

# Surgical Glue to Secure Small Split-Thickness Skin Grafts: A Cost-Effective and Time-Saving Technique

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Split-thickness skin grafts are typically sutured onto the recipient site. Suturing, even when accomplished with a running suture technique, is time-consuming. A faster and less expensive alternative to suturing is to use *N*-butyl-2-cyanoacrylate tissue adhesive as a substitute for suture.

Previously, the major limiting factor for using tissue adhesives in skin surgery was cost per application. However, *N*-butyl-2-cyanoacrylate, now sold under the brand name GluSeal (GluStitch Inc., Delta, BC, Canada), costs as little as \$2.00 per application.

## Technique

The split-thickness graft is placed onto the recipient site. Then, it is precisely trimmed to fit the defect. Next, the adhesive is gently applied to the entire perimeter (Figure 1). The adhesive will begin to set in as little as 15 seconds and will be fully set in 60 seconds. A bolster dressing may then be placed over the graft. We prefer Xeroform secured with suture. The adhesive sloughs off over the next week by the time the bolster is removed (Figure 2).

GluSeal adhesive is supplied either as a sterile single-use applicator system or in a multiuse 5-mL bottle with nonsterile applicators. We have used

both systems without a difference in infection rates. Therefore, considering the significant cost savings of the multiuse system, we now use the multiuse bottle exclusively.

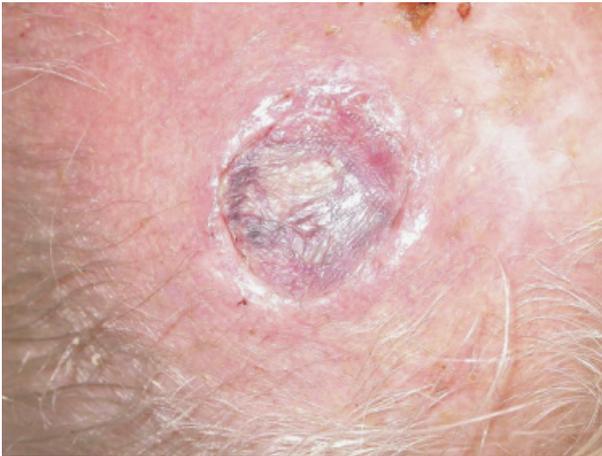
The multiuse bottle comes with a sterilizable plastic tray with multiple wells into which the drops of adhesive are placed. A single-use, nonsterile applicator takes up and applies the glue to the graft. For small grafts of 1 to 2 cm in diameter, 2 to 3 drops of glue is all that is necessary. There are approximately 50 to 60 drops of glue/5 mL, which places the cost at \$2 to \$3 per use.



**Figure 1.** Split-thickness skin graft being glued to crown of scalp.

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**Figure 2.** One week later.

### Discussion

The use of *N*-butyl-2-cyanoacrylate has been described for a variety of surgical procedures including blepharoplasty,<sup>1</sup> hair transplantation,<sup>2</sup> and lacrimal punctum closure.<sup>3</sup> The combined use of *N*-butyl-2-cyanoacrylate and sutures for full-thickness skin grafts and the unaccompanied use of *N*-butyl-2-cyanoacrylate for split-thickness skin grafts on severely fragile skin have also been described.<sup>4,5</sup>

Toxicity or allergy to *N*-butyl-2-cyanoacrylate is rare, especially compared to previously developed cyanoacrylates such as methyl-2-cyanoacrylate and isobutyl-2-cyanoacrylate.<sup>1,6</sup> Further, cyanoacrylate adhesives have been shown to inhibit bacterial growth and prevent Gram-positive bacterial wound infections.<sup>7</sup>

In summary, *N*-butyl-2-cyanoacrylate has a number of advantages when used as a substitute for suture in the securing of split-thickness skin grafts. The risk of infection, even with the nonsterile system, appears to be no different than with suture. The risk of allergic reactions is quite rare. Even though glue is not as secure as suture, we have not experienced a wound dehiscence with glue. The material is less expensive than suture material. More importantly, the speed of application when compared to suture adds immeasurably to the cost-effectiveness of its use.

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### COMMENTARY

"I would have written a shorter letter but I did not have the time." Pascal succinctness and clarity are a combination rarely found in medical writing. I find it most often in this "How I Do It" section of the journal. I, and many of our time-starved readers, turn here first because we are so frequently rewarded: either we find a solution to a problem ("That's simple; I should have thought of that") or we are pleasantly and smugly vindicated, an expert in our field had the good sense to do it our way. ("Everyone knows that.")

“Knowing,” as it turns out, is a decidedly more complex task than accumulating facts. In our daily struggle to treat patients we often need the many quantifiable facts of a molecular geneticist grafted into the nuanced tacit knowledge found in a skilled luthier’s hands. This disparate juxtaposition is no oddity but recognizes medical practice for what it is: an exceptionally complex “learning and knowing” proposition—a sophisticated epistemologic event.

“Pearl” or “How I Do It” articles, like this current article concerning an unusual use of surgical glue, have in recent years come under attack. Thought to be less “scientific,” these deceptively simple and delightfully short contributions have been eliminated from many of our journals while paradoxically remaining wildly popular among the general readership. While the journal’s first task is to publish the very best of our field’s science, the monthly effort to demonstrate how one expert surgeon solved a problem represents the journal’s attempt to communicate practical multidimensional knowledge, an acknowledgment that complex knowing is at once both quantifiable and tacit.

Writing “Pearl” articles, as Pascal noted, is not easy. Our readers demand good photos and readable sentences. Not content with images generally “about” the subject, the best articles have visuals that actually show a “first timer” how to proceed and what it should look like. The prose must be sparse and organized, deliciously free of disclaimers and jargon. Some of our readers are pure visual learners while others learn from pictures only after a clear written matrix has been provided: most of us are somewhere in the middle. A great pearl services both groups in less than two pages.

The current pearl is a modest effort, a simple idea presented clearly and well that solves a problem. I found myself incredulous that it had not been reported before but could find no evidence. But isn’t this just the point? We have an extraordinary group of talented surgeons in our readership—do not assume that you have nothing to offer your colleagues. Look critically at the way you do things, something you have modified or created that better solves a problem and share it.

I look forward to seeing your work.

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