



CASE REPORT

Chest hair micrografts display extended growth in scalp tissue: a case report

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KEYWORDS

Micrograft; Follicle;
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Summary Conventional follicle harvesting techniques for hair transplantation are limited by the available scalp donor hair. The development of an innovative technique of microsurgical single follicular unit extraction has made it possible to exploit body hair grafts for scalp transplantation. This case study reports on 18 months of follow-up on a patient with extensive scalp scarring who underwent a transplantation procedure using donor chest hair.

The photographically documented results show a change in the length of the chest hair measuring an average of 4 cm at transplant to 15 cm by 18 months post-transplant. The transplanted chest grafts provided an excellent cosmetic result for hair replacement.

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Case report

A hirsute 65-year-old man presented with severe scalp scarring and hair-loss resulting from hair transplantation complications 20 years ago (Fig. 1).

On assessment it was feasible to harvest 500 grafts from the patient's temples and nape to recreate 1 cm of the frontal hairline. Obtaining grafts from the patient's chest hair provided an alternative to camouflage the remaining area. This was undertaken over four sessions commencing in December 2000 for 12 months. In all, the patient

received 1500 body hair grafts and 500 temple and nape grafts.

Method

The method of microsurgical single follicular unit extraction is a unique procedure for the removal of individual follicular grafts of hair for transplantation. It was developed to address 2-fold issues that can occur with common hair transplantation techniques:

Donor site scarring and graft wastage from 'strip excision' for graft removal; and
Unnatural tufting that occurs when more than one follicle is transplanted into one site on the scalp.

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Figure 1 The patient in forward view: note the extensive scar tissue as a result of a previous transplant and post-operative infection following insertion of artificial hair fibres.

Permanent scalp donor hair may be used, as well as temple, nape, chest, abdomen and back hair and each individual follicular graft is removed intact without damage to the neighbouring hair. The authors have 7 years experience in developing the technique to transplant body hair grafts into scalp scar tissue (Fig. 2).

Micro follicular unit transplantation

Five hundred follicular units derived from the scalp temple and nape were inserted into the dense atrophic scar under an operating microscope through the bevel of a 21 gauge hypodermic needle to create the frontal hairline. The 1500 chest follicular units were transplanted into the remaining area through the patient's crown. No sutures are



Figure 2 Patients chest donor site. No suturing is required and intelligent harvesting of donor hair leaves a good cosmetic result.

required and the transplant site was left uncovered to heal.

Results

Average graft survival in the recipient site was overall >90% achieving an excellent cosmetic result. The chest hairs were measured to be between 3.5 and 5 cm prior to transplant compared with 15 cm long at 18 months post transplantation. Obvious growth of the transplanted follicular units was evident by 6 months and the transplanted chest hair was indistinguishable to the naked eye from this patient's normal wavy scalp hair (Fig. 3).

Discussion

The biology of the hair follicle is known to be highly complex but despite significant recent advances, the mechanism that governs the development



Figure 3 (A) The patients transplanted hair measured at 18 months is brushed up to illustrate growth. (B) Patient from the top front showing an excellent cosmetic result.

characteristics and lifecycle of hair at different anatomical sites has not been fully elucidated.¹ The length of a hair is in part a function of anagen or growth phase which on the scalp is up to 6 years. In this case report, the continuous growth of the grafts indicates that the anagen phase has been prolonged and that this may be due to biological factors inherent to the cutaneous tissues at the recipient site. Supporting our observations is a limited study by Hwang et al. 2002² who concluded that the growth rate and anagen in transplanted grafts were influenced by the recipient site.

Our observation does not contradict the original thinking of 'donor dominance' that has been the rationale underpinning hair transplantation to date. It is an observation that illustrates the highly complex and interactive biology of hair and skin and we have yet to discover the facts.

Conclusion

Two recent comprehensive review papers on hair transplant repair strategies are a lamentable testament to the common problems that have occurred with conventional hair transplant procedures.^{3,4} This microsurgical method avoids the

pitfalls of conventional techniques by harvesting micro follicular units of donor hair without damaging adjacent follicles or causing visible scarring from the scalp, nape, temple, chest, back or abdomen. This increases the availability of donor hair and that is especially pertinent when undertaking repair of previous transplantation where the donor site is depleted.

The technique has been used successfully to transplant chest hair into scarred scalp that has then been observed to take on the growth characteristics of the scalp hair at the recipient site.

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