ESSENTIALS OF RHINOPLASTY & OTOPLASTY

Jan Zemplenyi, MD
belredcenter@gmail.com
Bel-Red Center for Aesthetics, PS
Bellevue, WA
O: 425-455-7225 C: 206-359-2153
www.belredcenter.com

Disclosures

I have no conflicts of interest or financial disclosures.

Seattle & Mount Rainier

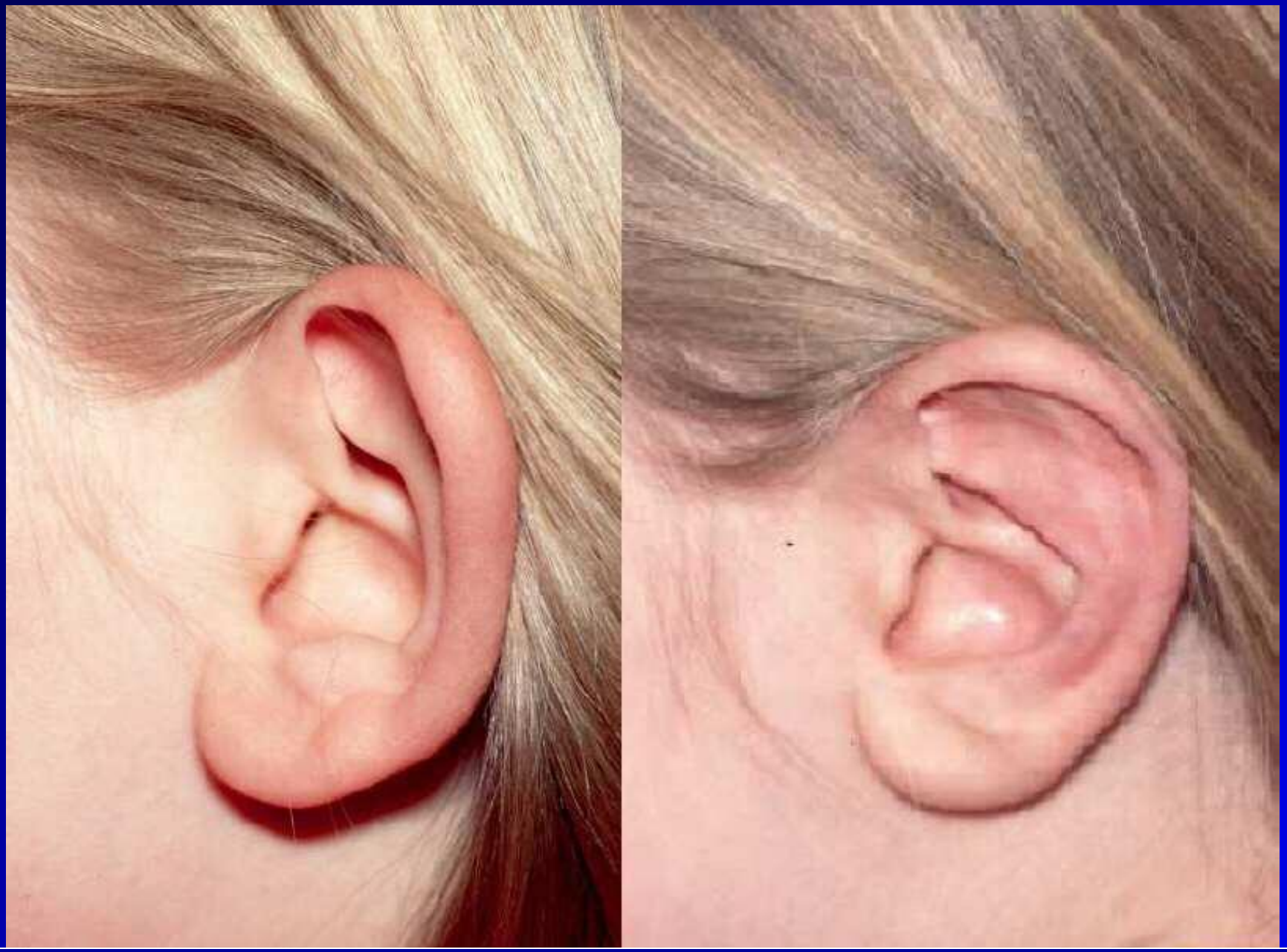
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Essentials of Otoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty is designed to correct a prominent pinna. Common findings include:

- Deep conchal cup
- Inadequately folded anti-helical fold
- Commonly, poorly folded superior crus
- Increased cephalo-auricular distance
- Prominent, horizontally-oriented ear lobe (sometimes)

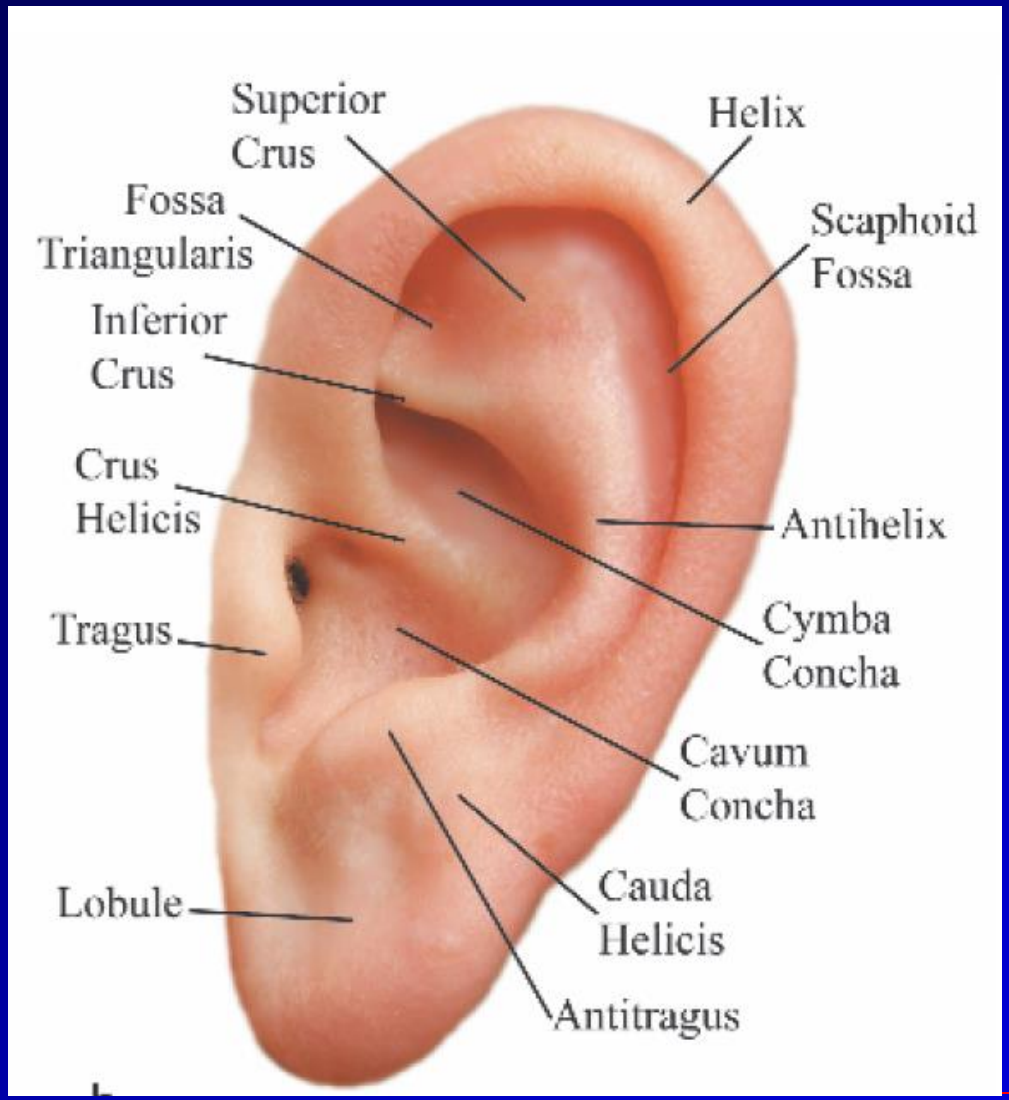


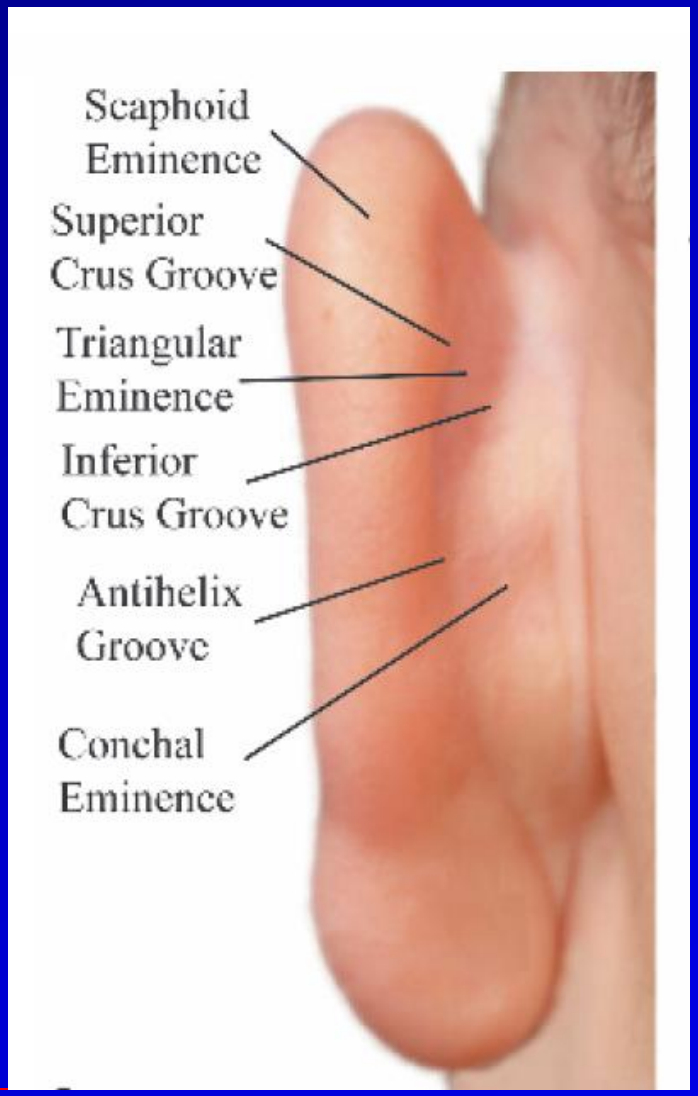
Anatomy of the Auricle (Pinna)

(For reference only)

