

UPPER EXTREMITY PERIPHERAL VENOUS ULTRASOUND

Recommended Transducer(s):

GE 700: M121L Linear (for slow flow), LAS46 Linear, and G18 C Sector

GE Logiq 9: M12 Linear, 7L Linear

Acuson: ISL8w Linear (for slow flow), 8LS Linear (for slow flow), 8VS Vector Neonate

A complete examination consists of grey scale imaging and Doppler evaluation. Gray scale imaging is used to evaluate compressibility, to detect the presence of thrombus and to evaluate the wall thickness. Doppler imaging is used to evaluate blood flow.

INTERNAL JUGULAR VEIN

Use a Linear Array Transducer

Transverse Cephalic, mid and caudal segments.
Without and with compression (split image)
If clot is imaged, **do not** compress.

Longitudinal Cephalic, mid and caudal segments, in gray scale and Doppler (both color and spectral)

Y VIEW

Use either the Sector (GE Logic 700) or the Vector (Acuson) transducer.

In color Doppler with the color box completely open.

All three veins – the internal jugular, subclavian and innominate – must be demonstrated.

SUBCLAVIAN VEIN

Transverse (to the vessel) Use the linear or Sector/Vector transducer.
Medial and lateral segments (in relation to the clavicle).
In gray scale, without and with compression (split image) if possible.

Longitudinal (to the vessel) Use the Sector/Vector transducer.
Medial and lateral segments in gray scale, color Doppler (with color box completely open) and spectral Doppler (including a sniff test).

AXILLARY VEIN

Position: Arm up. If the vein collapses or patient is unable, scan in neutral position.

Transverse (to the vessel) Use a linear array or Sector/Vector transducer.
In gray scale, without and with compression (split image)

Longitudinal (to the vessel) Use the Sector/Vector transducer.
In grey scale, and color Doppler. Open color box completely and
point the transducer toward the patient's neck.

BRACHIAL VEIN

Position: Arm down, palm up.

Use linear array transducer.

The brachial vein is usually duplicated. Make sure that both veins are evaluated for patency. If only one vein is seen, search for a clotted duplicate brachial vein.

Transverse Upper, mid and lower segments.
In gray scale, without and with compression (split image), and in color Doppler.

Longitudinal Upper, mid, lower segments.
In gray scale and color Doppler.

NOTES:

- On all longitudinal color Doppler images should be taken with the color box completely open.
- Absence of flow on color Doppler should be confirmed with spectral Doppler.
- If on spectral Doppler flow in the subclavian or jugular vein demonstrates reduced pulsatility, the opposite side should be examined for comparison.
- Localized symptomatic areas should be examined.