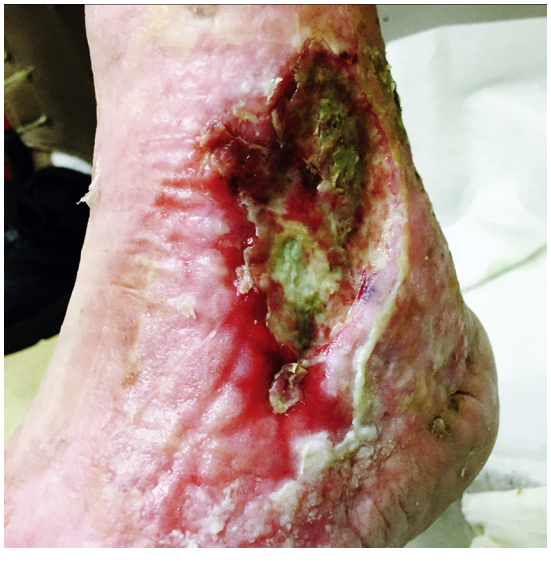
# Venous Insufficiency and Lower Extremity Ulcers

## CASE PRESENTATION

An 82-year-old male patient presented to his primary care office with a chronic lower extremity ulcer that had waxed and waned in size over the past 10 years (Figure 1). He had a history of left superficial femoral artery to popliteal bypass graft in early 2002 with revision of the graft, and reported vein graft stenosis in late 2002. His left lower extremity venous reflux exam showed valvular incompetence of the left midfemoral vein and incompetent varicosities from midthigh to ankle and no visible great saphenous vein. His chief complaint at the office visit was worsening of left lower extremity ulcer at the lateral malleolus over the previous few weeks. He had been receiving care at a surgery center for his wound for 4 years and wanted to get a second opinion. At his weekly dressing changes there was no pain, but he described moderate amounts of exudate, yellow in color. He had a history of hypertension, hyperlipidemia, esophageal reflux, peripheral vascular disease, and varicose veins of lower extremity with stasis ulcers. His medications included aspirin 81 mg/day, clopidogrel 75 mg/day, lisinopril 20 mg/day, famotidine 20 mg/day, and pravastatin 40 mg/day. He was a nonsmoker and a social drinker.

**Figure 1.** Left lower extremity ulcer (initial visit).



## PHYSICAL ASSESSMENT

Vital signs on the patient's visit to the clinic were: blood pressure 132/78 mm Hg; heart rate 82 beats/min; respiration 16 breaths/min; temperature 98.2°F; and saturation of peripheral oxygen 98% on room air. He was thin with a body mass index of 21,[1] but he was alert and oriented. Heart assessment revealed normal $S_1$ and $S_2$ without murmurs, rubs, or gallops. There was normal respiratory effort and breath sounds were equal and clear bilaterally without crackles or wheezing. The abdomen had no tenderness to palpation; there was no rebound tenderness or guarding. Extremities revealed no calf tenderness and were nontender to palpation, with the exception of the left lower leg at the ulcer site. Distal pulses were present and there was +1 edema in the left lower extremity. Left lower extremity varicosities were noted and 1 ulcer was noted on his lateral left ankle area that measured 1.5 cm × 1 cm. It had biofilm waxy in appearance and yellow exudate at the center of the ulcer.

IMAGE OF THE MONTH

Carla Moore Beckerle, DNP, APRN-BC

## DIAGNOSTICS

### Blood Work

Complete blood count with differential and complete metabolic panel was normal, with the exception of blood urea nitrogen 35 mmol/L, creatinine 1.32 mg/dL, and glomerular filtration rate 52 mL/min. Uric acid was normal with the microalbumin:creatinine ratio normal at 7.

## Diagnostic Testing

Duplex ultrasound was used for noninvasive evaluation of the lower extremity arterial system with B-mode imaging, color flow Doppler, and spectral analysis. Findings included a mild velocity increase of the left proximal anastomosis and outflow artery of the bypass graft and abnormal Doppler waveforms of the left inflow,

**Figure 2.** Left lower extremity venous reflex exam.

**Risk Factors:** Hypertension; Hyperlipdemia

**Surgical History:** Left SFA–pop a Bypass Graft (2/19/2002)
Left Revision of Bypass Graft (10/17/2002)
Right Carotid endarterectomy
Right Pop a stent (6/19/2012)
Right Balloon angioplasty TPT (6/20/2012)

**Reason for Study:**
Left Non healing foot/ankle ulcers

| Left | CFV | SFJx | MFV | POP | pGS | mGS AK | dGS AK | GS K | GS BK | GS MC | SS BK | SS MC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Compressibility | + | | + | + | | | | | | | + | + |
| Thrombosis | | | | | | | | | | | | |
| Spontaneity | + | | + | + | | | | | | | | |
| Phasicity | + | | + | + | | | | | | | | |
| Augmentation | + | | + | + | | | | | | | + | + |
| Competency | + | | Ø | + | | | | | | | | |

Legend
- Ablated
- + Normal
- - Reduced
- Ø Absent
- I Inconclusive
- A Acute
- A Chronic
- Not Applicable

Duplex Ultrasound is used to perform the non-invasive venous exam of the lower extremity veins using B-Mode, color flow and spectral Dopplar. Based on Duplex criteria, incompetence (Reflux) is determined by reversal of flow >0.5 sec., with the patient examined in an upright position.

**Findings:**

Normal compressibility of the deep veins in the left lower extremity. Marked reflux noted in the left mid femoral vein. Absent GSV.

**Impression:**

No evidence of deep vein thrombosis or venus obstruction in the left lower extremity. Valvular incompetence (chronic venous insufficiency) of the left mid femoral vein. Incompetent varicosities from mid thigh to ankle that lead to the ulcerated areas both medially and laterally. There is no visible GSV.