

Case Report: Use of Autologous Platelet Grafting in the Treatment of a Diabetic Ulceration and Chronic Surgical Wound

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N.W. , a 72 year old black male initially presented to the clinic on 10/30/2002, with two large, non-infected chronic wounds on the heel of the right foot, and the lateral aspect of the right heel. The patient was well controlled, with a recent blood sugar of 111g/dl, and appeared well nourished, and oriented.

History of Present Illness: The patient describes an episode of stepping on a small object when he went out to get his newspaper. He believes it was a small pebble or stone that was inside of his shoe. Because of his diabetic peripheral neuropathy he was unable to feel its presence, and consequently developed an ulcer on the plantar lateral aspect of his right heel. He describes this as happening approximately 90 days prior to his initial visit at our facility. He initially treated himself with hydrogen peroxide, but ended up in the hospital several weeks later with osteomyelitis of the right calcaneus, in addition to cellulitis. He remained hospitalized for 45 days, during which time he had a partial calcanectomy with extensive debridement to treat the osteomyelitis. The incision used to perform the calcanectomy also dehisced, and became a chronic wound in addition to the original ulceration. In addition to standard wound care protocol, he had 40 hyperbaric oxygen treatments, and VAC therapy.



Physical Examination: There were trace palpable dorsalis pedis, and posterior tibial pulses. Two large, mildly draining wounds were present. The plantar lateral heel ulceration measured 31mm x 9mm, with a depth of 5 mm. This wound was classified as a Wagner 3, and a University of Texas San Antonio Health Science Center stage B, grade 3. This wound had a granular wound base and was not infected. The second wound, on the lateral aspect of the right heel had dimensions of 50mm x 11mm, with a depth of 16mm. This wound was deep, with skin edges that were involuted, and exposed bone.

Treatment: The patient underwent 5 autologous platelet rich plasma tissue grafts using the Harvest Technologies SmartPRP® system. At each treatment, 20 cc's of the patients blood was obtained for processing prior to wound debridement, which allowed for the processing of approximately 3 cc's of platelet rich plasma (PRP). The PRP is known to have 4-6 times the level of the patient's growth factors. The wound beds, and margins were extensively debrided to assure removal of all necrotic tissue, and develop a freely bleeding surface. The PRP was then applied, covered with a non-adherent dressing, with a gauze outer layer. This patient required 5 autologous platelet grafts on: 10/30/2002, 11/11/2002, 11/26/2002, 12/17/2002, and 1/20/2003. The wound on the plantar aspect of the heel was completely epithelialized, and healed on 12/23/2002, therefore not requiring any application of the PRP on the last date.



Treatment Results:

Date:	10/30/2002 *	11/04/2002	11/11/2002 *	11/26/2002 *	12/17/2002 *	01/20/2003 *	02/03/2003
Wound 1 :	50mmx11 mmx 16mm	39mmx6m mx10mm	31mmx5m mx7mm	34mmx3m mx7mm	25mmx2m mx4mm	21mmx3m mx2mm	Epithelial- ized/ closed
Wound 2 :	31mmx9m mx5mm	23mmx6m mx2.5mm	15mmx3m mx2mm	9mmx4m mx1mm	Epithelial- ized/ closed	—	—

* APG with PRP treatment

Summary: Wound 1 required 5 treatments and was completely healed in 12 weeks, while Wound 2 was completely healed in approximately 6 weeks.

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