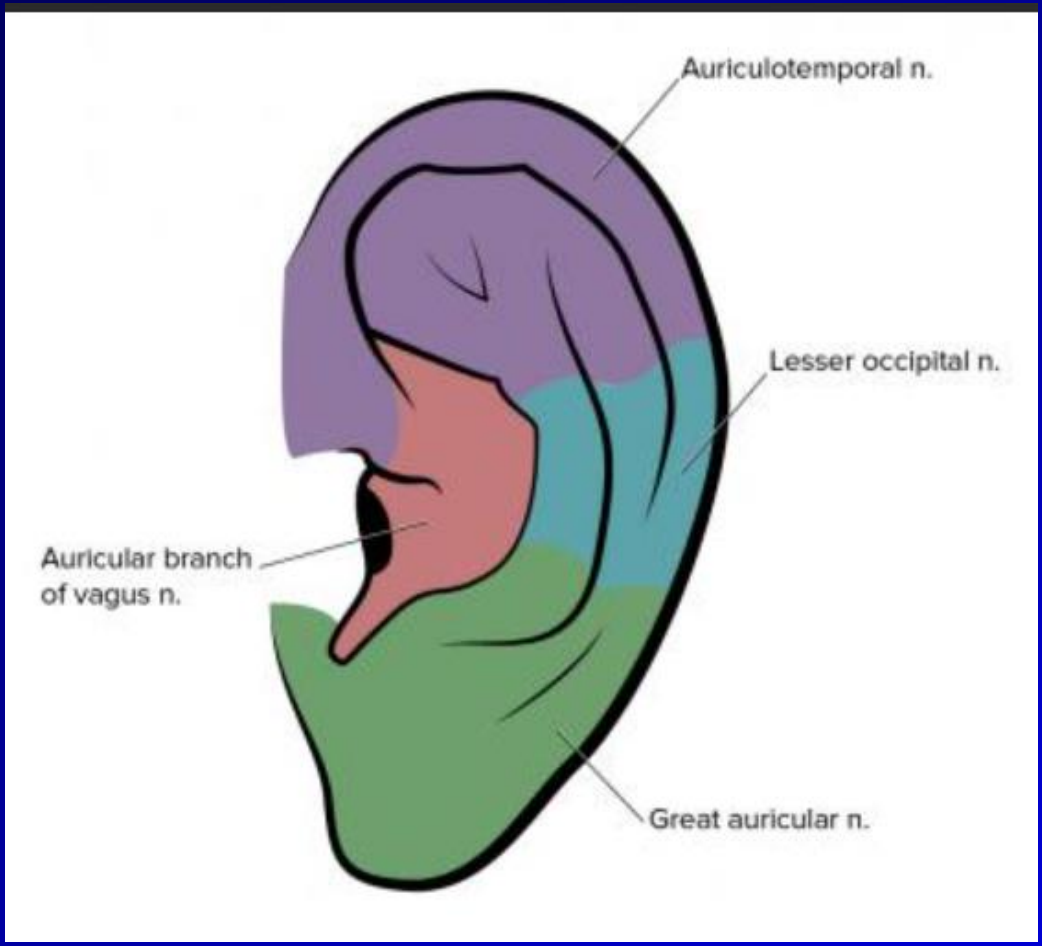
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Auricular Landmarks





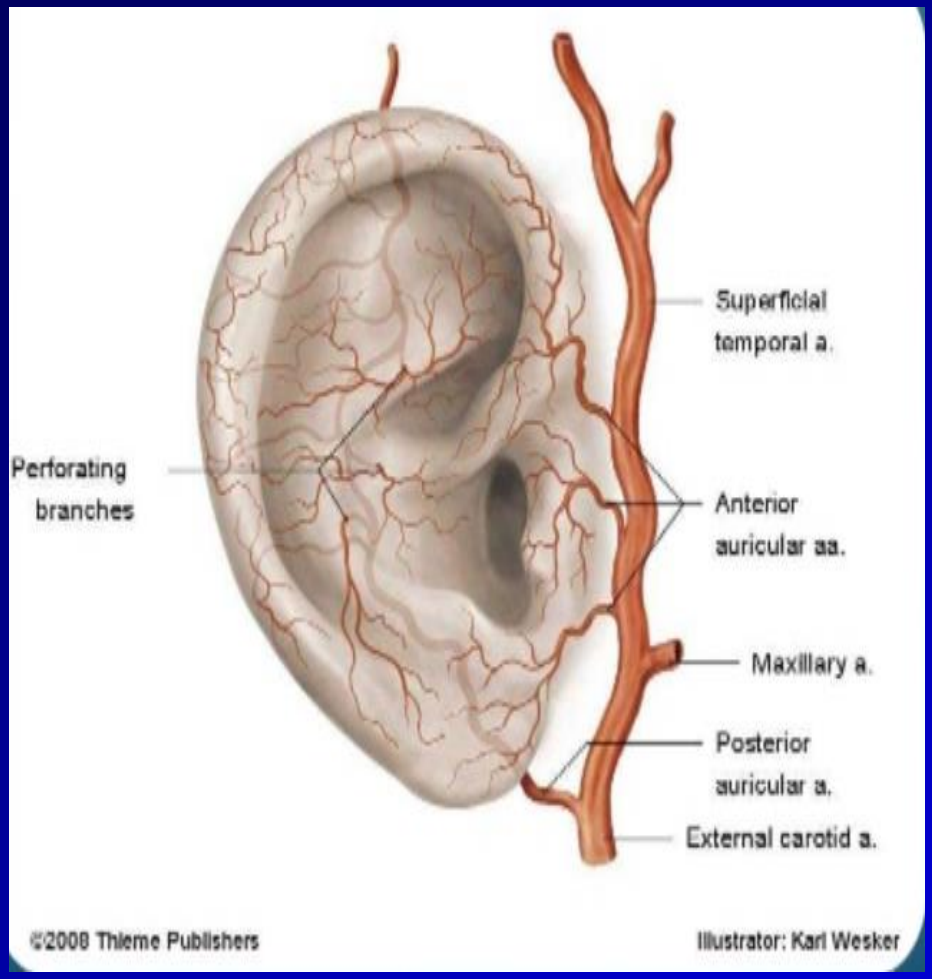
Auricular Sensory Innervation

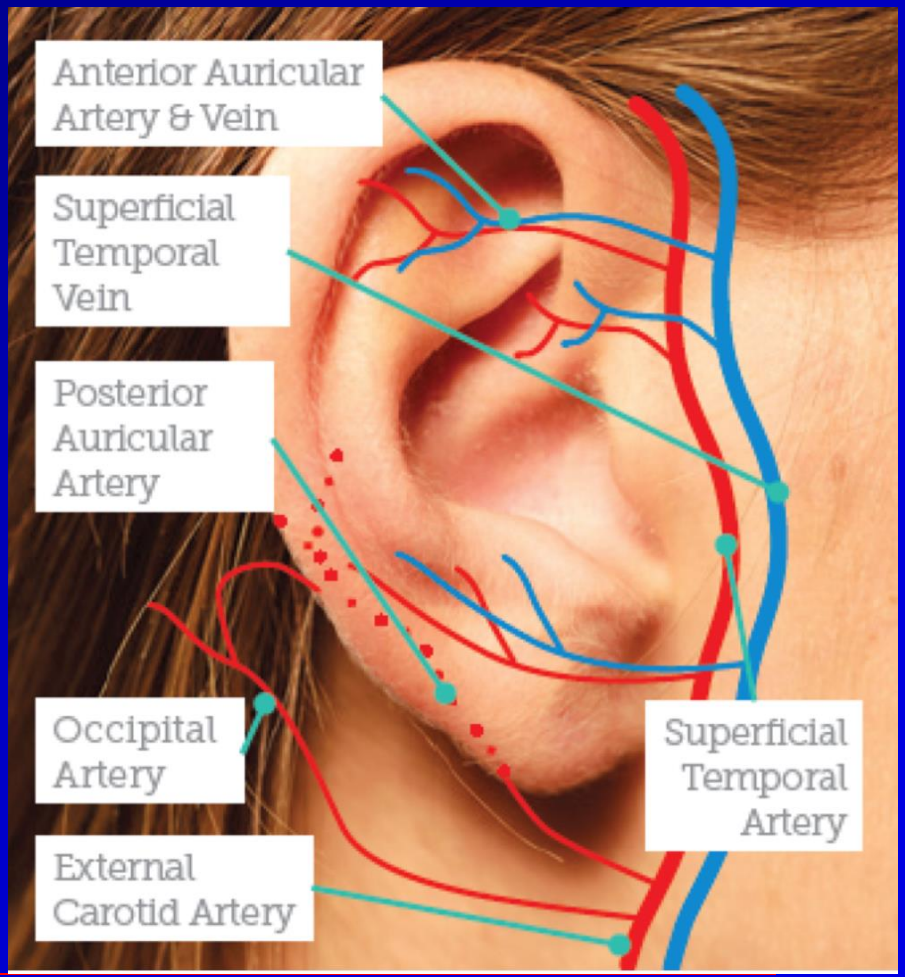


Complex Innervation:
Auriculotemporal br. of mandibular nerve - V_3
Lesser Occipital n. - C2
Great auricular n. - C2,C3
Auricular br. of Vagus n. – CN X

