

Auricular Composite Chondrocutaneous Grafts in the Repair of Nasal Alar Rim Defects

Geon Kim, Young-In Jeong, Hyun-Chul Shim, Ji-Hyun Choi, Mihn Sook Jue, Eun-Jung Kim, Ok-Ja Joh, Hyang-Joon Park

Department of Dermatology, VHS Medical Center, Seoul, Korea

Dear Editor:

An 82-year-old man presented with a grayish-black papule on the right ala of the nose that had been there for 3 to 4 years, and which bled occasionally. Physical examination revealed that the size of the papule was 0.5×0.5 cm. The patient had no family history of skin cancer; he had a history of heavy cigarette smoking. We suspected basal cell carcinoma and performed a 2-mm punch biopsy. The results of the pathologic examination of the specimen confirmed the diagnosis of basal cell carcinoma.

Before the surgery, we ensured that he stopped cigarette smoking to allow better survival of the graft. The tumor was widely excised with a 2-mm surgical margin, resulting in a 0.9×0.8 cm full-thickness defect (Fig. 1A). The defect was reconstructed by using a composite chondrocutaneous graft harvested from the antitragus of the right ear (Fig. 1B). The graft was prepared in such a way that it was approximately 20% larger than the defect in order to compensate for the natural contraction of the graft. The donor site was closed primarily, and after hemostasis of the recipient bed, the defect was repaired with the composite skin graft (Fig. 1C). To lower the metabolic demand, an ice pack was applied to the recipient site postoperatively for surface cooling. At a 5-month postoperative follow-up, desirable aesthetic and functional

results were observed (Fig. 2). The patient agreed publication of his case.

Auricular composite grafting is relatively simple, and can be performed in a single surgical session for the repair of all 3 layers of the nasal ala. The donor tissue provides mechanical stability to the repaired ala for preventing collapse on inhalation¹, as well as acceptable color and contour match. In addition, the donor site can be easily repaired without noticeable scarring.

One drawback of the composite graft is that it cannot be used for defects >2 cm, because of its high metabolic demand. Moreover, the procedure is less reliable than either the local or regional flap techniques^{2,3}, and can only be used on healthy recipient sites³. Smoking increases the risk of postoperative ischemia, which can result in poor wound healing or tissue necrosis¹. In smokers, like our patient, other reconstructive methods or complete cessation of smoking should be considered.

Several procedures have been introduced to increase the survival of composite chondrocutaneous grafts and overcome graft failure. With regard to postoperative procedures, cooling can be used to lower the metabolic demands of the graft⁴. Hyperbaric oxygen can also be supplied to enhance fibroblast replication, which increases collagen formation and neovascularization⁵. Finally, scarification with a thin needle (20~26 gauge) coupled with heparin injections can be used for decongestion of the graft¹.

In conclusion, we successfully reconstructed a full-thickness defect on the free margin of the nasal alar rim with a composite chondrocutaneous graft from the patient. We believe that reconstructive surgeons can give preference to this technique when reconstructing nasal alar defects, especially small defects. In addition, surgeons should consider the use of appropriate postoperative methods to increase graft survival.

Received October 15, 2012, Revised April 5, 2013, Accepted for publication May 31, 2013

Corresponding author: Hyang-Joon Park, Department of Dermatology, VHS Medical Center, 53 Jinhwangdo-ro 61-gil, Gangdong-gu, Seoul 134-791, Korea. Tel: 82-2-2225-1388, Fax: 82-2-471-5514, E-mail: parkhjmd@medimail.co.kr

