

David G. Armstrong D.P.M., PhD - Professor of Surgery and Associate Dean, Dr. William M. Scholl College of Podiatric Medicine at Rosalind Franklin University of Medicine and Science, Chicago, IL

A 42 year old African-American male presents to our clinic after stepping on a bottle cap in March 2007. The patient is a poorly controlled diabetic with serum glucose running between 250 and 350 mg/dL. His medications include oral hypoglycemics, injectable insulin and cholesterol lowering drugs.

Unfortunately, he developed an infection and underwent incision and drainage of deep space abscess with second partial metatarsal resection and digital amputation.

Prior to delayed closure and use of the DermaClose™ device, the patient underwent a series of wound care treatments; negative pressure wound VAC and application of Graft Jacket. After several months, the amputation site failed to close and a large, granulating defect remained. (Fig. 2)



Figure 2: chronic post-amputation defect



Figure 3: The wound must be surgically debrided of all non-viable tissue prior to application of the device. The device is applied and within 3 days the dorsal defect closed. Here, the anchors are tensioned in a shoe-lace fashion.

In order to promote final closure, the DermaClose™ tissue expanding device was applied. Preparation of the wound consists of surgical debridement of all non-viable tissue. The wound edges are undermined about 2 cm from the wound edge. (Fig. 3) During the tension phase, the patient remained in a CAM boot and underwent daily dressing changes. Final closure of the defect was accomplished within just a few days of application. (Fig. 4, 5)

David G. Armstrong D.P.M., PhD

Three weeks post DermaClose RC application



Figure 4: Closure of the chronic wound using the DermaClose™ device.



Figure 5: Plantar view of the closed wound. A separate DermaClose™ device was applied plantarly.

Patient was seen within 3-5 days for evaluation of the device and the tissue movement. Care should be noted that the anchors do not envelop or imprint into the skin.

Optimal results were obtained by strict off-loading of the foot during the tension phase of treatment, debridement with meticulous and frequent wound care. The patient responded favorably to mechanically induced delayed primary closure.

As one advances from the simple to the complex wound, the theoretical risk for complications increases. Therefore, specialist working in this area should always try to expand his or her armamentarium to assist in wound simplification and closure. Skin stretching devices are among some of these tools.