For reference only

Blood Supply of the Auricle



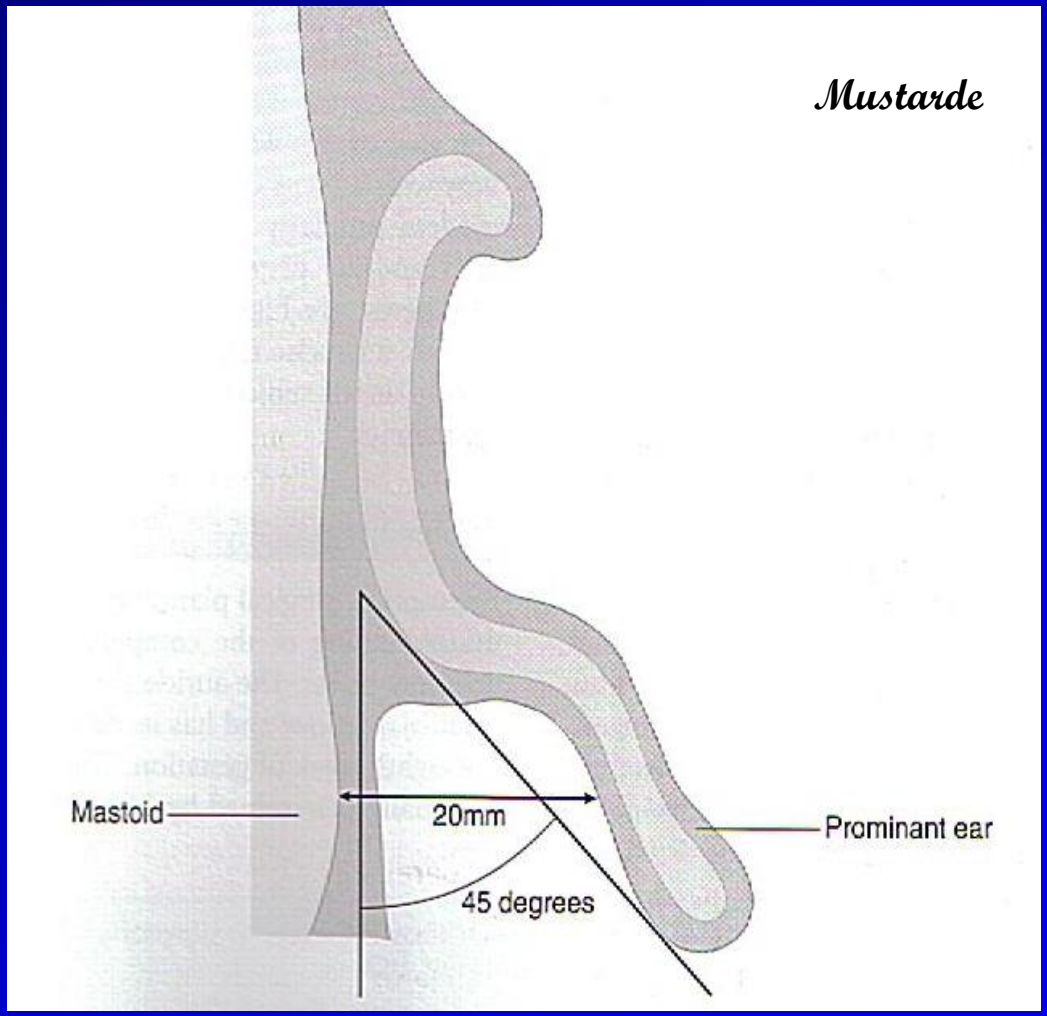


Otoplasty

- Auricle (pinna) achieves adult size at the age of seven.
- Otoplasty is commonly performed in young children of ages of five and older to avoid teasing by other children who call them “Dumbo ears”.
- In very young children, the pinna cartilage may be quite soft and less elastic.
- Otoplasty is also commonly performed in young adults.

Cephalo-auricular distance & angle

Normal auriculo-cephalic distance is 10 to 15mm. Greater distance than 20mm is considered prominent.

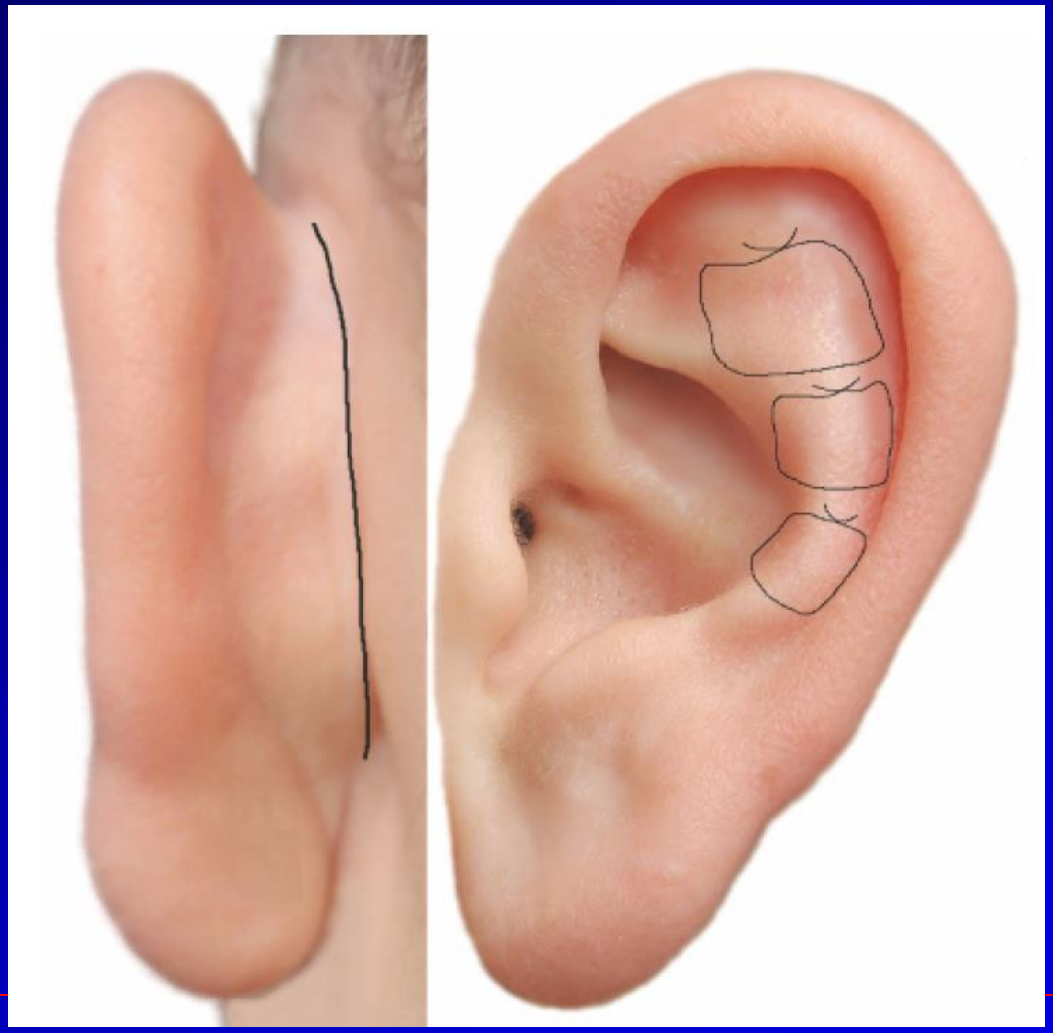


Otoplasty Techinque

Combination of Mustarde anti-helical folding and Furnas conchal set-back techniques

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Modified Mustarde technique for folding of the superior crus of the anti-helix



Marking of the superior & inferior crura of anti-helical fold and the scaphoid & triangular fossae

Otoplasty Technique Summarized(1)

- Conservative elliptical skin excision is made above the auriculo-mastoid fold.
- Skin flap is elevated on the medial aspect all the way to the helical rim to obtain exposure of the posterior aspect of the anti-helical fold.
- The conchal cup is undermined anteriorly towards the external auditory meatus with exposure of the posterior auricular muscle.
- The underlying muscle is resected for conchal set back (medial re-positioning).
- Preliminary folding of the superior anti-helical fold may be accomplished with silk sutures placed from the **lateral** aspect of the pinna, or by marking of proposed mattress sutures.

Design of Superior Crus Folding

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

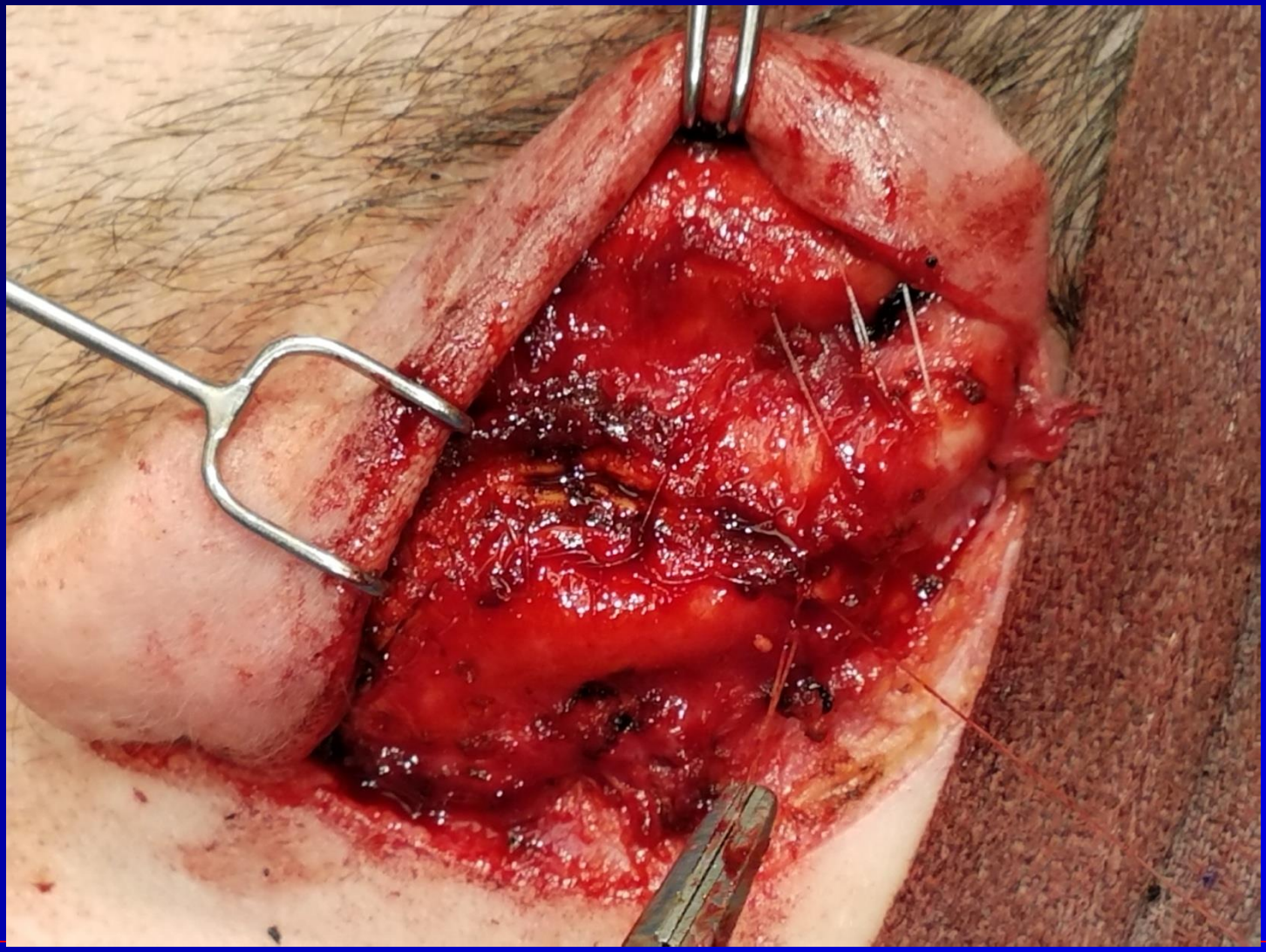
Removal of Cartilage Wedge to Allow Folding of the Superior Helical Fold

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty Technique Summarized (2)

- From the **lateral** aspect of the pinna, short 27G needles are inserted to mark suture. Folding (tubing) of the superior crus is accomplished from the medial aspect using two to three 4-0 clear nylon horizontal mattress sutures.
- Conchal cup height is evaluated by the set-back of the concha. Height measurement is obtained to be compared to the other side.
- Additional lowering of the concha cavum is performed by tangential excision of cartilage or by removal of a narrow strip of conchal cartilage. Edges are made smooth, and lateral perichondrium is preserved.

