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Hair Transplantation Using Follicular Units: Current Methods

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Abstract

Hair loss affects both men and women and, for many people, profoundly impacts psychosocial function and psychological well-being. Few other physical signs of aging demonstrate such direct correlation with self-esteem and self-worth. Hair has long been associated with youth, vitality and health; and our individual hair styles frame our faces and communicate information about our unique personalities.

Keywords: Androgenetic alopecia • Follicular unit excision • Follicular unit • Hair follicle • Hair grafting • Hair transplantation • Scarring alopecia • Strip harvesting

Introduction

Hair loss can be a debilitating condition, especially for individuals who already have chronic underlying medical conditions that complicate the treatment of hair loss. Seven percent of patients in hair-loss clinics have scarring alopecia. This article addresses the challenges pose by scarring alopecia in hair-loss treatment and the evidence based practices that exist for hair transplantation in scarring alopecia [1].

Description

Modern hair restoration surgery is based on a technique known as follicular unit transplantation, in which follicular units are the exclusive structures used as hair grafts. In Part 1 of this 2-part review, we describe how the techniques employed in hair transplantation have evolved into their present forms. Anatomic concepts of specific relevance for dermatologists are discussed, including the distribution and ex vivo morphology of scalp follicular units. Male androgenetic alopecia and female pattern hair loss are the most common reasons for hair loss consultations with dermatologists and will be the primary focus of this review. However, because not all hair disorders are suitable for transplantation, this review will also describe which scalp conditions are amenable to surgery and which are not. Guidelines are provided to help dermatologists better define good and bad candidates for hair transplantation. Other conditions for which hair transplantation surgery is indicated are reviewed [2].

Treatment of scarring hair loss is beset with many problems5 largely because removing and suturing of scar tissue recreates wound tension, generating comparable balding in that region which may require harvesting and transplanting a large skin flap. Also, a tissue expander is needed in cases of extensive scarring hair loss. These procedures often require general anesthesia and ugly tissue distortion generated due to tissue expansion may cause emotional distress and may even reproduce a large surgical scar. In contrast, hair transplant surgery can be performed on an outpatient basis under local anesthesia. Another advantage is that direction of hairs is determined by patients themselves.

Conventionally, hair transplant surgery is considered useful in the treatment of male-pattern hair loss. In men, hair collected from the temporal and occipital regions which is not exposed to dihydrotestosterone is transferred to the recipient site. Recently, hair transplant surgery has been performed by using the FUT or FUE method [3]. The former sometimes results in formation of a large surgical scar in the occipital region due to harvesting and suturing of an island-shaped skin graft. Furthermore, harvested skin needs to be divided by follicular unit. In contrast, FUE involves the use of a 0.85–1.0 mm punch to harvest several follicular units from the occipital region. Punctate scars are generated from punching, but these can be concealed if the hair is long enough.

The utility of hair transplant surgery in surgical scars has been shown, but compared with normal skin, engraftment is less efficient due to poor blood flow in the graft bed. A recent study suggests that when treating scarring hair loss, it is important to avoid transplanting more than 30 grafts/cm^2 in consideration of problems associated with blood flow. Similarly, in the present case, we performed a preliminary hair transplant with 100 grafts not exceeding 30 grafts/cm^2 in the bald split-thickness skin graft site because of the uncertain blood flow conditions in the area [4,5]. We first verified complete engraftment and thus sufficient blood flow in the graft bed and only then did we subsequently complete the hair transplant in the remaining parts with successful outcome. Therefore, the favorable engraftment observed in this case is attributable to the avoidance of dense packing, that is, a density of >30 grafts/cm^2 and presumably to rich blood supply from the temporal fascia. Our patient is satisfied with the outcome, but if a patient desires to have thick hair, the first hair transplant should be performed with <30 grafts/cm^2 and a second hair transplant should be performed more than one year after the first transplant to allow sufficient time for scar tissue and blood vessels to heal from surgical damage. Previous studies have shown the usefulness of hair transplant surgery at the site of full-thickness skin graft or split-thickness skin graft for a free microvascular latissimus dorsi flap. In contrast, the present case was the first in which FUE hair transplant surgery at the site of split-thickness skin graft was performed with satisfactory outcomes at both donor and recipient sites.

Conclusion

Our study shows that the relatively simple procedure of grafting using single follicular unit from the patient's scalp was an efficacious therapy chronic non-healing wound of RDEB and may provide a new treatment for non-healing wounds of RDEB. However, our result is based on a single case.

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None.

Conflict of Interest

The author shows no conflict of interest towards this manuscript.

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