

Table 1. Basic sequences of most primary rhinoplasty

↓	Skeletonization
	Primary tip
	Primary dorsum
	Septum
	Osteotomies
	Final tip
	Final dorsum
	Tip-Lip complex
	Alar base
	Closure
▼	Splinting

maxilla),
(intrinsic stability)
가
가
(convex) (concave)

1/3
2/3
1/3
(alar base)

(maxillary pyriform aperture)
가 (maxillary ascending process)
(nasomaxillary groove)

가

(transverse osteotomy) (oblique osteotomy)
(double osteotomy)

골절술과 연관된 비골의 해부학

(nasal vault) (bony vault)
(cartilaginous vault)
(nasal bone) (frontal process of maxilla)

2 mm
2 mm가
54.5 ± 5.6 °, 54.7 ± 7.6 °

⁵⁾ 가

가

(arch)
(caudal edge)
(nasofrontal suture), (frontal process of

(lacrima bone)
3.4 mm 가
가 (anterior lacrimal crest)
가

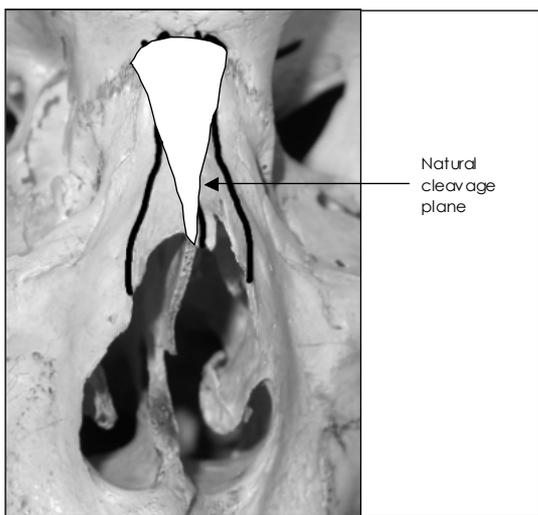
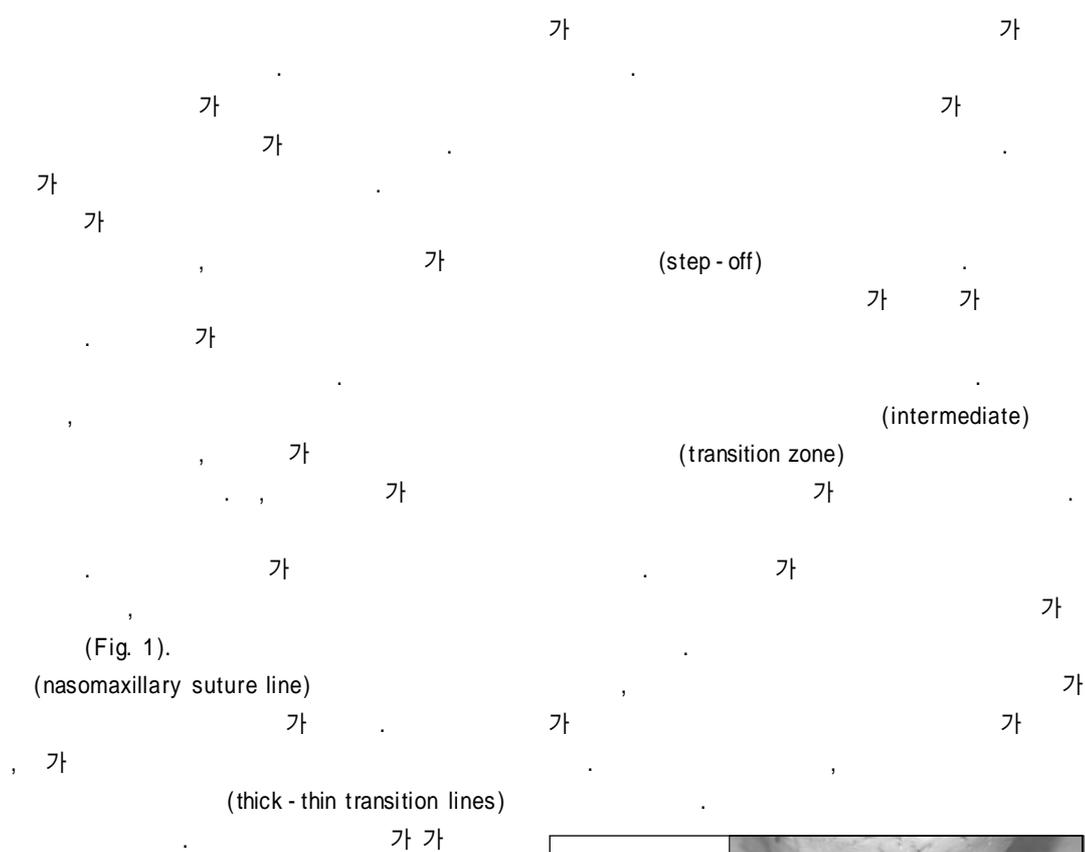


Fig. 1. Thickness of nasal bone. Nasal bones are thickest near the radix and become thinner on the lateral nasal wall and toward the tip. Normal cleavage plane exists at bone thickness transition zone.

