Platelet Concentrate May Speed Wound Healing

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WASHINGTON — Autologous platelet concentrate may be helpful in treating difficult-to-heal wounds resulting from Mohs surgery, Dr. Dafnis C. Carranza said at the annual meeting of the American Academy of Dermatology.

Developed in the 1970s, autologous platelet concentrate is a by-product of platelet-rich plasma sequestration containing three to five times the native concentration of platelets. The technique is approved for management of chronic venous stasis wounds and has been used off label for a variety of acute wounds, including those resulting from dental, orthopedic, and plastic surgery.

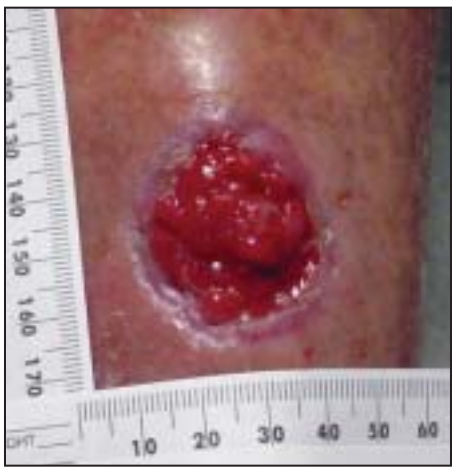
With Mohs surgery defects, Dr. Carranza and her associates at the University of California, Los Angeles, have seen an average 50% decrease in wound size after one application of autologous platelet concentrate and complete healing after two applications.

"For a biological dressing to be effective, it must be safe and nontoxic to tissue, readily available and inexpensive, accelerate healing, and minimize wound care. We believe an autologous platelet concentrate dressing meets these criteria," said Dr. Carranza, who said that she has "no relevant relationships with industry."

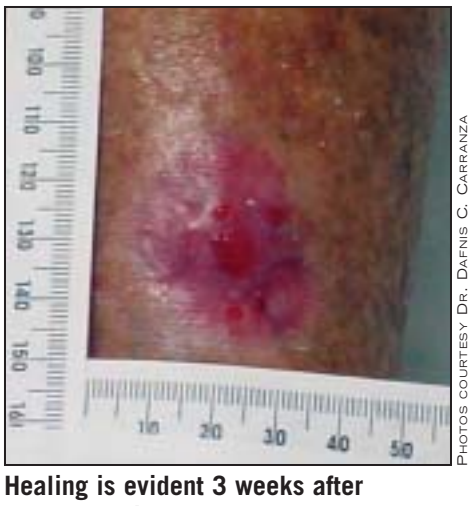
At least two companies, Harvest Technologies and Cytomedix, make autologous platelet concentrate kits. The process involves several steps: First, 20 mL of blood is collected into a syringe containing a citrate-based anticoagulant. The blood is then centrifuged into platelet-rich and platelet-poor plasma and the platelet-poor plasma is discarded, leaving about 3 mL of platelet-rich plasma (PRP).

Next, using a 20G dual-cannula applicator tip, the PRP is combined with thrombin in 10% calcium chloride solution to activate it. The resulting flexible-tissue graft is then contoured to the debrided wound bed. Promogran is then applied over the graft site, followed by Adaptic and XCell cellulose antimicrobial dressing.

The limb is wrapped with sterile gauze roll, secured with Coban, and left in place for 4 days. The patient is seen every 3-4 days for wound cleansing and dressing changes. If the wound is healing well, another PRP application is applied at 2 weeks.



This wound is shown before treatment with platelets.



PHOTOS COURTESY DR. DAFNIS C. CARRANZA

Healing is evident 3 weeks after treatment with platelets was begun.

The anecdotal experience of Dr. Carranza and her colleagues suggests that the technique may speed healing of granulating defects of the lower extremities following Mohs micrographic surgery, particularly when healing by secondary intention is unsuccessful.

In one case, an 84-year-old man with multiple comorbidities had undergone Mohs surgery for basal cell carcinoma on the left pretibial area. At 2 months, the defect had excessive granulation tissue and was not healing. Autologous platelets were applied and 1 week later the wound size had decreased by 50%. By 2 weeks it was reduced by 75%. A second application of platelets was given at that time, and by week 3 the wound was healed. ■