Anti-helical Folding Sutures

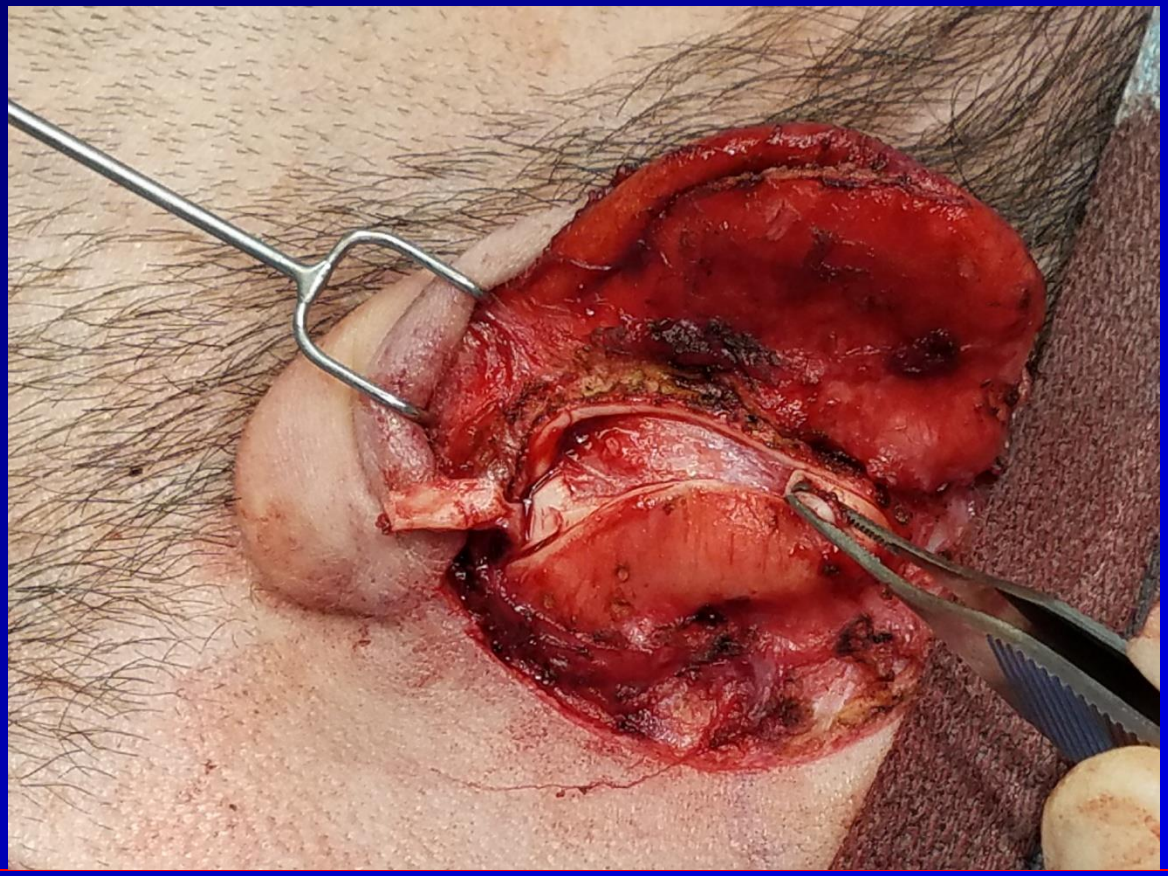


Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Folding of the Superior Anti-helical Fold

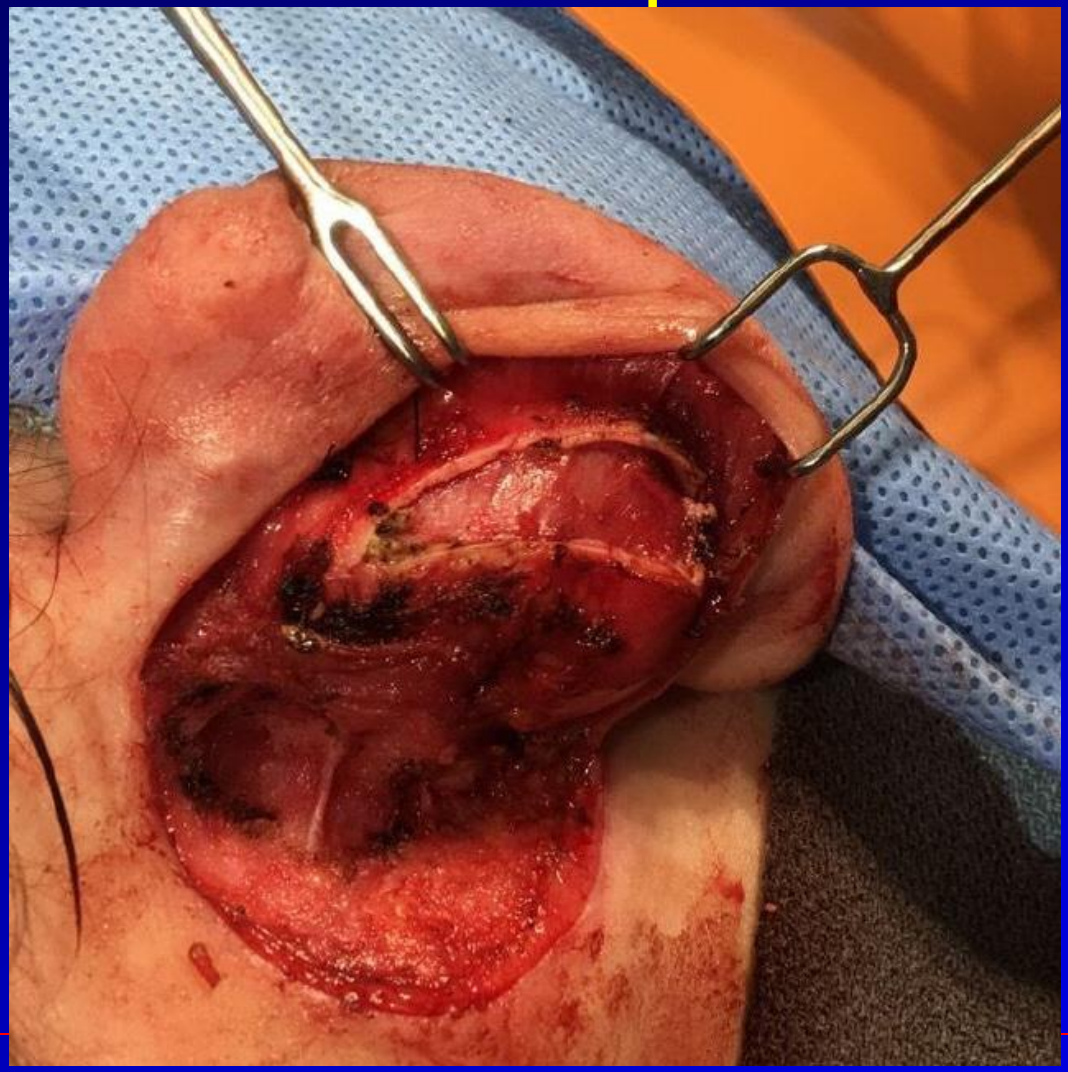
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Strip of Cartilage Excised & Height of the Cup Reduced



Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

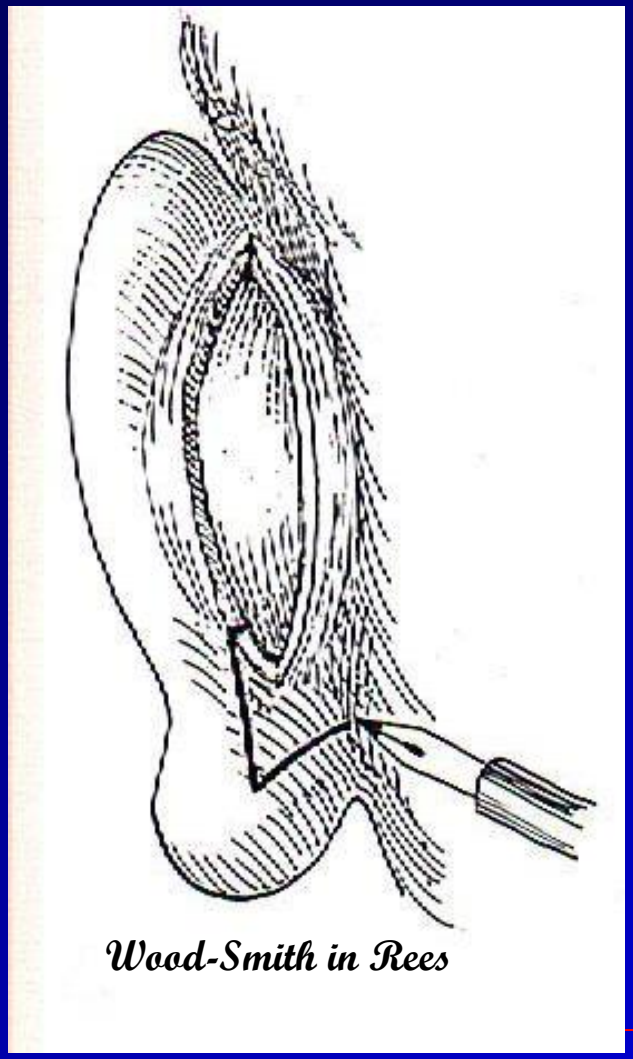
Conchal Set Back – Modified Furnas Technique

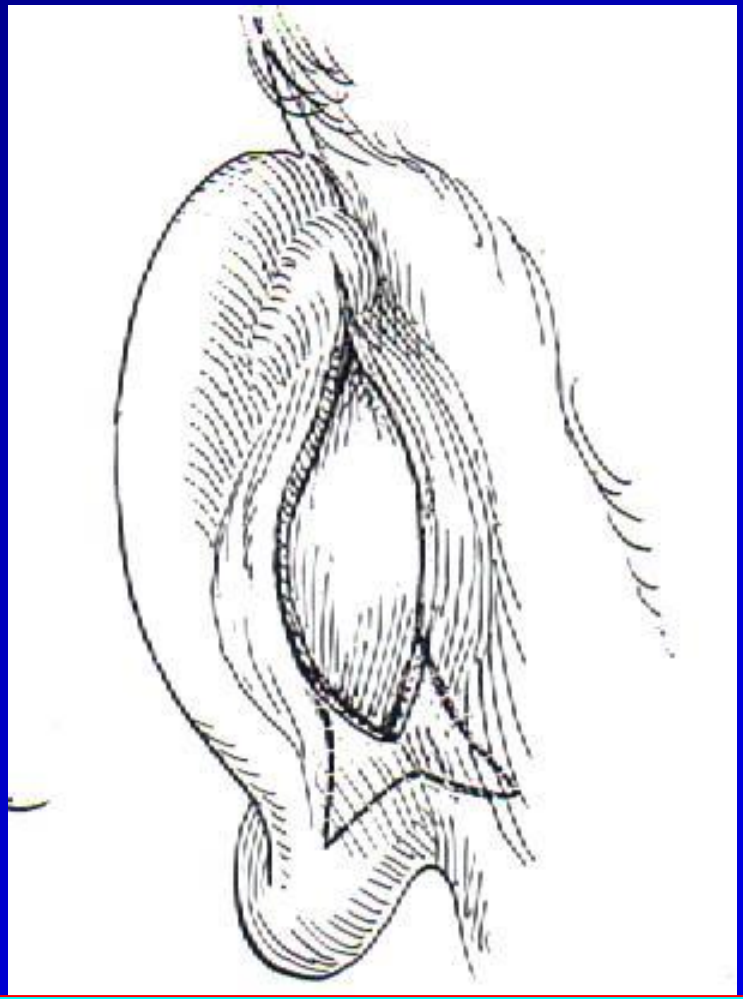


Completed Otoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Skin excision for correction of prominent lobule





Excision of mirror image of V-shaped piece of skin

Otoplasty Technique Summarized (3)

- Conchal cup is secured with 2 to 3 permanent monofilament sutures such as 4-0 clear nylon. Braided sutures are more likely to spit out.
- Remainder of the reconstruction is performed using 5-0 PDS followed by skin closure, usually with absorbable 6-0 plain suture.
- Compression dressing is applied with careful attention to pad with cotton both laterally and medially to avoid pressure necrosis of the auricular skin.

