

EP-003

**비순구 피판의 기술적 개선 :
비피부암 재건에서 비순구 피판과
다른 피판 간 미용적 결과 비교**

(Technical refinements of the nasolabial flap:
Comparison of esthetic outcomes between
nasolabial flap and other flaps in nasal skin
cancer reconstruction)



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Purpose: The superiorly based nasolabial flap is commonly used to reconstruct lower nasal defects after wide excision of skin cancer. However, when the flap pedicle traverses the nasofacial sulcus—where the skin is tightly adherent to underlying structures—disfiguring of the sulcus occur, compromising esthetic outcomes. This study aimed to compare esthetic outcomes of the nasolabial flap with those of hatchet and bilobed flaps and to describe technical refinements to prevent sulcus deformity.

Methods: We retrospectively reviewed 57 patients who underwent nasal reconstruction with a nasolabial, hatchet, or bilobed flap following excision of nasal skin cancer. All patients were followed for more than 6 months. Esthetic outcomes were assessed at the final visit using the Patient and Observer Scar Assessment Scale (POSAS) and the Manchester Scar Scale (MSS).

Results: Twenty patients underwent nasolabial flap reconstruction, 21 hatchet flap, and 16 bilobed flap. There was no significant difference in total POSAS scores among the groups. However, the patient component of POSAS was significantly lower in the hatchet group than in the bilobed group ($p = 0.024$). The mean total MSS score was 6.0 in both nasolabial and hatchet groups and 6.5 in the bilobed group.

In the distortion category, the nasolabial flap showed significantly better outcomes than the hatchet flap ($p = 0.015$).

Conclusion: Technical refinements—including precise determination of the rotation axis height, appropriate flap length, and tacking sutures along the nasofacial sulcus—can minimize sulcus distortion and yield favorable esthetic outcomes.

	Nasolabial flap	Hatchet flap	Bilobed flap	<i>p</i>
No. of patients	20	21	16	
Sex				0.108
Male (%)	12 (60.00)	10 (47.62)	4 (25.00)	
Female (%)	8 (40.00)	11 (52.38)	12 (75.00)	
Age, y	69.5 (58.5, 78.0)	71.0 (65.0, 75.0)	72.0 (67.0, 74.5)	0.741
Follow up period, y	6.5 (6.0, 13.0)	6.0 (6.0, 14.0)	7.0 (6.0, 23.5)	0.953
Size of defect, cm ²	1.33 (1.00, 2.11)	1.00 (0.91, 1.44)	1.13 (0.81, 1.88)	0.256
Cancer type				0.037*
Basal cell carcinoma (%)	18 (90.00)	17 (80.95)	14 (87.50)	
Squamous cell carcinoma (%)	2 (10.00)	0 (0.00)	2 (12.50)	
Bowen disease (%)	0 (0.00)	4 (0.00)	0 (0.00)	
Location of defect				<0.001*
Ala (%)	16 (80.00)	2 (9.52)	3 (18.75)	
Side wall (%)	4 (20.00)	6 (28.57)	1 (6.25)	
Dorsum (%)	0 (0.00)	11 (52.38)	1 (6.25)	
Tip (%)	0 (0.00)	2 (9.52)	9 (56.25)	
Collumella (%)	0 (0.00)	0 (0.00)	2 (12.50)	

* $P < 0.05$

Table 1. Patient Demographic and Clinical Characteristics

	Nasolabial flap	Hatchet flap	Bilobed flap	<i>p</i>
POSAS				
Total score	23.0 (17.5, 28.0)	23.0 (17.0, 30.0)	28.0 (19.0, 35.5)	0.233
Patient	11.0 (9.0, 14.5)	10.0 (9.0, 12.0)	13.5 (10.5, 17.0)	0.032*
Observer	11.0 (7.5, 14.0)	14.0 (7.0, 17.0)	12.5 (7.5, 19.0)	0.688
Manchester Scar Scale				
Total score	6.0 (5.5, 6.5)	6.0 (5.0, 8.0)	6.5 (5.0, 7.0)	0.563
Color	1.0 (1.0, 1.5)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	0.375
Matte vs shiny	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	>0.999
Contour	2.0 (1.0, 2.0)	1.0 (1.0, 2.0)	1.5 (1.0, 2.0)	0.758
Distortion	1.0 (1.0, 1.0)	2.0 (1.0, 3.0)	1.0 (1.0, 1.5)	0.038*
Texture	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.5)	0.322

* *P* < 0.05

Table 2. Patient Demographic and Clinical Characteristics



Fig. 1. The bilobed flap can cause ipsilateral alar margin lowering in nasal tip reconstruction due to transposition of the first lobe of the bilobed flap with very thick, sebaceous skin onto the distal nasal tip. The white arrows indicate ipsilateral alar margin lowering.