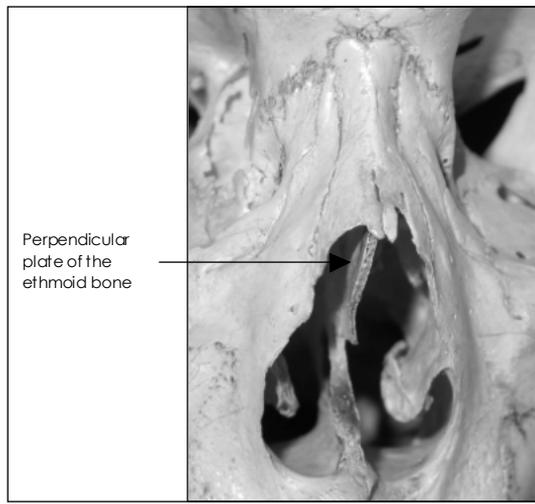


Fig. 2. Deviation of bony septum. Deviation of the ethmoid perpendicular plate is the rule rather than the exception. If sufficiently deflected, the perpendicular plate must be partially resected or repositioned in the midline to restore the posterior airway as well as to provide room for adequate infracture of the nasal sidewalls with complete osteotomies.

Table 2. Advantages of preservation of the periosteal attachment

Decreased amount of dead space
Reduced subluxation and subsequent airway compromise
Greater overall stability after positioning

(nasofrontal suture line)
 가
 (twisted nose)가
 ()
 가 (Fig. 2).
 (periosteum)

“sling”

가

가

(Table 2).

가

가

(epinephrine)

3 mm
 (Fig. 3).⁵⁾

2~3

가

mm

(lacrimal sac)

/

(lacrimal duct)

(ma-

xillary ascending process)

1/3

가

가

⁶⁾

(medial canthal ligament)가

가

3 mm

절골술의 원칙 및 적응증

가

(lacrimal crest)

가

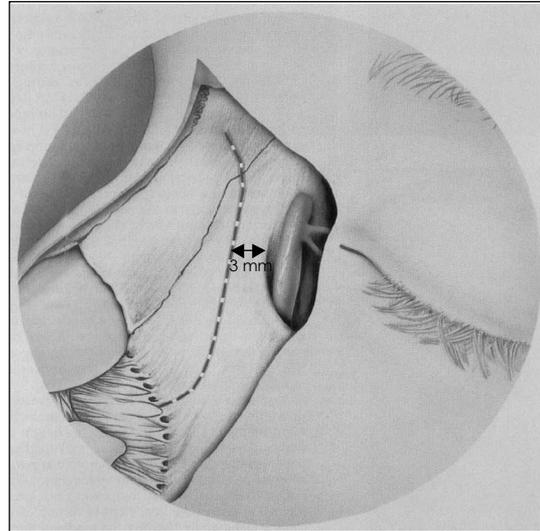
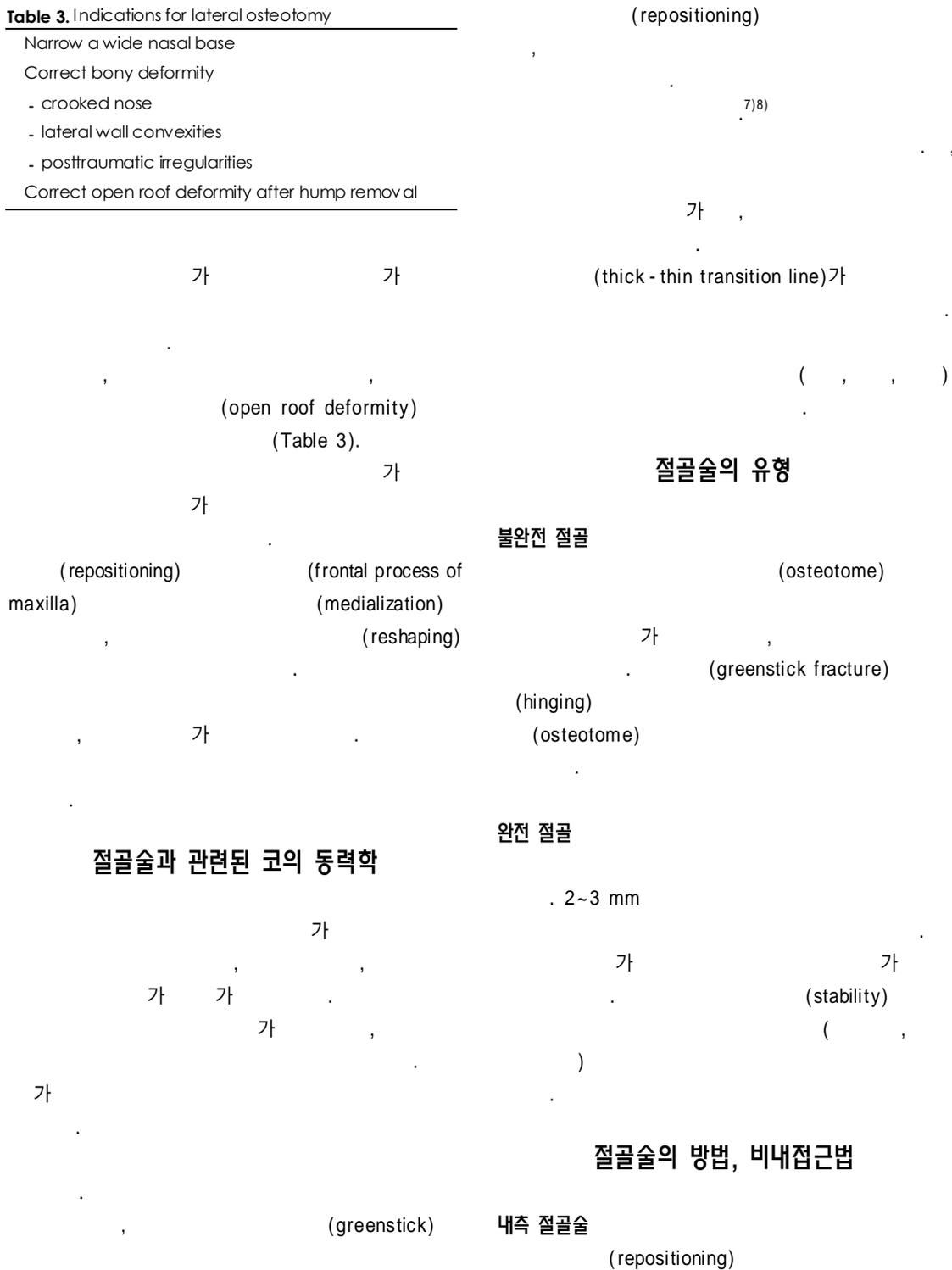