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

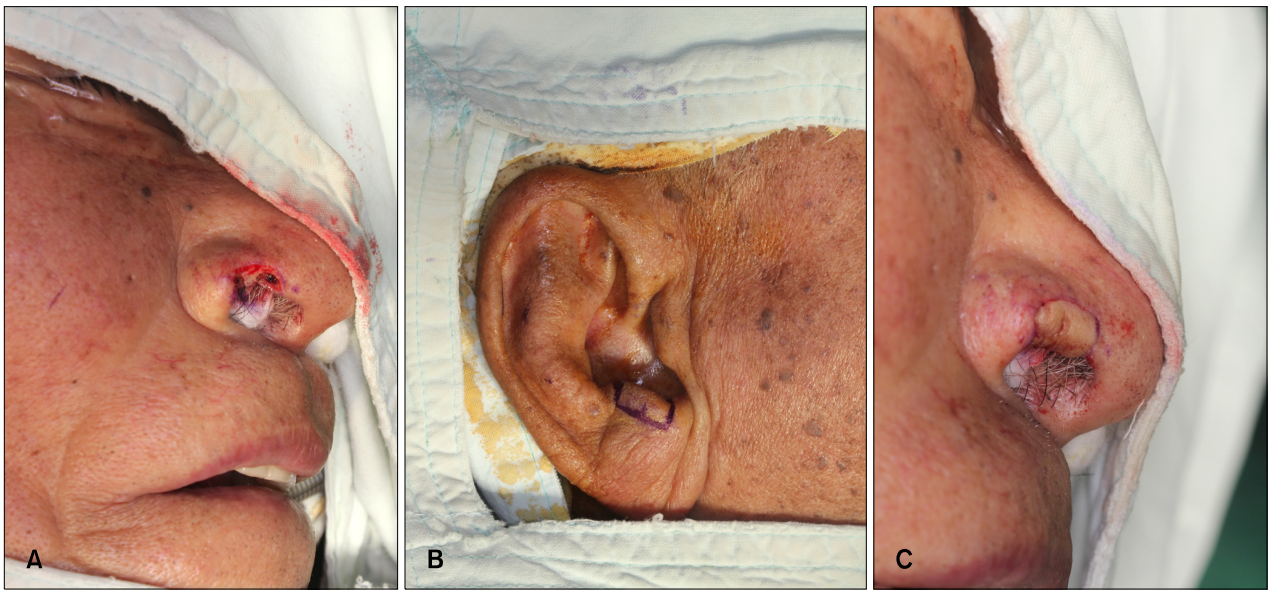


Fig. 1. (A) Full-thickness defect of the nasal ala after tumor excision. (B) Composite graft designed over the donor site. (C) The defect covered with the auricular chondrocutaneous composite graft.

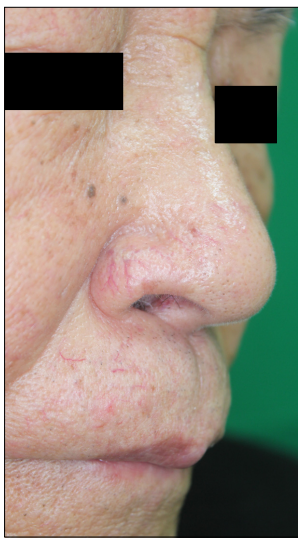


Fig. 2. Symmetric alar rims with excellent match of color and contour observed at a 5-month follow-up.

REFERENCES

1. Cherpelis BS, Carls JL. One-stage reconstruction of a full-thickness nasal defect involving the alar rim. *Dermatol Surg* 2007;33:1361-1364.
2. Pilanci Ö, Saçak B, Kuvat SV, Şen E, Arslan H, Aygıt AC. Use of outsized composite chondrocutaneous grafts in conjunction with dermal turnover flaps for reconstruction of full-thickness alar defects. *J Craniofac Surg* 2011;22:864-867.
3. Hass AF, Glogau RG. *Atlas of cutaneous surgery*. Philadelphia: W.B. Saunders Company, 1996:165-168.
4. Conley JJ, Vonfraenkel PH. The principle of cooling as applied to the composite graft in the nose. *Plast Reconstr Surg* (1946) 1956;17:444-451.
5. Kindwall EP, Gottlieb LJ, Larson DL. Hyperbaric oxygen therapy in plastic surgery: a review article. *Plast Reconstr Surg* 1991;88:898-908.