

# Case Report: Reconstruction of the Temporal Hairline Following Tumor Removal

Henrique N. Radwanski, MD<sup>1</sup>  
Carlos Alberto Jaimovich, MD<sup>2</sup>

- 1] Assistant professor of the Post-Graduate Course in Plastic Surgery of the Pontifícia Universidade Católica do Rio de Janeiro and the Instituto de Pós-Graduação Médica Carlos Chagas. Member of the Brazilian Society of Plastic Surgery.
- 2] Assistant professor of the Post-Graduate Course in Plastic Surgery of the Pontifícia Universidade Católica do Rio de Janeiro and the Instituto de Pós-Graduação Médica Carlos Chagas. Member of the Brazilian Society of Plastic Surgery. Member of the Brazilian Military Academy of Medicine.

## Address for Correspondence:

Henrique N. Radwanski, MD

R. Assis Bueno, 39  
22280-080 – Rio de Janeiro – RJ  
Brazil

Phone: (55 21) 2295-9001  
e-mail: info@pilos.com.br

**Keywords:** Hair transplantation; alopecia; reconstruction of hairline.

## ABSTRACT

*The authors present a clinical case of sideburn reconstruction following the removal of a skin tumor. Resection of the tumor resulted in a large, superficial surgical wound. A full-thickness glabrous skin graft was placed over the temporal region, with a partial amputation of the sideburn. Two sessions of hair transplantation, using follicular units, were performed, transplanting hair grafts to the skin graft, thus reconstructing a temporal hairline with the same characteristics as the opposite sideburn. Hair transplantation remains an interesting and relatively simple method to reconstruct atypical cases of alopecia.*

## CASE REPORT

A 68 year-old woman (N.L.V.) presented to the second author (CAJ) in May 2000 with a large skin tumor, located over the right temporal region (Fig. 1). This lesion had suffered three previous resections, and

its recurrence had been noticed by the patient 6 months previously. The tumor measured approximately 28 cm<sup>2</sup> (7.0 X 4.0 cm). The clinical aspect suggested a malignant tumor (a basocellular epitelioma), and an excisional

biopsy was indicated. This was performed in a hospital setting, as an outpatient procedure, with local anesthesia and endovenous sedation. Resection included a wide margin of safety, removing tissue down to the temporal fascia. A pathologist assured complete removal of the tumor during surgery. A wound of approximately 42 cm<sup>2</sup> was created, and a full-thickness skin graft was harvested from the lower right abdomen, taking care not to include any pubic hair. This graft was placed over the wound, secured by sutures with a tie-over dressing. One week postoperative, the dressing was removed, and the graft was observed to have taken completely.

On a late postoperative visit, the patient mentioned that the defect to the hair-bearing scalp on the right temporal region caused aesthetic discomfort, and requested reconstruction of the sideburn. Hair transplantation was mentioned by the surgeon as the most efficient alternative. She was referred to the other author (HNR). On inspection, an area measuring 40 cm<sup>2</sup> of hairless skin (part of the full-thickness graft) was noticeable in the hair-bearing scalp (Fig. 2). The patient was told that at least two sessions of hair transplantation would be necessary to complete full hair density, and she agreed to this.

The area of transplantation was demarcated, by transferring the limits of the opposite sideburn (Fig. 3). Under local anesthesia, a first session of hair transplantation was performed on February 2001 (i.e. 9 months following the tumor removal with skin grafting), with a total of 120 follicular grafts placed on the skin graft. Donor area was the posterior aspect of the scalp (i.e. the lateral right occipital region), where hair density was greatest. Care was taken not to place the grafts too closely, as risk to the skin graft was a prime consideration. Nevertheless, bleeding was noticed in every orifice created to place the individual grafts, and the viability of the skin graft was seen to be excellent at the end of the procedure (Fig. 4).

The patient returned six months postoperatively. Hair growth was visible, yet density was less than desired. A second procedure was performed, which included the placement of 240 follicular grafts. These were inserted between existing transplanted hairs. The donor site was the same as in the first session.

The patient had an uneventful follow-up. At three months postoperative she noticed the beginning of hair growth, and returned for final evaluation seven

months after the second session. She referred complete satisfaction with the aspect and design of the sideburn, and the density of the transplanted hair. She did not wish to have a further session of hair transplantation (Fig. 5).

## DISCUSSION

Hair transplantation is currently one of the most frequently performed aesthetic procedures in the male population. There are two main reasons for its popularity: results are considered extremely natural and the correct surgical technique has been mastered by a large number of plastic and dermatological surgeons. The transfer of very well prepared grafts without any excess surrounding skin (i.e. follicular units) assures that the transplanted hair maintains all of its characteristics (texture and cycle of growth). Individualized hair shafts are therefore almost indistinguishable from native hair.

