with PSV measurement.

DISEASE GRADING:

- Findings of >70% Celiac Artery Stenosis: PSV > 200 cm/sec.
- Findings of >70% SMA Stenosis: PSV > 275 cm/sec or EDV > 45 cm/sec.
- Findings of >70% IMA Stenosis: PSV > 200 cm/sec.
- Findings of Median Arcuate Ligament Syndrome: celiac PSV is lower in either supine end inspiration or standing end inspiration compared with supine end expiration.
- PSV in the celiac and superior mesenteric arteries will increase by at least 20% in normal patients following a meal.