Padded compression dressing

Post-operative Care

- Ciprofloxacin 500mg bid for 5 days (Pseudomonas prophylaxis)
- Compression dressing for 2 days
- Tennis head-band worn for about one week for coverage and for 4-6 weeks at night for protection against an accidental adverse folding of the pinna

Complications of Otoplasty & Treatment

- **Hematoma** – need a conforming, compressive dressing for 24-48 hrs; avoid pressure points
- **Asymmetry** & cartilage irregularities– diminish by careful pre-op analysis and precise placement of cartilage excision and folding
- **Infection & perichondritis** – use antibiotics such as ciprofloxacin for uptake into cartilage
- **Palpable & extruding sutures** irregularities
- **Numbness** & paresthesias (resolve with time)
- **Hypertrophic scars and keloids** – inject a mixture of 0.1mL Triamcinolone (40mg/cc) combined with 0.4mL 5-Fluoro-uracil

Otoplasty (Ear Pinning)

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty (Ear Pinning)

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty (Ear Pinning)

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty (Ear Pinning)

Before

After

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty (Ear Pinning)

Before

After

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty (Ear Pinning)

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Otoplasty (Ear Pinning)

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

ESSENTIALS OF RHINOPLASTY

Jan Zemplenyi, MD

Bel-Red Center for Aesthetics, PS
Bellevue, WA
(425) 455-7225
www.belredcenter.com

Goals of rhinoplasty

- Improve facial harmony
- Achieve symmetry
- Correct nasal obstruction (septo-rhinoplasty & turbinoplasty)
- Avoid causing new problems such as new nasal breathing issues (obstruction)

Rhinoplasty in a nutshell

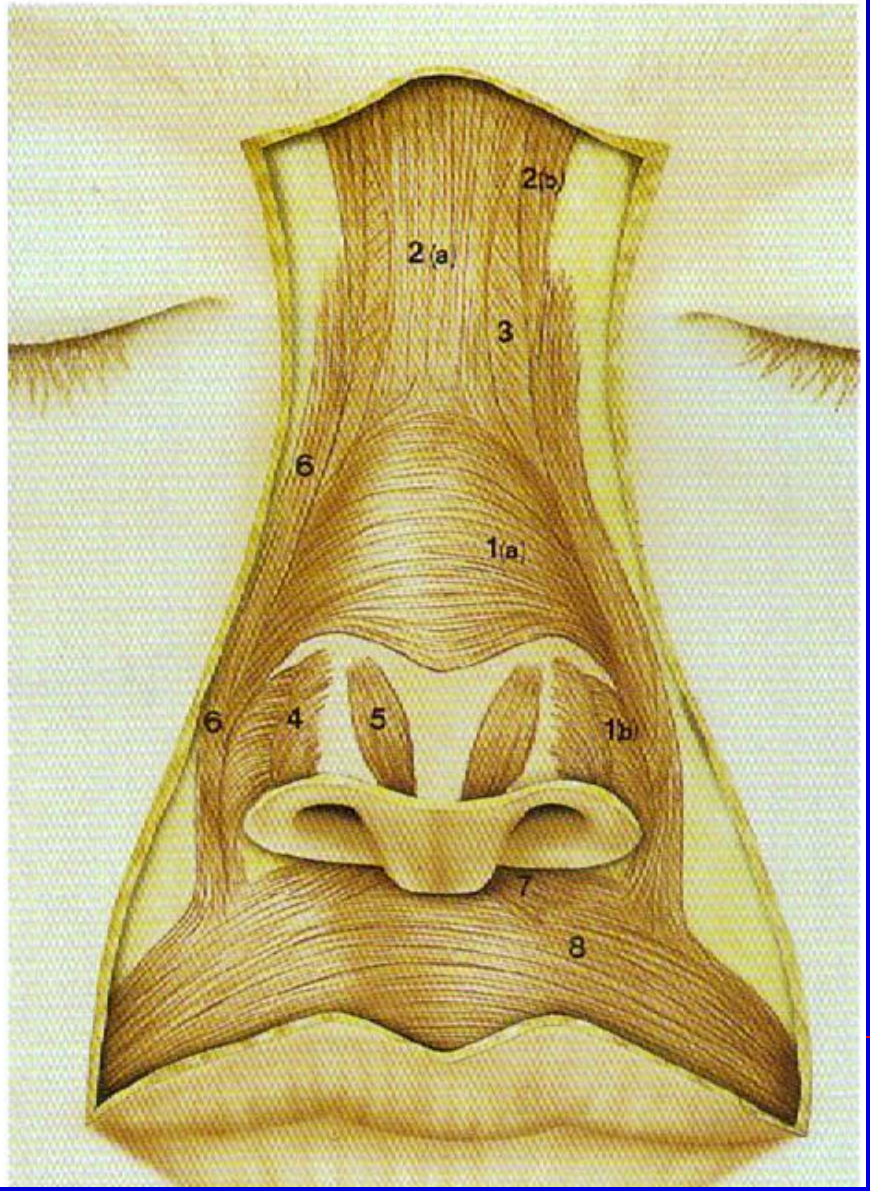
- Know the nasal anatomy & terminology
- Examine the septum and analyze the nose in frontal, profile & basal views
- Decide what parts need to be increased, decreased, rotated or supported
- **Reduction in size** = osteotomy /rasping of bone, conservative excision of cartilage, and suturing/ repositioning of cartilage
- **Augmentation & structural support** = cartilage grafting (septal, conchal, costal)

ANATOMY

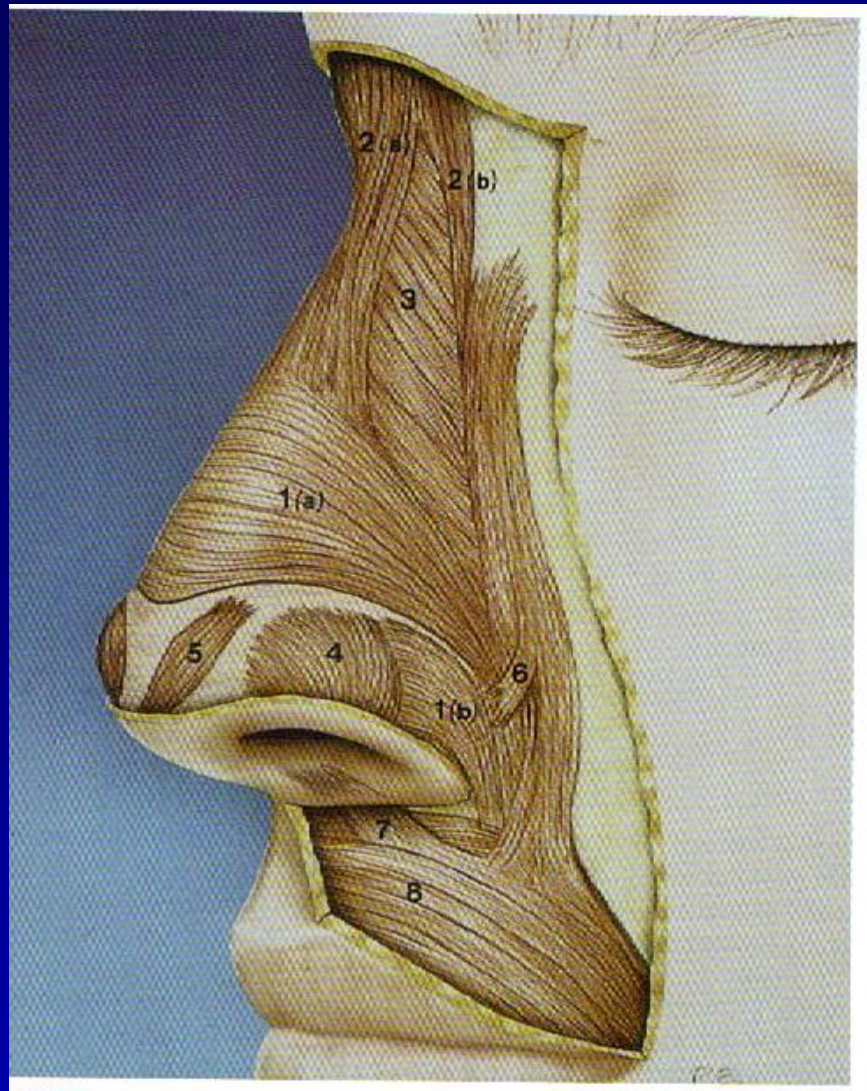
(mostly for reference)

Nasal SMAS musculature – innervation by CN VII (for reference only)

Key:
1(a) Transverse nasalis muscle
1(b) Alar nasalis muscle
2(a) Medial fascicle procerus muscle
2(b) Lateral fascicle procerus muscle
3 Anomalous nasi muscle
4 Dilator naris anterior muscle
5 Compressor narium minor muscle
6 Levator labii superioris alaeque nasi muscle
7 Depressor septi nasi muscle
8 Orbicularis oris muscle