Fig. 3. Direction of lateral osteotomy. The osteotomy pathway should be away from inferomedial orbital rim at least 3 mm. Although the lacrimal drainage apparatus is theoretically at risk during osteotomies positioned low on the nasal bony sidewall, in reality the thick, heavy lacrimal crest effectively protects the lacrimal system from the wayward osteotome.

Table 3. Indications for lateral osteotomy

Narrow a wide nasal base
Correct bony deformity
- crooked nose
- lateral wall convexities
- posttraumatic irregularities
Correct open roof deformity after hump removal



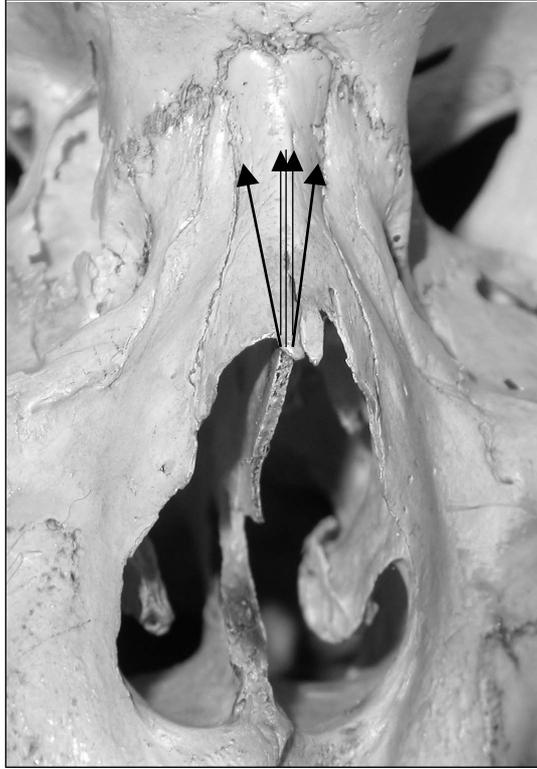


Fig. 4. Medial osteotomy. Several techniques such as paramedian (thin arrow) or medial oblique (thick arrow) are used according to the direction of osteotomy.

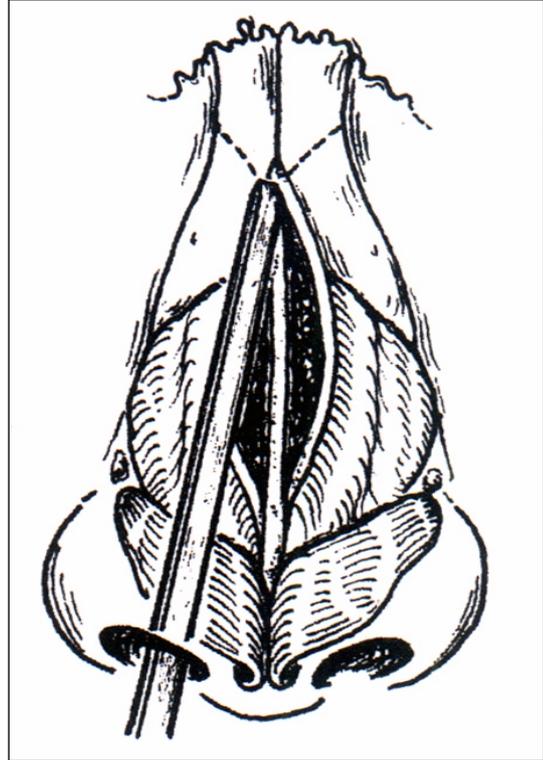


Fig. 5. Placement of osteotome for medial osteotomy. Sharp medial osteotome is placed between the septum and nasal bone or upper lateral cartilage. Direction of osteotome is palpated under the skin with the forefinger of the nondominant hand.

가 (dorsum) 가
 가
 (paramedian), (oblique), (transverse)
 (Fig. 4).⁷⁾
 (medial osteotomy)
 가
 (Fig. 5).

가
 (transition zone)가⁹⁾
 (natural cleavage line)
 (Fig. 1).
 15° 가 0°
 (Fig. 6).

