

Adaptation of Plantar Skin to Palmar Skin

Almusaed M. Salma¹, Dr. Moly Josephjoy²

¹Graduate, Faculty of Medicine, University of Hail, Hail, Kingdom of Saudi Arabia

²Consultant plastic surgeon, King Khalid Hospital, Hail, Saudi Arabia

Abstract: ***Objective:** To study the behavior of plantar skin on the palm. **Method:** Isolated cases of post burn and post traumatic deformities of hand requiring skin grafting, evaluated and behavior of transplanted plantar skin studied. **Results:** Three cases were in the age group 20- 25 years and rest in the age group of 2 to 6 years. Among the 20- 25 year group two were females, and one male, was post traumatic contracture. The grafts appeared pink and well vascularized on the first dressing. Later on color starts changing to brown, to black. By 3rd to 4th dressing, black keratin layer completely separates and easily removed. **Conclusion:** Plantar skin is found to be the most suitable replacement for palmar skin and it adapts fully well in three to six week time.*

Keywords: full thickness skin graft, split thickness skin graft.

1. Introduction

Deformities of the hand due to loss of palmar skin either by trauma or burns are not an uncommon occurrence. Wounds heal with scar contracture, which is defined as post burn or post traumatic contracture. In spite of early splinting, adequate therapy and vigilant treatment, post burn deformities commonly develop. A retrospective study of ten isolated hand deformities, where shortage of palmar skin was replaced with plantar skin, was conducted. Objective of the study was to find how the plantar skin behaved over the palmar area.

2. Methods

Nine cases of isolated post burn contracture release, and one case of post traumatic contracture release, done by one surgeon was Evaluated. In all cases full thickness instep skin were used to fill the shortage. Full thickness plantar skin was sutured to the edges of the defect. The graft was covered with layered dressing of paraffin gauze, over which wet cotton and simple gauze, were applied to cover the grafted area. In some cases especially when PIP joint was involved, 1.2 mm K wire inserted to prevent movement. Volar slab applied in all cases. Patients were sent home on 2nd or 3rd day on oral antibiotics. First dressing done on 7th to 8th day and Thereafter on alternate days for 2 to 3 weeks.

K wires were removed on 2nd or 3rd dressing. Volar slab continued to 5 the dressing day and

Thereafter light weight removable slab applied at night time. Patients were asked to massage

The area with beta-methasone ointment for 2 to 3 times per day and to apply moisturizer. Patients were followed up for 3 months.

3. Results

Three cases were in the age group 20- 25 years and rest in the age group of 2 to 6 years. Among the 20- 25 year group two were females, and one male, was post traumatic

contracture. The grafts appeared pink and well vascularized on the first dressing. Later on color starts changing to brown, to black. By 3rd to 4th dressing, black keratin layer completely separates and easily removed. Pink, tender, new epithelium is exposed. By 6 weeks grafted skin appears almost like the rest of the palmar skin, but slightly more pinkish. In all cases were width of the grafted skin is less than 2 cm, moisture of the epithelium was satisfactory even when the patient fails to apply moisturizer. This patient never notices sensory loss. When width is greater than 2 cm, dryness persists even after 3 months and patient feels diminished sensation, especially fine sensation.

4. Conclusion

Plantar and palmar skins are of unique characteristics unlike the skin of the rest of the area. It is hairless with fewer pigmented cells. It is thicker and considerably more durable. Both possess a well defined stratum lucidum and much thicker stratum corneum. The dermis of the plantar skin has less elastic and more compact connective tissue. Because of many similarities, it takes less time for the grafted area to adapt and to provide ideal color and texture match. Donor site is inconspicuous

References

- [1] Sole skin as donor site to replace palmar skin .LeWORTHY WG, Plastic Reconstructive surgery 1963 Jul; 32:30-8
- [2] Medium thickness plantar skin grafts for the management of digital and palmar flex ion contractures. Bunyan AR, Mathur BS Burns 2000 Sep; 26(6):575-80
- [3] Full-thickness sole skin graft for resurfacing skin defects over palmar areas. Hao ZR (article in Chinese)Zhonghua Wai Ke Za Zhi 1982, Jun 20(6):323-4
- [4] Algorithm for primary full thickness skin grafting in pediatric hand burns. Park Y S, Lee JW, Huh GY, and Arch PlastSurg.2012 Sep 39(5):483-8: doi:10.5999/pas.2012.39.5.483. Epub 2012 Sep 12
- [5] Full-Thickness sole-skin grafts for resurfacing the hand: John E Micks and James N Wilson J Bone Joint Surg Am 1967 Sep; 49(6):1128-34

- [6] Repair of flexor contracture of hand .Zhongguo Xiu Fu Chong Jian Wai Ke Za Zhi 2006 Jan;20(1):33-6 Article in Chinese
- [7] Free palmar skin grafts for resurfacing digital defects.Gregory R Mack, Commander, (MC) Robert J Neviasser, James N Wilson, The journal of hand surgery, Nov.1980