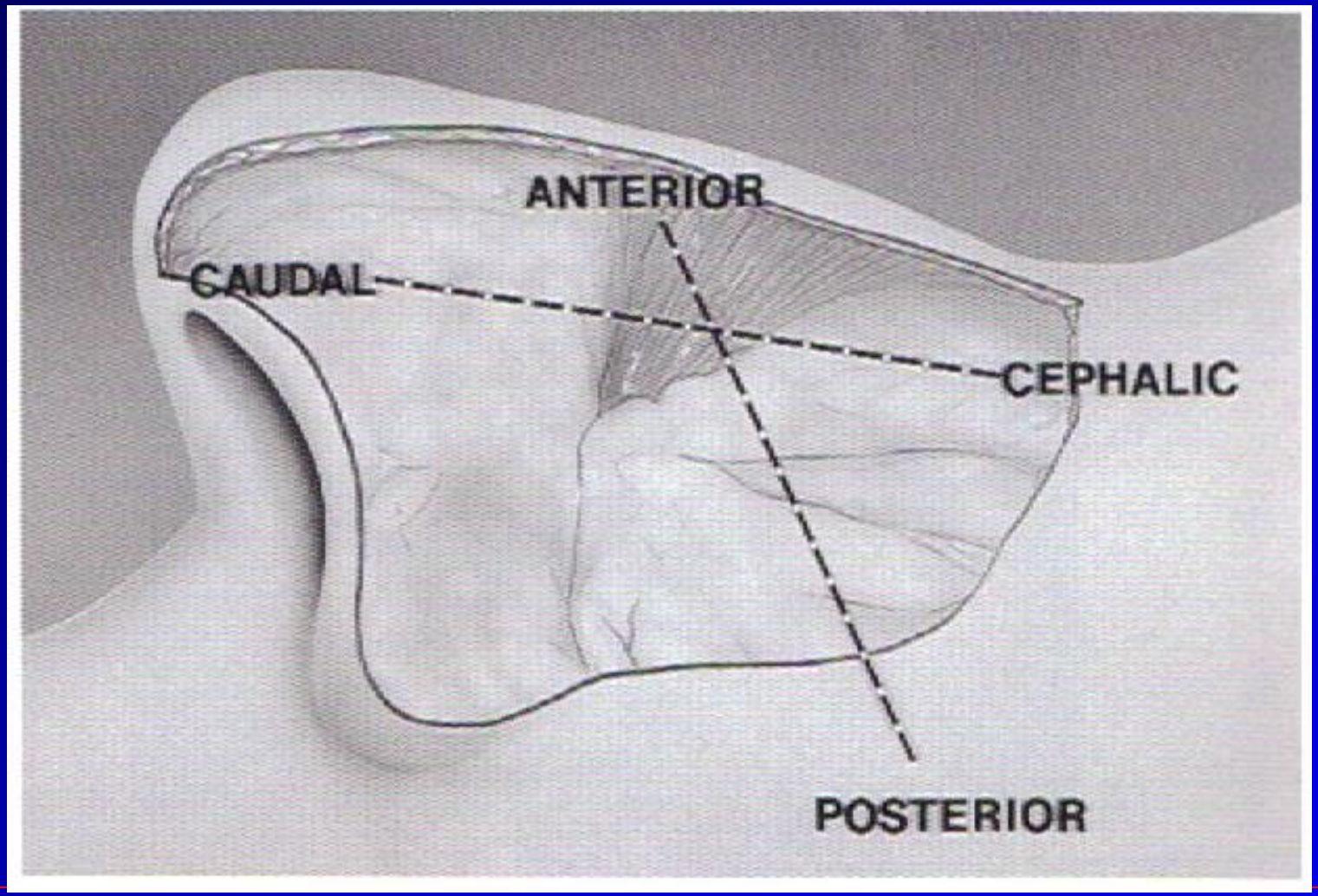
Nasal musculature – lateral view

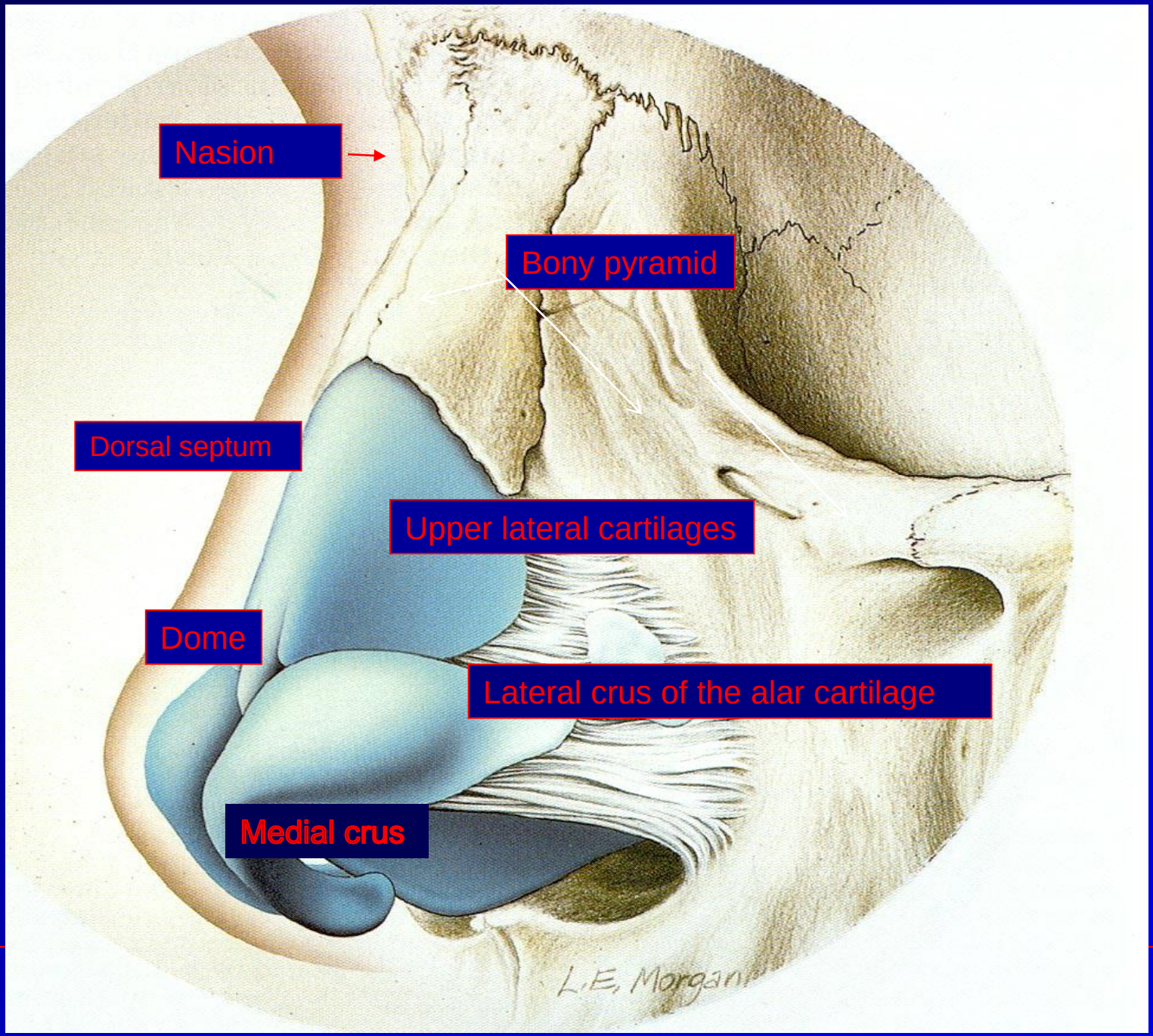


Key:
1(a) Transverse nasalis muscle
1(b) Alar nasalis muscle
2(a) Medial fascicle procerus muscle
2(b) Lateral fascicle procerus muscle
3 Anomalous nasi muscle
4 Dilator naris anterior muscle
5 Compressor narium minor muscle
6 Levator labii superioris alaeque nasi muscle
7 Depressor septi nasi muscle
8 Orbicularis oris muscle.

Tardy: Rhinoplasty

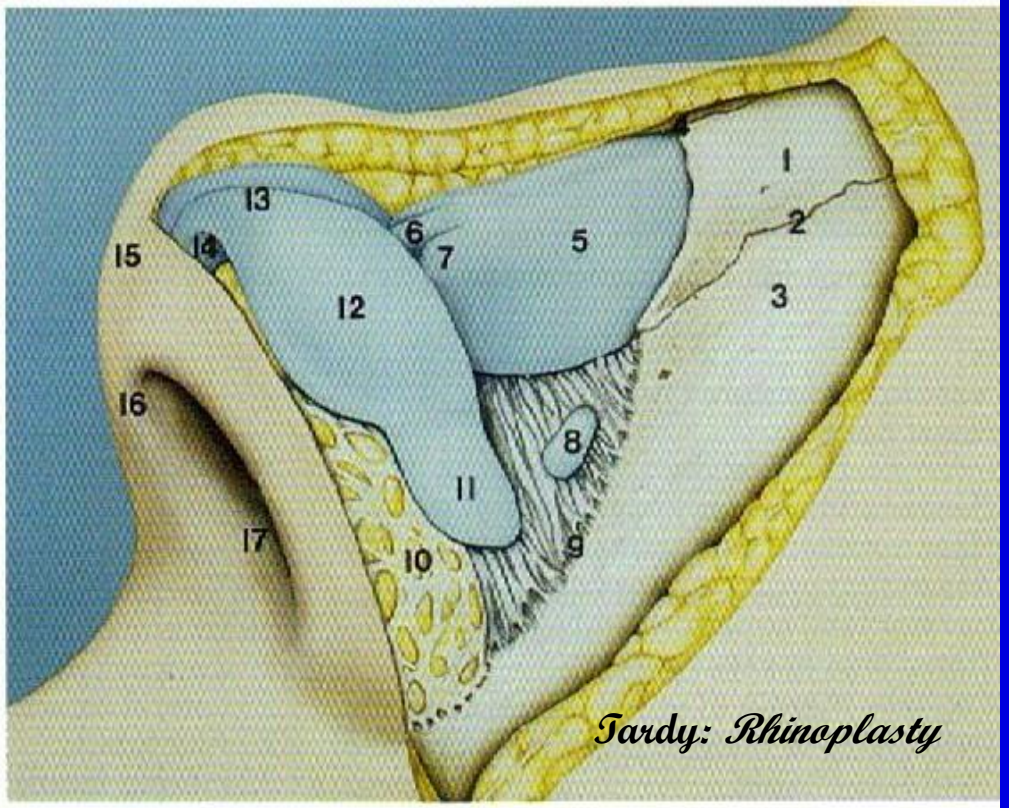
Nasal terminology (in a standing position)




Nasion
Bony pyramid
Dorsal septum
Upper lateral cartilages
Dome
Lateral crus of the alar cartilage
Medial crus
L.E. Morgan