15 ~ 25° (open roof)
 mm (nasion)

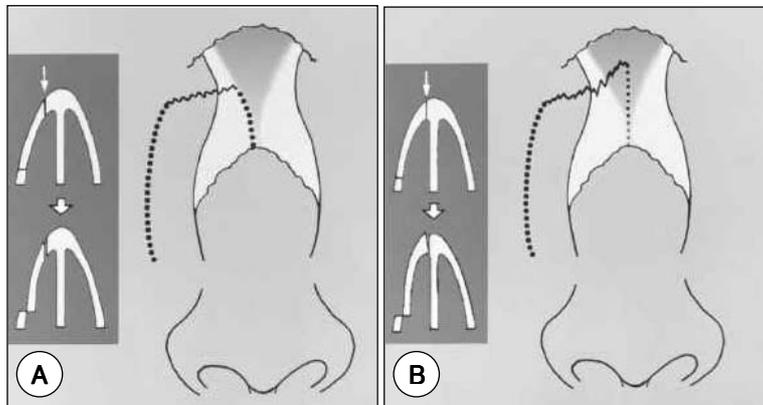


Fig. 6. Effect of medial osteotomy according to the angle. A : Path and effect of 15 ° medial osteotomy, the lateral segment is narrowed without contour deformity. B : Path and effect of 0 ° medial osteotomy, note the palpable spicule of bone mobilized with the lateral segment.

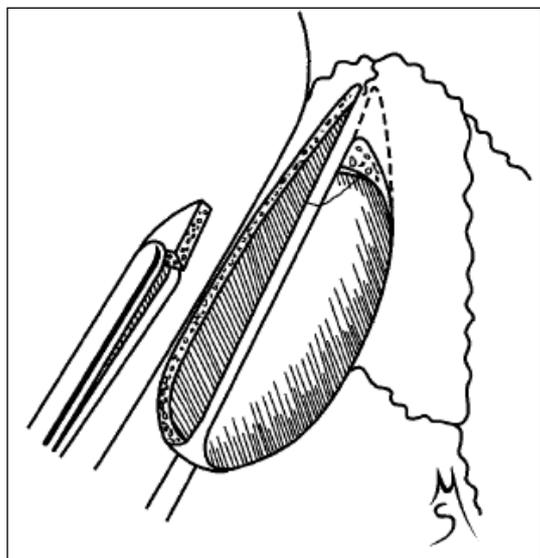


Fig. 7. A small wedge of bone removed between the bony septum and the nasal bones allows narrowing of the vault to a greater extent than that obtained by medial/lateral osteotomy alone.

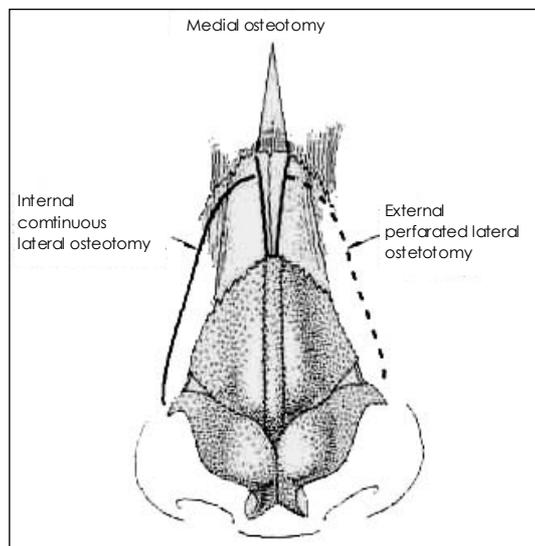


Fig. 8. Type and location of nasal osteotomies.

가

V

(Fig. 7).

(rocker deformity)

외측 절골술

(Fig. 8).

Rohrich¹⁰⁾ 74%

가 11%

가 . Mu-

(endo-rakami Larrabee¹¹⁾) 가 ,

nasal continuous technique) 가 ,

taneous perforating technique) 가 .

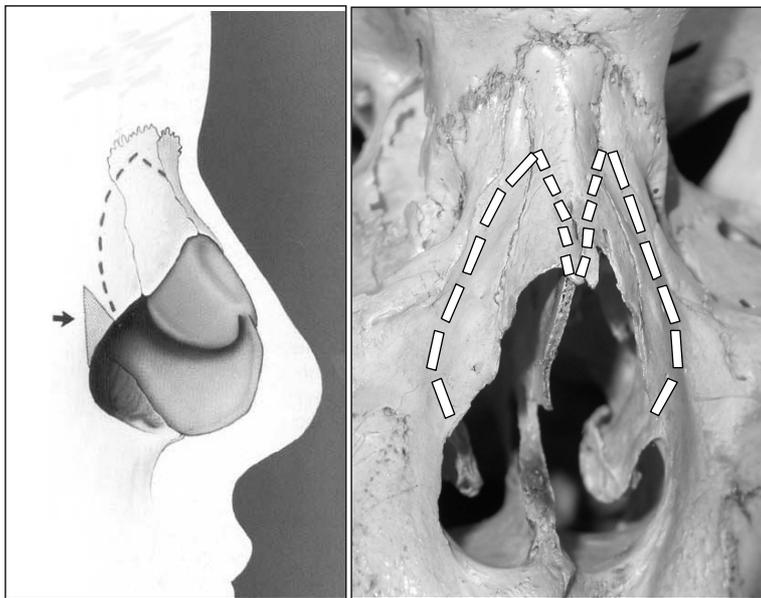


Fig. 9. Webster's triangle. The low-curved lateral osteotomy begins ideally low on the ascending process of the maxilla at or just above the junction of the inferior concha to the maxilla. Preserving a small triangle bone on either side of the nose at the level of the nasal floor prevents overnarrowing of the cross-sectional airway in this region, a potentially serious restriction to comfortable nasal respiration.

