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**Letter to the Editor**

# Two Methods with Less Donor Site Complications of Epidermal Cellular Grafting in Cell Therapy of Vitiligo

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## Dear Editor-in-Chief

Vitiligo is a skin disorder characterized by white macules with a distinct border. It affects 1% to 2% of total population. In vitiligo, melanocytes are partially or completely destroyed, first just in the epidermis, but subsequently even in the hair follicle, which serves as a reservoir for melanocytes during repigmentation (1). As a result, to treat these patients, melanocytes in vitiligo patients should be stimulated via medical and surgical methods. Some individuals refuse treatment with medical procedures due to its side effects and prefer the surgical way.

Surgical treatments for vitiligo are usually considered in patients with stable disease. Various authors have characterized stability as a time ranging from 6 months to 2 years during which existing macules should not have expanded, no new macules should have developed, and no koebnerization should have occurred (2). Various surgical techniques that are tissue-grafting procedures, such as mini punch grafting; have been used for treatment of this disease (3). A significant problem with all these procedures, is donor site textural change and scarring. Such cosmetic issues can lead to serious psychological problems.

Therefore, we decided to give a brief description of the two-tissue biopsy procedures required for cell transplantation, which should be considered more by experts for less occurrence of biopsy associated scaring and skin texture change.

The following procedures were conducted on two vitiligo patients with ethical code of IRCT20080901001159N30 and written consent was obtained from patients.

### *Shave biopsy*

In biopsy procedures, shaving the biopsy is the most widely used method due to cosmetic issues, speed of execution, ease of wound care and its cheapness (4). This procedure removes a flat, thin specimen containing the epidermis and upper dermis (less than 1 mm). As a result of removing only a thin layer of dermis, less scarring appears in this method.

To perform this procedure, the lateral side of the gluteal skin is used as a donor site. The region is initially cleansed by povidone-iodine and then by

normal saline. Two percent lidocaine is injected into the sub cutis layer (Fig. 1A). A superficial tissue specimen is taken by a sterile surgical blade, and then, donor site is covered by Vaseline gauze (Fig. 1B). The specimen is transferred to a class B cleanroom in 10 cc of Phosphate-Buffered Saline (PBS) solution, and then it is immersed in a 0.25% trypsin solution. After 12 h, epidermis and dermis layers are separated using surgical forceps. A cellular suspension is derived from the epidermis layer for grafting. Up to 24 h after the biopsy, the donor site dressing is changed every 8 h. Each time the area is covered with mupirocin topical cream and redressed with Vaseline gauze.

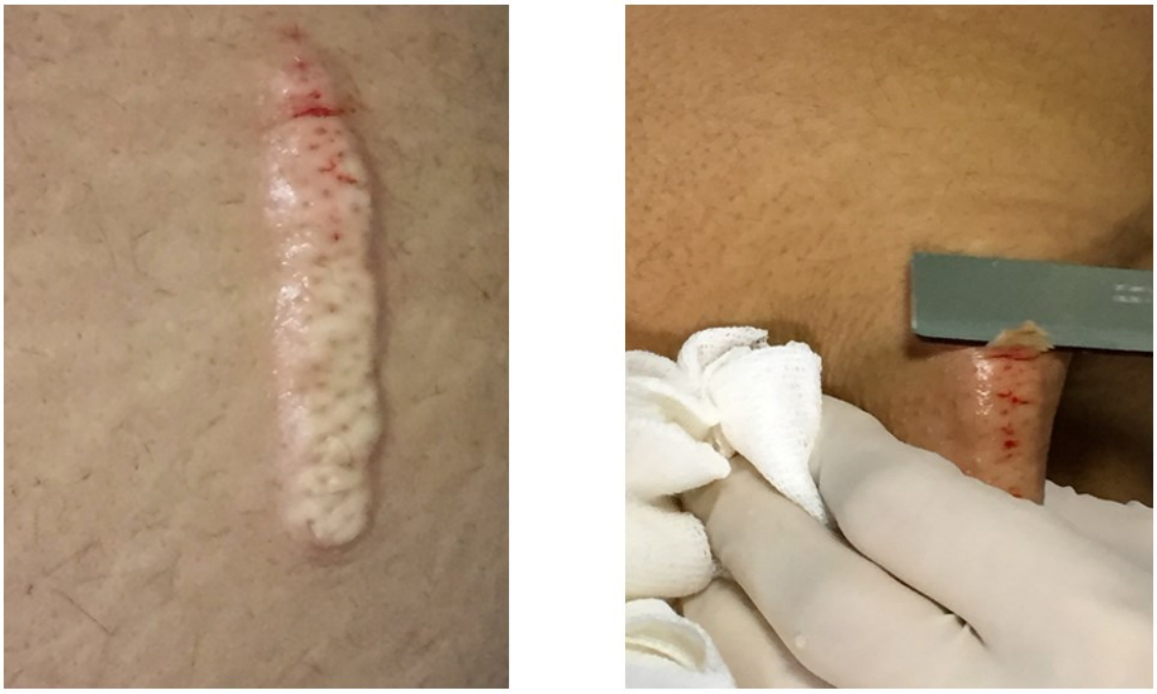

**Fig. 1:** Shave biopsy method. A: 2% Lidocaine is injected in donor site, B: Shave biopsy is done using a surgical blade