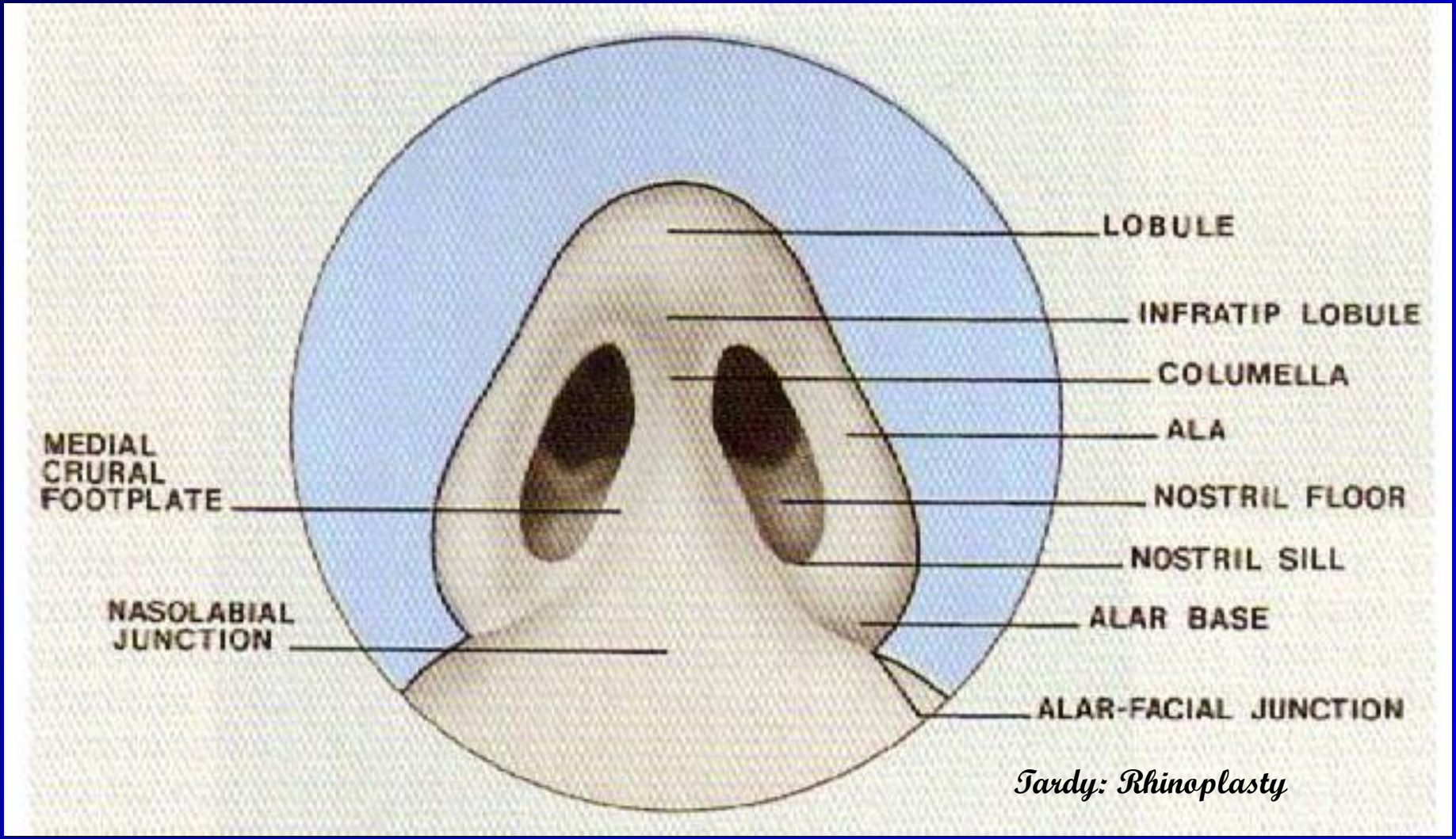
Anatomy of the Nasal Skeleton

Key:
1 Nasal bone
2 Nasomaxillary suture line
3 Ascending process of maxilla
4 Osseocartilaginous junction (rhinion)
5 Upper lateral cartilage
6 Anterior septal angle
7 Caudal free edge of upper lateral cartilage
8 Sesamoid cartilage
9 Pyriform margin
10 Alar lobule
11 Lateral crus of alar cartilage—lateral portion
12 Lateral crus of alar cartilage—central portion
13 Tip defining point
14 Intermediate crus (transitional segment of alar cartilage)
15 Infratip lobule
16 Columella
17 Medial crural footplate

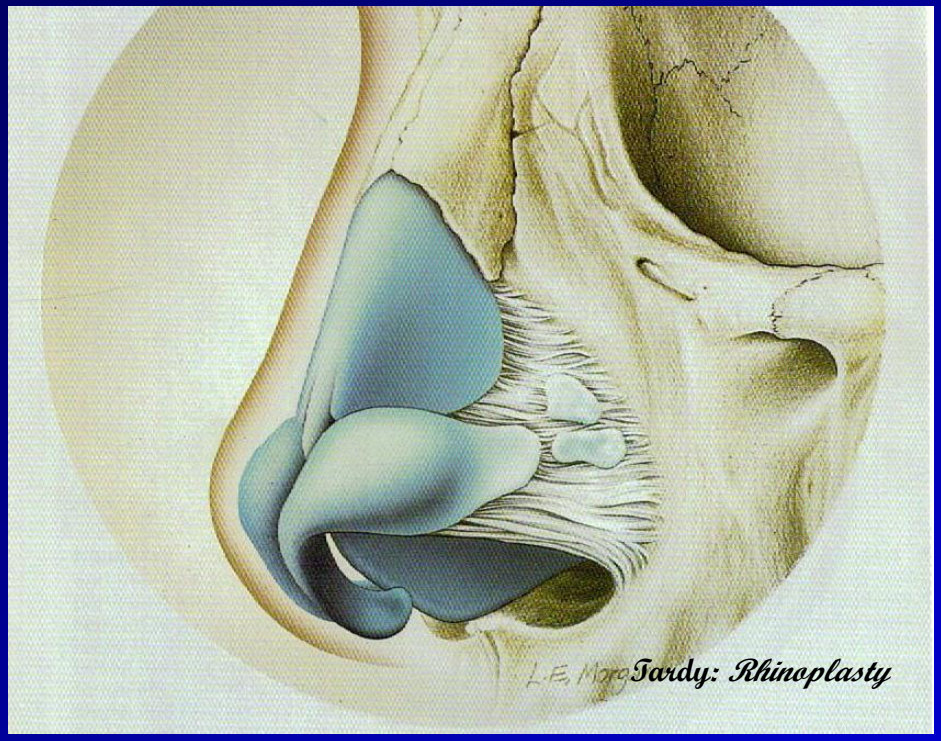


B

Surface anatomy-nasal base



Lower lateral cartilages

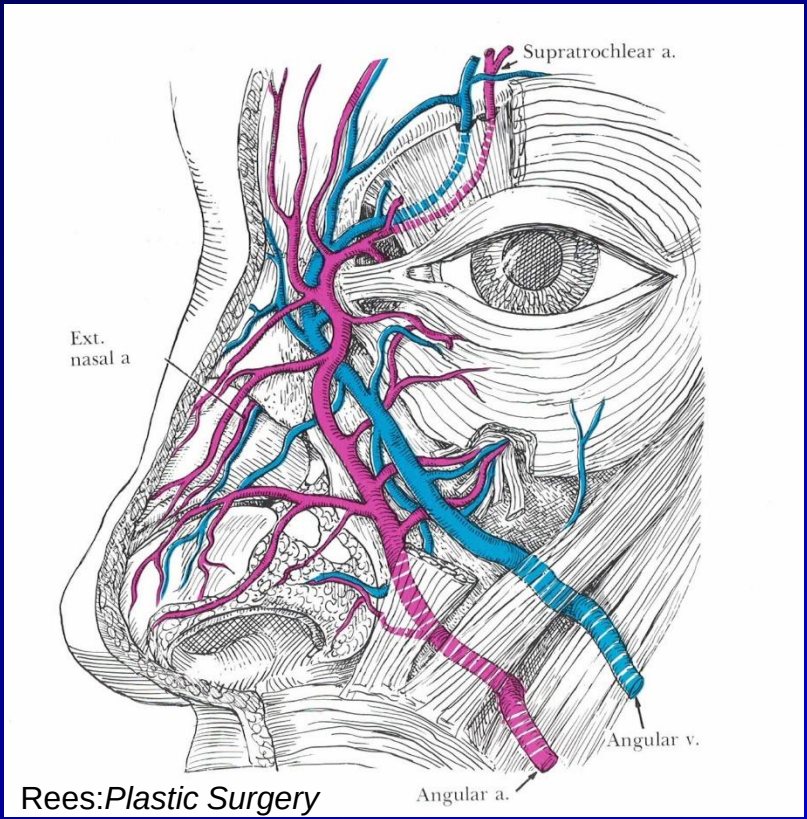


Please note that the lower lateral cartilage (LLC) is present only in about one half of the nasal ala (wing). Remainder of the ala is made of fibro-fatty tissue. The overall size, shape and symmetry of the paired lower lateral cartilages define the nasal tip. **Characteristics of lower lateral cartilages: width, strength, convexity, concavity, tilt and angle of orientation.**

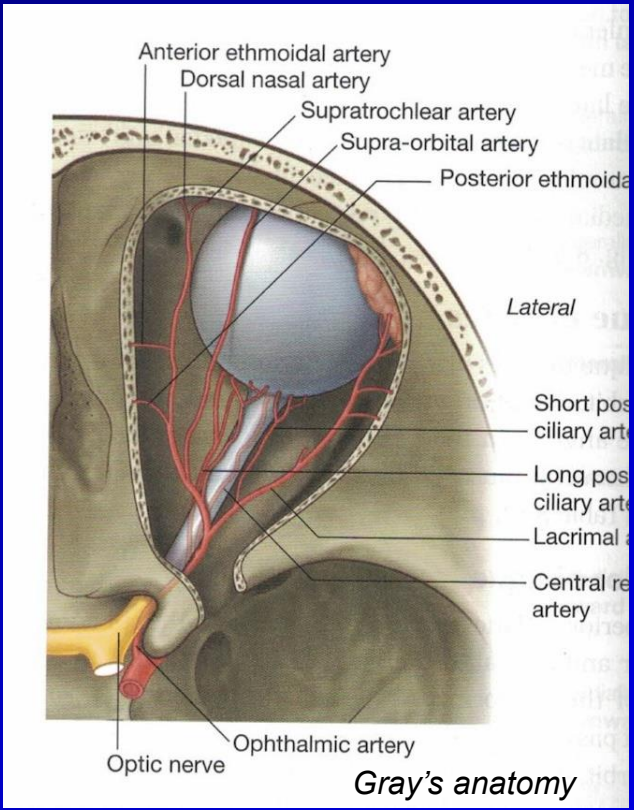
Variations of alar cartilage shape

Variations in shape, position and stiffness of alar cartilages make make nasal tip modifications challenging.