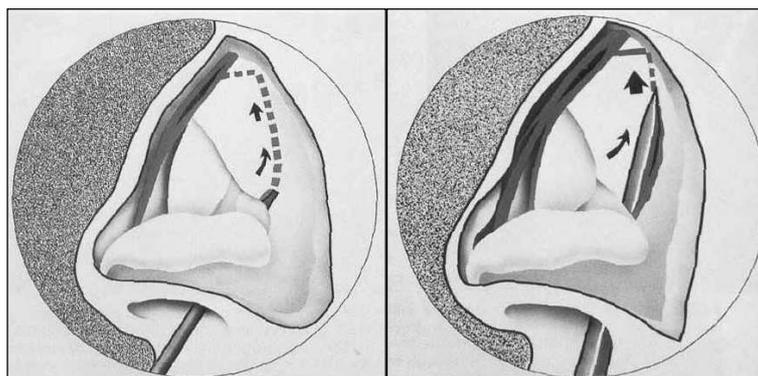


Fig. 10. Lateral osteotomy. A straight osteotome is preferred to effect a gently curved osteotomy tract, redirecting the inclination of the instrument as it is driven upward to ultimately encounter the apex of the medial-oblique osteotomy. Curved osteotomes at times seem to seek their own direction and appear slightly less controllable than fine straight instruments. If at any time the course of the micro-osteotome slips medially or laterally from its direct encounter with the bony sidewall, a profoundly diminished resistance is readily distinguished ; the osteotome is simply withdrawn 2 to 3 mm and the cut continued properly on bone.

“ Low - to - High ”
 8) Rees¹²⁾ Sheen⁸⁾

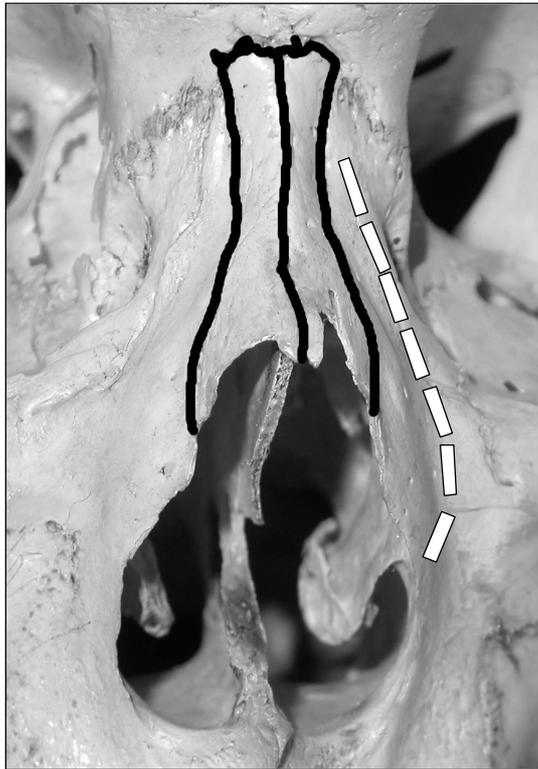


Fig. 13. Low-to-Low lateral osteotomy.

(step deformity)
 (low position)
 “ Low - to - High ”

Webster
 가 . “ Low - to - Low ”

가 ,

(intercanthal line)

(Fig. 13). 가

¹⁰⁾

Webster

가

“ High - Low - High ”

가

(3~4 mm .)

(inner canthus)

(Fig. 13).

가

stair - step

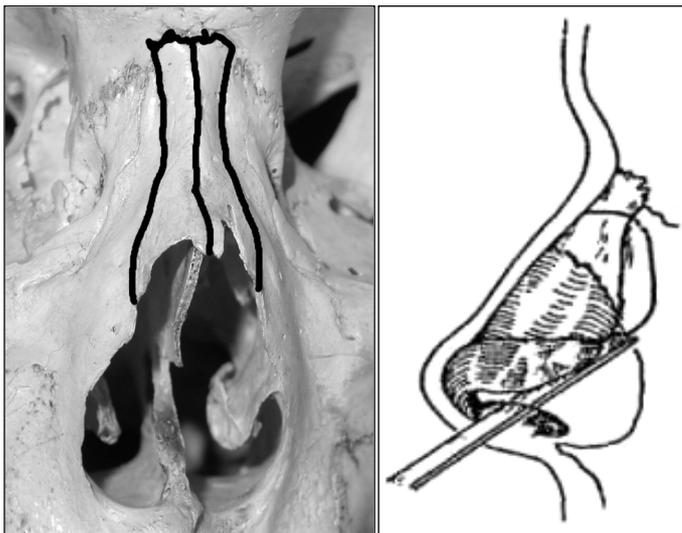


Fig. 14. Path of high-low-high lateral osteotomy.

