

Procedure Name: Venous Insufficiency

General Description:

Assessment and grading of any retrograde flow in the deep and superficial veins of the lower extremity.

Indications:

May include but not limited to leg pain of questionable etiology, chronic leg ulcers or color changes of legs, varicosities, and assessment of reflux.

Patient Position:

Patient should be scanned in standing position. If standing position is not possible, sitting or reverse Trendelenburg position is acceptable.

Equipment Selection and Settings:

A 9MHz or lower linear transducer should be used for most patients. Preprogrammed venous setting should be chosen and adjust gain, depth and focal zone settings to optimize images.

Vessels Evaluation:

- Image demographics page
- Scan CFV through popliteal without/with compression to evaluate for evidence of acute or chronic DVT.
 - Take transverse without/with compression image of Common Femoral Vein, Femoral Vein and popliteal vein. **If any positive signs, take additional images.**
- Long GSV proximal
 - Transverse without/with compression for patency
 - Transverse diameter measurement
 - Long color with distal augmentation
 - Record time of reflux
- Long GSV mid
 - Transverse without/with compression for patency
 - Transverse diameter measurement
 - Long color with distal augmentation
 - Record time of reflux
- Long GSV distal (at level of knee or just below)
 - Transverse without/with compression for patency
 - Transverse diameter measurement
 - Long color with distal augmentation
 - Record time of reflux
- If GSV is normal, locate varicosities and perforators.
 - Long perforator with color and distal augmentation to evaluate for incompetence. Competent perforators have valves that only allow flow towards the deep system. An incompetent valve will allow retrograde flow.
- Locate branches of GSV (anterior lateral accessory and posterior medial accessory branches)
 - Transverse diameter measurement
 - Long color with distal augmentation
 - Record time of reflux

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- LSV upper calf
 - Transverse diameter measurement
 - Long color with distal augmentation
 - Record time of reflux

Criteria for Venous insufficiency:

• **Competent valves:** 0 to < 0.5 sec

• **Incompetent valves:**

Mild 0.5 to < 1 sec

Moderate 1 to < 2 sec

Severe > 2 sec

Criteria for Incompetent Perforator Veins:

• Reverse flow, or flow from deep to superficial is abnormal