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COLUMNS

38 President's Message
39 Co-Editors' Messages
41 Notes from the Editor Emeritus
52 Report from the Chair of the Website Committee
56 Letters to the Editors
57 Pearls of Wisdom
59 Surgeon of the Month
60 Pioneer of the Month
64 From the Literature
65 Message from the 2006 Program Chair
68 Surgical Assistants Editor's Message
68 Message from the Surgical Assistants Program Chair
70 Classified Ads

FEATURE ARTICLES

42 *Correction on* Scalp Elasticity Measurement
47 The Business of Hair Restoration: Can New Doctors Penetrate It?
49 A New Donor Harvesting Method: The "Free-hand Bridge Technique" to Produce Double Strips
53 Out in the Cold: Advances in Holding Solutions
55 Auto-cloning of Beard Hair
63 Update on OPERATION RESTORE
66 Call for Applications: 2006 ISHRS Research Grants
67 Call for Nominations: 2006 Distinguished Assistant Award
67 Call for Applications: 2006 Golden & Platinum Follicle Awards
69 How to Properly Set and Use a Digital Camera for Patient Photos

Long-term Evaluation of Hair Transplantation into Various Recipient Sites

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In 1959, Dr. Norman Orentreich suggested the term "donor dominance" in androgenetic alopecia to convey that the hair in the grafts continued to grow in the area of alopecia (the recipient area) and that it maintained the same texture and color and, apparently, grew at the same rate and with the same period of anagen that governed the nature of the hair in the donor site.[1] With this concept in mind, there have been many developments in hair restoration surgery, and more recently, hair transplantation has been employed not only for the treatment of androgenetic alopecia, but also for other hairless areas such as the eyebrows and the pubic area.[2] It is believed that the hairs in the latter sites will maintain their growth characteristics as in transplantation for androgenetic alopecia, but there have been few studies done to confirm this assumption. I therefore carried out a series of studies designed to evaluate whether hairs would keep their original growth characteristics after transplantation to a new anatomical site, such as the lower leg, nape of the neck, palm, hand dorsum, lower back, and wrist.

The short-term evaluations regarding these experiments were presented at the ISHRS 2003 (New York) Annual Scientific Meeting, and now let me report the long-term evaluations in addition to short-term results.

Methods and Results

Study I: Hair Transplantation to the Lower Leg

Methods

In March of 1998, an elliptical strip (1 x 2cm) was harvested from the occipital scalp and 93 hairs were transplanted to the medial aspect of the author's lower leg using the KNU implanter. At 6 months, 3 years, and 8 years after transplantation, Iris scissors were used to cut 20 hairs among surviving hairs on the lower leg (recipient) as well as 150–200 occipital scalp hairs as close to the skin surface as possible. After 4 weeks, the same hairs were cut again, in a similar fashion, from both the recipient area (lower leg) and the donor site (occipital scalp). Twenty hair specimens were collected from each group and attached to a glass slide using double-sided and one-sided cellophane adhesive tape. The length and diameter of the hairs (in millimeters) were measured by means of a microscope equipped with an ocular micrometer.[3] At 3 years, the number of surviving hairs in the recipient area was counted.

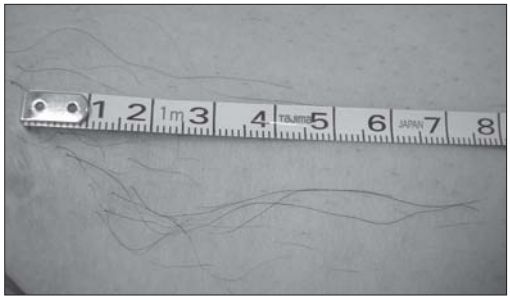

Figure 1. Transplanted hairs on the lower leg. The longest hair was measured at 12cm during the follow-up examination and 8cm at 8 years post surgery.

Results

The survival rate was 60.2% at 3 years after the transplantation. The surviving hairs on the lower leg showed a significantly lower growth rate, but the same diameter as the occipital hairs. However, the results were similar at 6 months, and 3 and 8 years post surgery (Table 1). The longest hair was measured at 12cm at 3 years and at 8cm at 8 years after transplantation (Figure 1).

continued on page 43