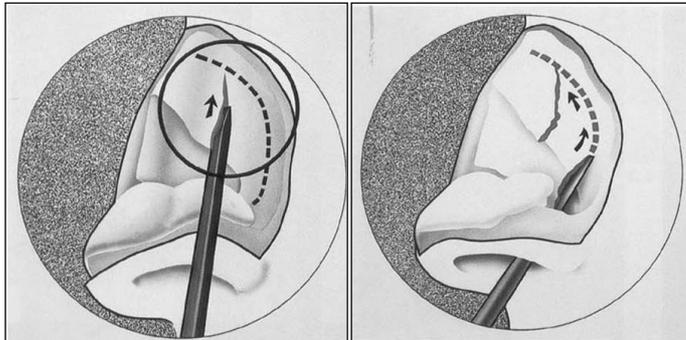


Fig. 15. Typical pathways of double osteotomies. The higher osteotomy must be carried out first, followed by the low lateral cut.

이중 절골술 (twisted nose)

이중 절골술

(twisted nose)

가

가

(Fig. 15).

맞춤 절골술

가

경피적 절골술

Table 4. External perforated lateral nasal osteotomy

Advantages	Disadvantages
Preserved periosteal support	Nasal asymmetry
Limited nasal bone subluxation	External scarring
Reduced lateral nasal wall collapse	
Preservation of nasal airway compromise	
Reduced hemorrhage, ecchymosis, and edema	

(dead space)

(subluxation)

¹³⁾

가

(Table 4).¹⁵⁾

1) 가 (cutting force)

2)

가

3) 가 (lateral nasal artery) 가

4)

가

5)

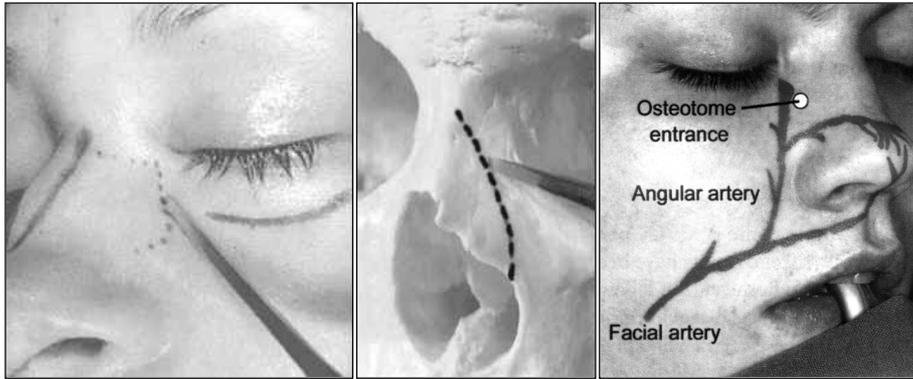


Fig. 16. Entrance of osteotome for percutaneous osteotomy.

6) 2 mm

경피적 외측절골술

(percutaneous) " low - to - high " 2~3 mm 가 (razor - sharp) 가 가 (nasolabial fold) 가 가 가 가

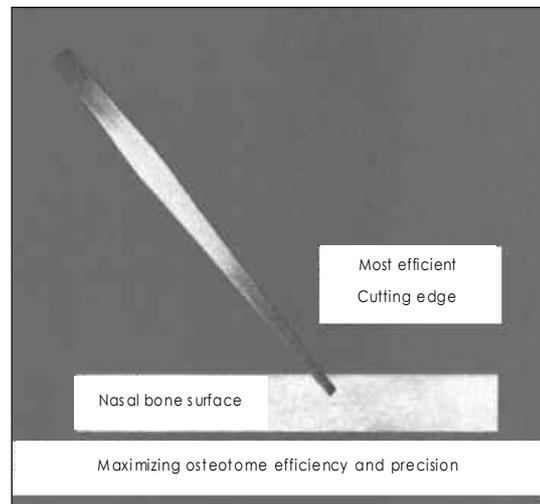


Fig. 17. Correct osteotome position for percutaneous osteotomy.

1 cm 가 (angular artery) (Fig. 16). 가 (forward and backward) (side - to - side) 가 가 (Fig. 17). 가 가

2 mm (guarded osteotome)

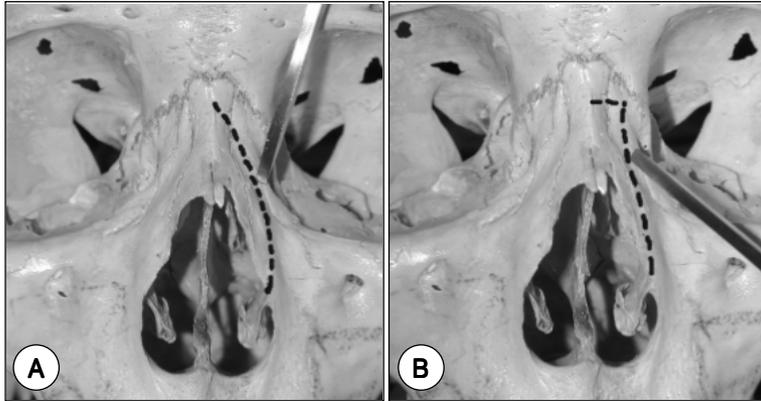
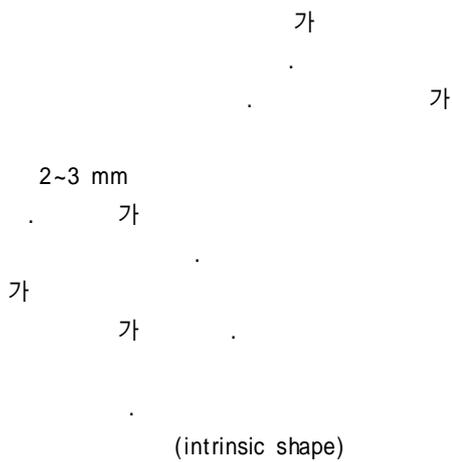


