

Ultrasound – Upper Extremity Vein Mapping

PURPOSE:

To determine the size and patency of the veins and arteries in the upper extremity for dialysis access planning.

SCOPE:

Applies to all upper extremity vessel mapping ultrasound studies performed in Imaging Services / Radiology

INDICATIONS:

- Dialysis access planning

CONTRAINDICATIONS:

- Patients with bandages
- Failed graft/fistula

EQUIPMENT:

- Duplex Doppler ultrasound console
- Linear transducer with a frequency range of 3.5-10 MHz

PATIENT PREPARATION:

- Patient should be sitting upright with arm extended to the side.
- Lie patient in supine position with slight head elevation to evaluate the internal jugular vein and subclavian vein

EXAMINATION:

GENERAL GUIDELINES:

- The examination must be bilateral unless otherwise contraindicated
- A complete examination includes evaluation of the entire course of the accessible portions of each vessel
- Variations in technique must be documented (i.e. stents)

EXAM INITIATION:

- Introduce yourself to the patient
- Verify patient identity using patient name and DOB
- Explain test
- Obtain patient history including symptoms. Enter and store data page

TECHNICAL CONSIDERATIONS:

- Equipment gain and display settings will be optimized while imaging vessels with respect to depth, dynamic range, and focal zones

DOCUMENTATION:

1	Innominate vein	Long, Color, Duplex
2	Cephalic vein prox upper arm	AP diameter
3	Cephalic vein mid upper arm	AP diameter
4	Cephalic vein distal upper arm	AP diameter
5	Cephalic vein AC fossa	AP diameter
6	Cephalic vein prox forearm	AP diameter
7	Cephalic vein mid forearm	AP diameter
8	Cephalic vein distal forearm	AP diameter
9	Cephalic vein	Maximum (representative) depth
10	Basilic vein prox upper arm	AP diameter
11	Basilic vein mid upper arm	AP diameter
12	Basilic vein distal upper arm	AP diameter
13	Basilic vein AC fossa	AP diameter
14	Basilic vein proximal forearm	AP diameter
15	Radial artery wrist	AP diameter
16	Radial artery wrist	PSV
17	Ulnar artery wrist	PSV
18	Brachial artery AC fossa	AP diameter
19	Brachial artery AC fossa	PSV
20	Axillary artery axilla	AP diameter
21	Axillary artery axilla	PSV
22	Axillary vein axilla	AP diameter

- If innominate vein has decreased phasic variation then obtain contralateral Doppler waveform at the same site
- Document if the basilic vein joins the brachial vein in the mid or distal arm
- Document any abnormalities and whether or not a tourniquet was used in the notes

PROCESSING:

- Review examination data
- Export all images to PACS
- Note any study limitation

REFERENCES:

<http://www.aium.org/resources/guidelines/predialysisaccess.pdf>

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CHANGE HISTORY:

STATUS	NAME & TITLE	DATE	BRIEF SUMMARY
Submission	Mark Reddick, MD	6/9/2016	Submitted
Approval	David Fetzer, MD, Director	6/20/2016	Approved
Review	Eddie Hyatt	12/15/2018	Reviewed
Revisions			