Use of Biobrane Glove Finger Sleeves on Nonintended Burn Wounds of the Hand—A Cost-Saving Method

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The burns center in the Singapore General Hospital provides an armamentarium of wound dressings, and Biobrane is one of the primary choices, as indicated in our recently initiated Burns Protocol (last updated in April 2014). Biobrane dressing is used for early wound closure for partial thickness to mid-dermal burns, routinely before 48 hours after the initial episode of injury. It is a bilaminate membrane composing of a thin semipermeable silicone membrane and a layer of nylon fabric mesh coated with porcine type 1 collagen. It encompasses the ideal properties of a dressing such as apposite wound adhesion¹ and permits drainage of exudates due to its porosity.²

For intrinsic structures such as the hands, we used Biobrane gloves (by Smith & Nephew, London, United Kingdom) for greater and more accurate wound coverage. By utilizing the glove instead of sheets of Biobrane dressings, we avoid bulky individual finger dressings, allowing increased hand function and range of motion.³ Similarly, Biobrane gloves provide a compact seal that contours well between the concavities of finger webs.

In this article, we describe a unique way to apply Biobrane gloves for injuries to bilateral hands involving six fingers. Our patient was a 35-year-old man who sustained flash fire burns to his bilateral lower limbs and hands, with his wounds mainly on his lower limbs. He had a total body surface area (TBSA) of 25% partial-thickness burns while burning incense papers for his ancestors (a cultural tradition commonly practiced among the local Chinese).

He was admitted to the Singapore General Hospital in April 2015. Burns on his hands were predominantly on the right side, located mainly on the dorsal areas of his index, third, and ring fingers and over the palmar surface. His left

hand sustained burns of a lesser extent, over the third, ring, and little fingers. The extent of his burns on both the hands

Fig. 1 (A) Palmar view of left hand postsurgery. (B) Palmar view of right hand postsurgery.

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was partial thickness to mid-dermal. We debrided his wounds and used a Biobrane glove for the dressing (► Figs. 1 and 2).

1. The right-handed Biobrane glove was fitted onto the third and ring fingers of the right hand, covering the palmar and dorsal surfaces of the right hand.
2. The sleeves of the thumb, index, and little fingers of the glove were cut as minimal burn injuries were sustained at these areas.
3. A rectangular strip of dressing was also cut around the wrist areas of the glove.
4. This strip of dressing was subsequently used to dress the right index finger, and Hypafix tape was used to secure the dressing to fit the contours of the finger.
5. The sleeves of the Biobrane glove for the thumb, index, and little fingers for the right hand were used to dress the middle, ring, and little fingers of the left hand, respectively. They were fitted by pulling the seams of each sleeve downward. Hypafix tape was used to secure the dressing.

Fig. 2 (A) Dorsal view of left hand postsurgery after debridement, with Biobrane glove dressing over the middle, ring, and little fingers with Hypafix tape. Note that dorsal area of hand is not covered with Biobrane glove dressing. (B) Palmar view of left hand postsurgery. Dorsal view of right hand postsurgery after debridement, with Biobrane glove dressing over the index, middle, and ring fingers with Hypafix tape. Sleeves of thumb and little finger removed.

Though the finger sleeves were fitted on different fingers on the left hand (as intended by the manufacturer), the innate tight-fitting, compact, and supple characteristics of the dressing permitted easy contouring. No further dressings were required, and the Biobrane was removed easily after 1 week after application showing complete healing.

This case describes an improvisation using a single Biobrane glove for six fingers. The finger sleeves of a Biobrane glove can be fitted on different fingers without any untoward outcomes. It offers a pragmatic and economical alternative for partial-thickness burns of bilateral hands. While this technique should be performed on further similar cases to sanction its efficacy and potential cost savings, we write in with the intention to inform other institutions of this innovative method of maximization usage of materials.

References

- 1 Pruitt BA Jr, Levine NS. Characteristics and uses of biologic dressings and skin substitutes. *Arch Surg* 1984;119(3):312–322
- 2 Yang JY, Tsai YC, Noordhoff MS. Clinical comparison of commercially available Biobrane preparations. *Burns* 1989;15(3):197–203
- 3 Kok K, Georgeu GA, Wilson VY. The Acticoat glove—an effective dressing for the completely burnt hand: how we do it. *Burns* 2006;32(4):487. Doi: 10.1016/j.burns.2005.11.013