Fig. 18. Direction of osteotome. Firstly extend the osteotome inferiorly to the pyriform aperture at the desired level, slightly above the base of the nasal bone (A). After reaching the pyriform aperture, it moves back to the starting point at the midnasal bone. From that point, proceed upward, curving or angulating the line of osteotomy according to the intrinsic shape of the nasal bone and desired movement (B).

18A).



(Fig.

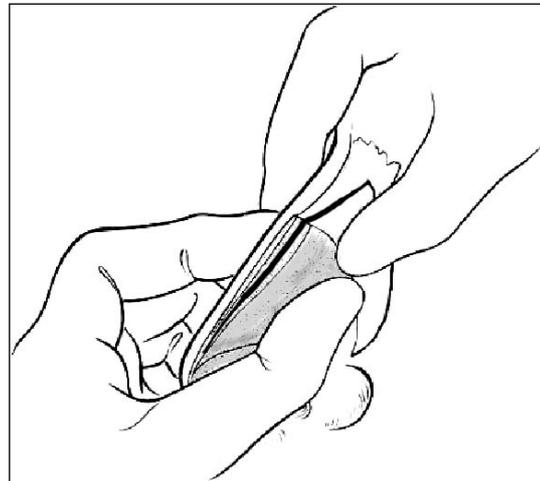
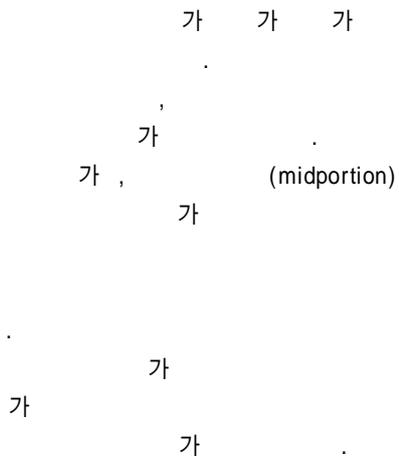
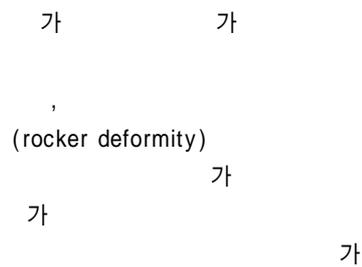


Fig. 19. Digital manipulation after osteotomy.

(Fig. 18B).



(intercanthal line)



(Fig. 19).

내측 절골술

verse glabellar crease)

(trans- 가

동력버를 이용한 절골술

(oblique) verse) . 2 mm

(trans- 가

Aufricht

가

경피적 절골술의 순서

(hydraulic dissection)

가

가

가

절골술과 관련된 부작용

가

Table 6

가

가

Rocker phe-

nomenon

가

가

가

stair - step

(

가

가

.)

가

(midlevel)

가

가

Table 5. Factors contributing to airway narrowing after nasal bone osteotomy

Factor	Degree of nasal airway narrowing
Length of the nasal bone	Long >Normal >Short
Degree of nasal bone repositioning	Significant >Intermediate >Slight
Position of the inferior turbinate	Normal >Anterior
Type of osteotomy	Low to low >High to low

Table 6. Complications of nasal osteotomies

Immediate	Delayed
Edema	Cellulitis/abscess
Bleeding	Nasal cyst formation
Ecchymosis	Anosmia
Hemtoma	Epiphora
Airway collapse	Rocker formation
Stair-step deformity	Lateral wall asymmetry

(suspend)

4 - 0

복원과 위장
가

가 "camouflage"

가

절골기의 유지

가 (Table 5).¹⁶⁾

가

가 가

(loupe)

(bevel)

가

비골의 함몰

"Collapsed nasal bone"

수술 후 처치

가

(columellar incision)

#6.0

가

(marginal incision)

#5.0 PDS

(upper

lateral cartilage)

(aluminum splint)

가

Adson

5
7
가
20
가
가
코성형술과 관련된 골성 이상구의 해부학적 변화

가
keystone area
가
가
가
(internal splint)
가
가
가

수술적 접근의 역할

(endonasal) (extranasal approach)
가
(alar rim)
가
(alar)
(radix)
(vertical) (horizontal)
가 . 2~3 mm
가

비혹제거

비배부의 해부학
가
(radix) (supratip)
가
(nasofrontal angle)
가
(Fig. 1).¹⁷⁾ 1/3~1/2
1/2~2/3
(vertical),
(transverse) 가 가 (Fig. 20).
(transition zone)
(dorsal-lateral protrusion)
keystone area

