

Wound Healing on the Dorsal Hands: An Inpatient Comparison of Primary Closure, Purse-String Closure, and Secondary Intention

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Nonmelanoma skin cancers are common on the dorsal hands where reserve tissue is limited. We highlight the case of an elderly man who had 3 nonmelanoma skin cancers on the left hand that were treated on the same day and left similar wounds. The wounds were repaired by primary closure, secondary intention, and purse-string circumferential closure. All wounds healed with excellent and essentially equivalent cosmetic results. For small shallow wounds on the dorsal hands, dermatologic surgeons should have confidence that secondary intention healing likely will lead to acceptable cosmetic and functional results.

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Practice Gap

Many cutaneous surgery wounds can be closed primarily; however, in certain cases, other repair options might be appropriate and should be evaluated on a case-by-case basis with input from the patient. Defects on the dorsal aspect of the hands—where nonmelanoma skin cancer is common and reserve tissue is limited—often heal by secondary intention with good cosmetic and functional results. Patients often express a desire to reduce the time spent in the surgical suite and restrictions on postoperative activity, making secondary intention healing more appealing. An additional advantage is obviation of the need to remove additional tissue in the form of Burow triangles, which would lead to a longer wound. The major disadvantage of secondary intention healing is longer

time to wound maturity; we often minimize this disadvantage with purse-string closure to decrease the size of the wound defect, which can be done quickly and without removing additional tissue.

The Technique

An elderly man had 3 nonmelanoma skin cancers—all on the dorsal aspect of the left hand—that were treated on the same day, leaving 3 similar wound defects after Mohs micrographic surgery. The wound defects (distal to proximal) measured 12 mm, 12 mm, and 10 mm in diameter (Figure 1) and were repaired by primary closure, secondary intention, and purse-string circumferential closure, respectively. Purse-string closure¹ was performed with a 4-0 polyglactin 901 suture and left to heal without external sutures (Figure 2). Figure 3 shows the 3 types of repairs immediately following closure. All wounds healed with excellent and essentially equivalent cosmetic results, with excellent patient satisfaction at 6-month follow-up (Figure 4).

Practical Implications

Our case illustrates different modalities of wound repair during precisely the same time frame and essentially on the same location. Skin of the dorsal hand often is tight; depending on the size of the defect, large primary closure can be tedious to perform, can lead to increased wound

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FIGURE 1. Wounds prior to closure.



FIGURE 3. Wounds immediately following repair (distal to proximal: linear closure, secondary intention, purse-string closure).

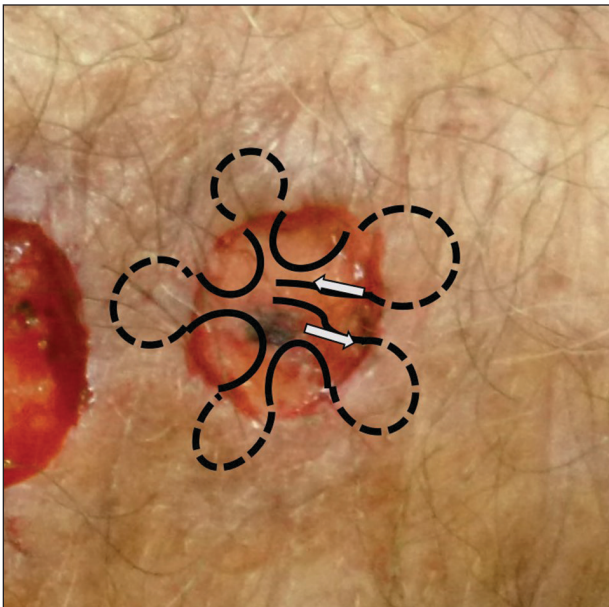


FIGURE 2. A dermal purse-string closure suture pathway was used for one of the wounds to reduce wound size.



FIGURE 4. At 6-month follow-up, there was essentially no difference in the appearance of the 3 wounds.

tension and risk of dehiscence, and can be uncomfortable for the patient during healing. However, primary closure typically will lead to faster healing.

Secondary intention healing and purse-string closure require less surgery and therefore cost less; these modalities yield similar cosmesis and satisfaction. In the appropriate context, secondary intention has been highlighted as a suitable alternative to primary closure²⁻⁴; in our experience (and that of others⁵), patient satisfaction is not diminished with healing by secondary intention. Purse-string closure also can minimize wound size and healing time.

For small shallow wounds on the dorsal hand, dermatologic surgeons should have confidence that secondary

intention healing, with or without wound reduction using purse-string repair, likely will lead to acceptable cosmetic and functional results. Of course, repair should be tailored to the circumstances and wishes of the individual patient.

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