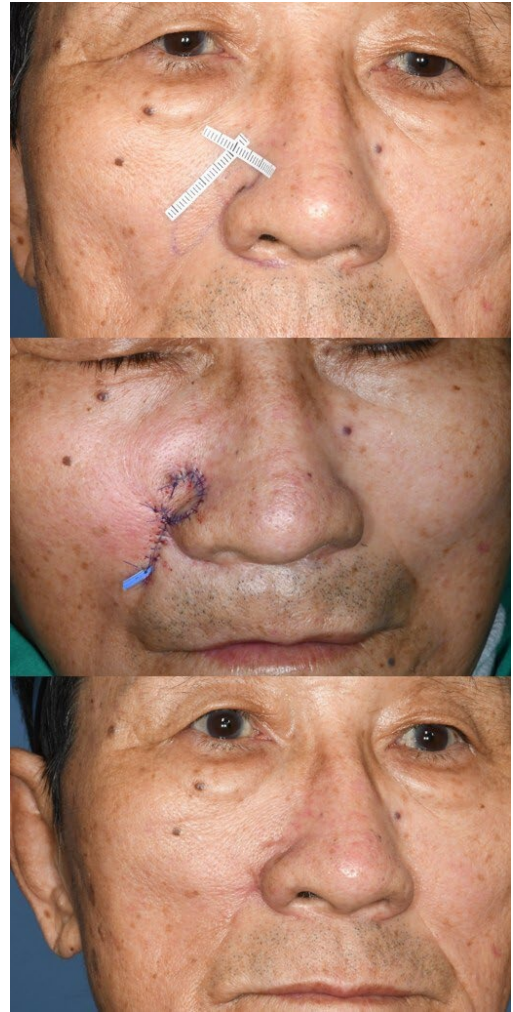


Fig. 2. A 60-year-old man diagnosed with basal cell carcinoma of the right nasal ala. (A) Preoperative view; (B) immediate postoperative view; (C) 6-month postoperative view showing a well-preserved nasolabial sulcus.



Fig. 3. The hatchet flap can cause alar peaking in nasal sidewall reconstruction due to tension around the flap. The arrows indicate ipsilateral alar peaking.

EP-004

제3a형 상악 전절제술 후 PEEK PSI와
전외측대퇴 유리피판을 이용한 안와-관골
복합체 재건

(Reconstruction After Type IIIa Total Maxillectomy With
Restoration of Orbital Support Using a PEEK PSI and ALT Free
Flap)



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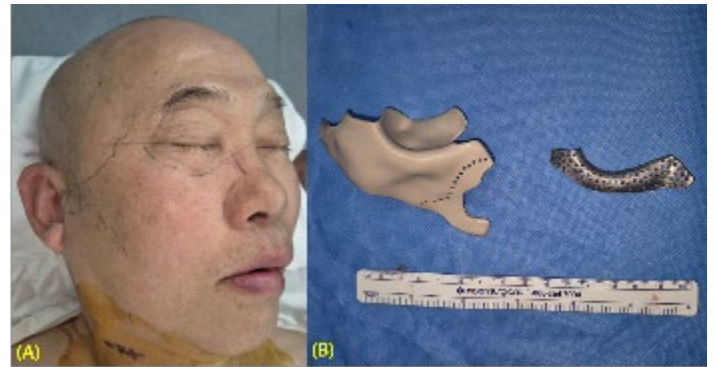
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Purpose: Reconstruction following type IIIa total maxillectomy requires restoration of orbital support and midfacial projection with separation of the oral and nasal cavities. Conventional approaches include vascularized bone flaps such as fibula or scapula and titanium-based implants. Reproducing the complex curvature of the orbital floor, infraorbital rim, and zygomatic body with vascularized bone may be technically demanding and requires multiple osteotomies, and bone harvest is associated with donor-site morbidity. We describe our reconstructive strategy using a patient-specific polyetheretherketone (PEEK) implant combined with an anterolateral thigh (ALT) free flap.

Methods: Five patients with maxillary sinus carcinoma underwent type IIIa total maxillectomy with orbital preservation. A patient-specific PEEK implant reconstructed the orbital floor, infraorbital rim, and zygomatic body, restoring globe support and midfacial contour. The implant provided lightweight rigid reconstruction and permitted limited intraoperative adjustment to optimize fit. The ALT free flap achieved soft tissue coverage and separation of the oral and nasal cavities. Dental rehabilitation was planned secondarily. Patients were evaluated for orbital position, symmetry, flap viability, implant-related complications, and changes after adjuvant radiotherapy.

Results: All patients demonstrated stable orbital support and satisfactory contour. No early implant exposure, infection, or flap failure occurred. One patient developed mild late enophthalmos after radiotherapy, managed conservatively. No radiotherapy-related implant exposure, structural change, or loss of contour was observed.

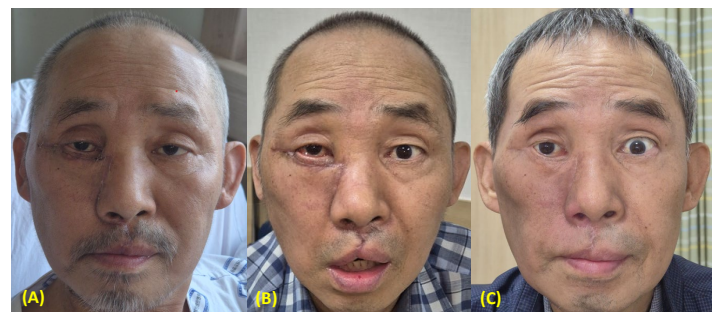
Conclusion: PEEK PSI combined with an ALT free flap restored the orbitozygomatic complex after type IIIa total maxillectomy without vascularized bone harvest. Contour stability was maintained, and no implant-related complications were observed following radiotherapy.



(A) A 64-year-old man with right maxillary sinus cancer. The planned resection margins for total maxillectomy were marked preoperatively. (B) Pre-fabricated PEEK PSI using preoperative CT data, with a metallic microplate for fixation.



(A) Defect after completion of total maxillectomy with resection of the zygoma, zygomatic arch, and partial pterygoid process. (B) Intraoperative view after insertion and fixation of the PEEK patient-specific implant, restoring orbital support and midfacial contour. (C) Post-operative photograph



(A) Postoperative day (POD) 14. No major complications were observed. Mild reduction in motor tone of the right side and limitation of extraocular movement was present. (B) POD 1 month. Mild enophthalmos and epiphora associated with radiotherapy were observed. (C) POD 2 months. Aside from slight progression of enophthalmos, no additional remarkable findings were observed.