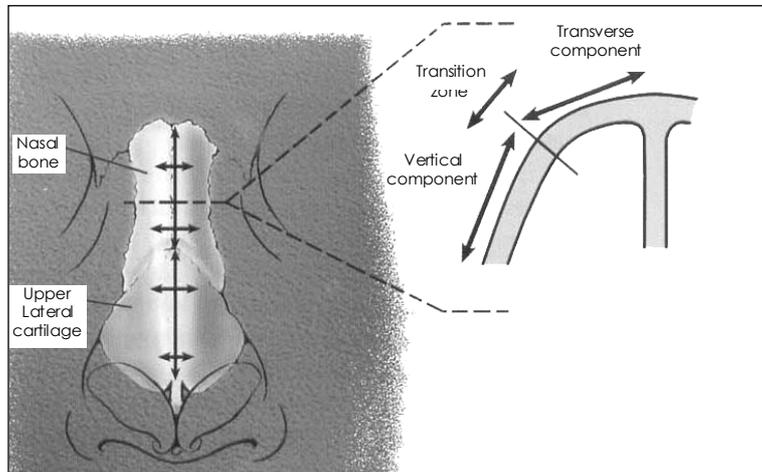


Fig. 20. Components of bony nasal dorsum. The dorsal nasal bones have two components that contribute to the external appearance of the dorsum : a vertical component and a transverse component.

가,
 keystone area
 keystone
 area
 가
 keystone area
 가
 area가
 nose)가
 가
 keystone
 (saddle
 가

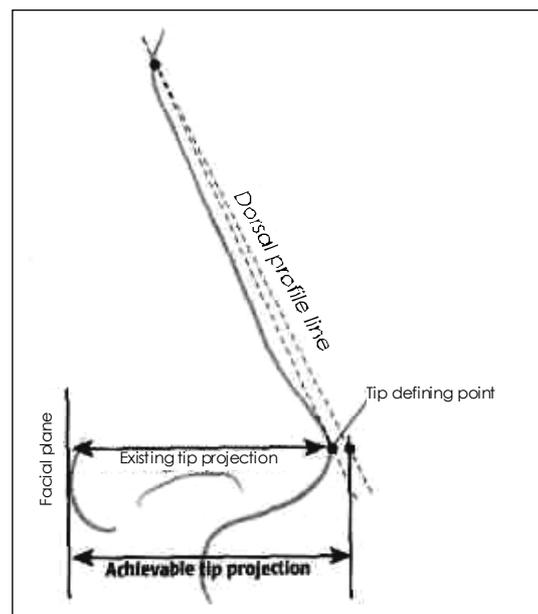


Fig. 21. Ideal height of the dorsum. The ideal height of the dorsum depends on achievable tip projection off the facial plane and the desired relationship of the dorsal profile line to the tip-projecting point.

적당한 콧등의 높이 결정

가 (tip projection)
 가 (dorsal profile line)
 가 (tip defining point)
 가 (Fig. 21).

가

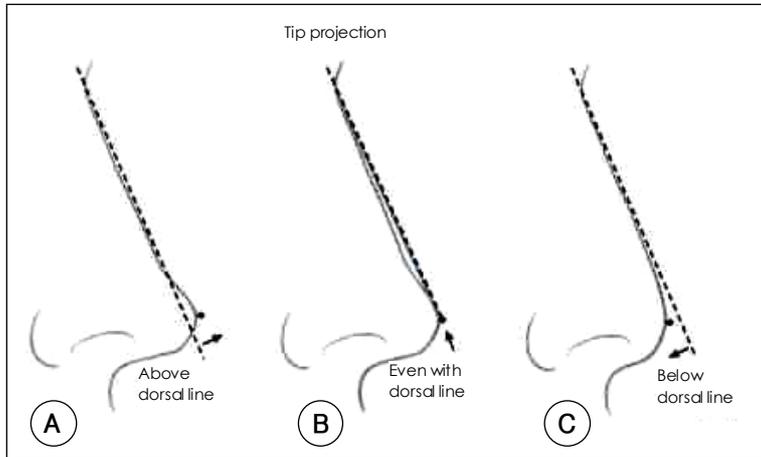


Fig. 22. Tip projection to the dorsal line.

가

가

가

가

(tip - dorsal)

18)

(dorsal line)

(supratip break)

(Fig. 22A).

Joseph

가

()

(Fig. 22B).

(Fig. 22C).

가

비배부 혼합 제거

(composite reduction)

가

가

가

가 2 mm

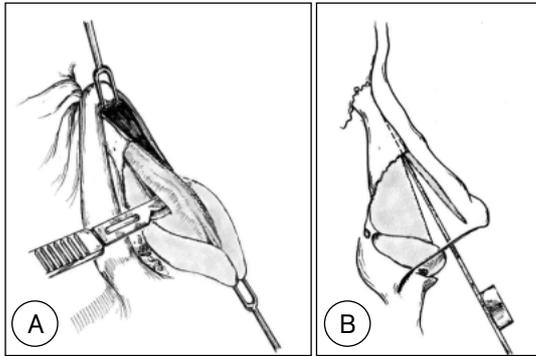


Fig. 23. Composite removal of hump. When the roof of the upper lateral cartilaginous vault is resected, symmetry is assured by maintaining a 90° angle between the knife and the septum.

15 , 11
 ()
 (septal angle)
 가
 (Fig. 23A).
 10~14 mm Rubin 가
 (Fig. 23B).
 가
 , keystone area
 가 가 가 가
 en bloc , 가
 Rubin 가

비배부 구성요소 제거

(component reduction)

(, , ,)

비
비

가

가

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