Follicular unit transplantation has also been applied in situations other than male or female-pattern baldness, which may be called atypical alopecia, and has been addressed by many authors<sup>(1-10)</sup>. Among these is the correction of the sideburn, in women that have been submitted to one, or more usually two or three, rhytidoplasties. Due to excessive traction on facial flaps, these patients will invariably complain of an increase in the distance between the temporal hairline and the lateral eyebrow, with a consequent "pulled back" look (also called the lizard-face aspect).

Another common complaint in this population is the presence of a pre-trichial incision in the temporal region or a visible scar along with an interruption of the posterior, cervical hairline. Transplantation of well-prepared grafts, containing no more than 3 or 4 hair follicles, becomes a very useful method to reconstruct the sideburn, to camouflage the visible scars, and to hide the step-off in the cervical region.

Reconstruction of the temporal hairline requires a final result with the following aspects: a delicate quality; good density and design; hair shafts that grow in a slanted direction, allowing the patient to comb back hair. Although several alternatives are available (such as tissue expansion with flap rotation or even flap rotation without previous tissue expansion), hair transplantation is considered the most favorable solution for most of these cases.

A few technical aspects regarding hair transplantation



Fig. 1 – The skin tumor before surgical resection.



Fig. 2 – A full-thickness skin graft was used to cover the surgical wound. Demarcation of the temporal hairline is seen.



Fig. 3 – The contra-lateral hairline is used to demarcate the right temporal region.



Fig. 4 – Recipient sites are prepared, respecting the angle and direction of hair growth.



Fig. 5 – The patient is seen after six months following the second session of follicular unit transplantation.

to this region deserve further considerations. Implantation to the sideburn demands that the final growth of hair be at an acute angle, imitating the natural direction of this region. This requires precise angulation of the needles that are used to create the orifices. These tiny slits are made with an 18-gauge NoKor needle (for the larger grafts) and a 40X12 18G gauge needle (for the single-unit follicular grafts). The hair follicles must be delicately handled throughout the procedure, from the harvesting to the placement, being careful not to traumatize the grafts by trimming excessively (i.e. "skeletonization") during preparation, or by an exceedingly forceful insertion in the recipient area.

In this specific case, where follicular units were placed in a full-thickness skin graft, there were two concerns: that the recipient site be adequate (permitting the hair grafts to take and then grow), and that the multiple orifices did not cause interruption of the vascular supply to the skin graft. Both of these considerations proved not to be of concern, as the skin graft survived with no visible ischemia, and hair growth was noticed to be normal after six months. Having observed the absence of any untoward result, it was then considered safe to place a larger quantity of hair grafts in the second session, thus doubling the amount transplanted in the first session.

## CONCLUSION

A full-thickness skin graft was used to cover a large surgical wound secondary to tumor resection in the right temporal region, creating a defect to the temporal hairline. As a secondary procedure six months later, a total of 360 follicular units were placed on the skin graft in two sessions, resulting in a sideburn with the following natural characteristics: good density and design; delicate quality of hair; well-angulated hair

shafts. The authors believe that no other technique is capable of creating such a natural-looking temporal hairline.

## REFERENCES

1. Brent B. Reconstruction of ear, eyebrow and sideburn in the burned patient. *Plast Reconstr Surg.* 1975; 55:312-9.
2. Gandelman M. Eyebrow transplantation. *Am J Surg.* 1996; 13:113-7.
3. Gandelman M. Eyebrow and eyelash transplantation. In: W.P. Unger (ed.) *Hair Transplantation.* Nova York: Marcel Dekker; 1995. p. 294-311.
4. Juri J, Juri C, Antueno J. Reconstruction of the sideburn for alopecia after rhytidectomy. *Plast Reconstr Surg.* 1976; 57:304-11.
5. Juri J, Juri C, Conalga A. The surgical treatment of temporal and sideburn alopecia. *Br J Plast Surg.* 1981; 34:186-94.
6. Marritt E. Single hair transplantation of for hairline refinement: A practical solution. *J Dermatol Surg Oncol.* 1984; 10:962-9.
7. Nordström RE. Punch hair grafting under split-skin grafts on scalps. *Plast Reconstr Surg.* 1979; 64:1-11.
8. Nordström REA. Reconstruction of the temporal hairline. *Aesth Plast Surg.* 1981; 103- 10.
9. Silva MO, Pitanguy I. Reconstrução de supercílio. *Rev Bras Cir.* 1988; 78:253-61.
10. Uebel CO. Punctiform technique: Hair replacement procedure of over 1000 micrografts and minigrafts. In: W.P. Unger (ed.) *Hair Transplantation.* New York: Marcel Dekker; 1995. p. 467-81.