### *Suction blister grafting*

The gluteal region is chosen as the donor site in a similar way. The site is prepped with a povidone-iodine solution followed by normal saline. A number of blisters are induced implementing a device designed by Fanavaran Sepid Jamegan Company (Fig. 2A). The epidermal layer is removed using forceps and scissors is placed in 10 cc of PBS solution (Fig. 2B). This method does not require anesthesia and the patient experiences less pain than shave biopsy method. The donor site is dressed in Vaseline gauze, and the samples are moved to a class B cleanroom. The obtained epidermis is used for the preparation of a cellular suspension to be used in grafting. Similarly, 24 h after the biopsy, donor site dressing is removed and covered with mupirocin ointment, then re-dressed by vaseline gauze every 8 h.

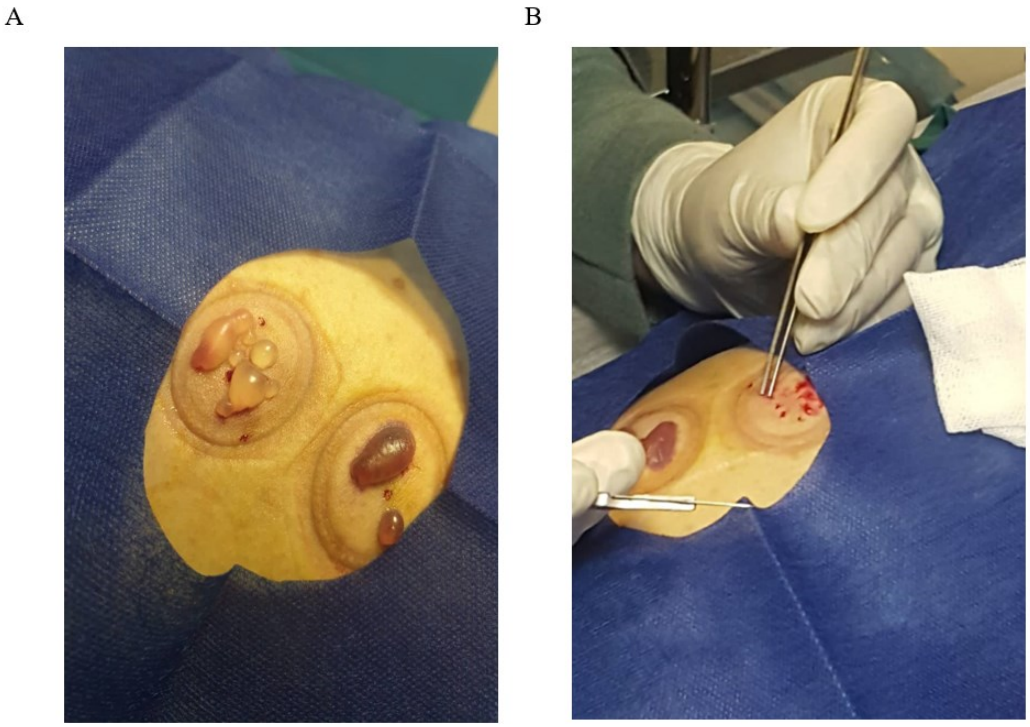


**Fig. 2:** Suction blister grafting method. A: Blister induction by using Fanavaran Sepid Jamegan Company device. B: Blister epidermal layer removal

Some studies have demonstrated more severe scarring in the shave biopsy technique (5). This scar can be related to damage to the dermis layer during a biopsy; in contrast, this damage is usually avoided in blister grafting due to thinner layer of skin that is excised and also, less scarring occurs in this procedures. In a study, suction blister grafting was implemented, resulting in better donor site cosmetics (6). However, suction blister may be associated with complications such as ecchymosis in donor site, but ecchymosis disappears in a much shorter time (mostly 2-3weeks) than scarring which may be lifelong. In addition to being less invasive and less scarring as well as having a lower risk of bleeding, suction blister can prevent further psychological burden related to stigma associated with biopsy in patients caused by more invasive methods. Another benefit of this method was direct accessibility to the epidermal layer. No need for enzymes for dermis and epidermis separation due to separation of the dermis and epidermis layers following the induction of blisters can accelerate the transplantation process and reduce costs.

Although more studies are needed for finding better ways to reduce donor site scarring with more definitive results, we propose using methods like suction blister and shave biopsy for minor invasion, simpler cell extraction, higher patient satisfaction, and fewer future complications in vitiligo patients and for other skin disorders other than vitiligo.

## Conflict of interest

The authors declare that there is no conflict of interest.

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