External Nose Blood Supply



Rees:*Plastic Surgery*

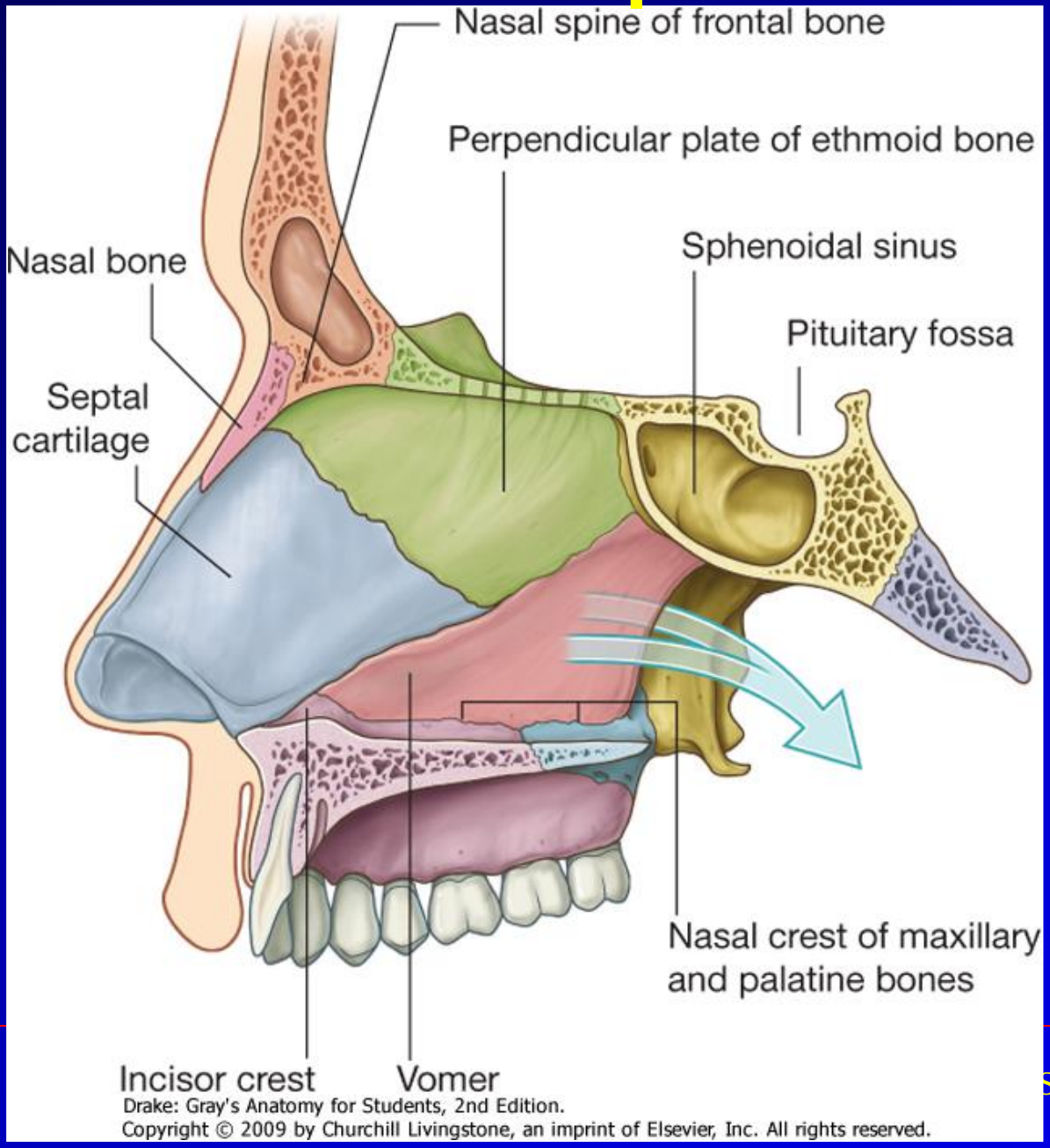


Gray's anatomy

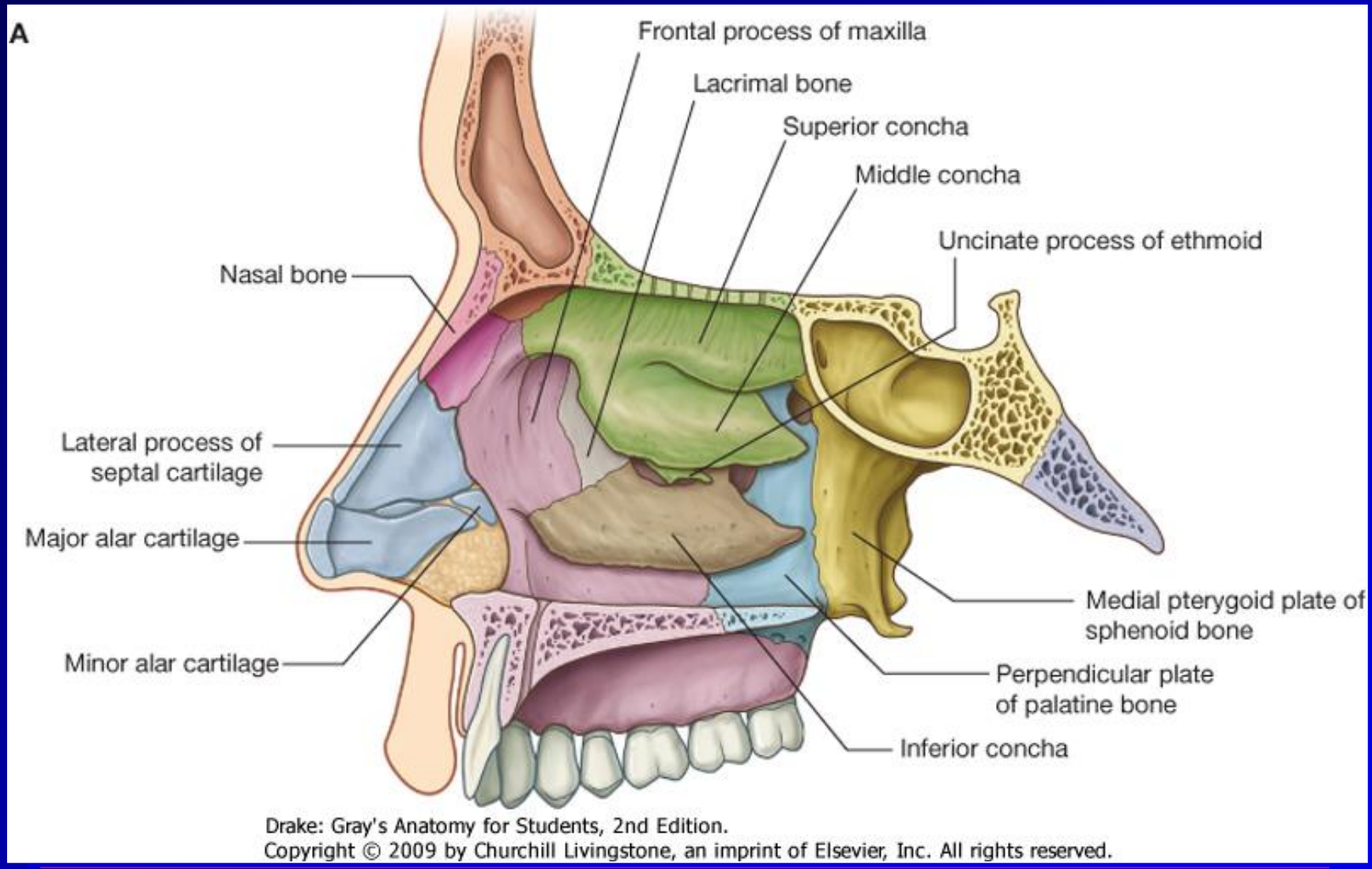
Supra-trocheal and Anterior Ethmoid arteries are supplied from the Optic artery (Internal Carotid); Angular artery (br. Facial a.) is Supplies from the External Carotid artery

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Nasal septum

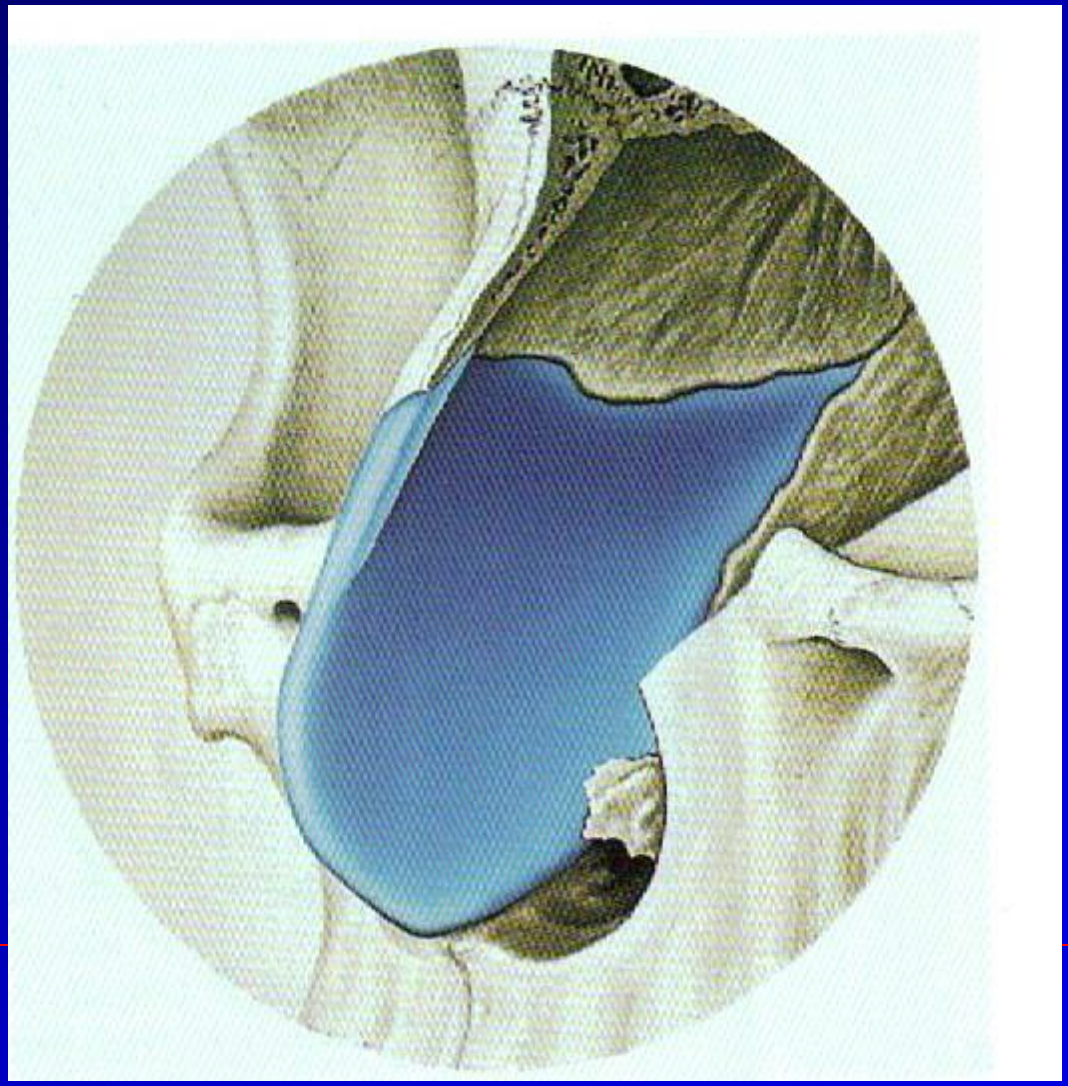


Lateral nasal cavity wall (reference only)



Drake: Gray's Anatomy for Students, 2nd Edition.

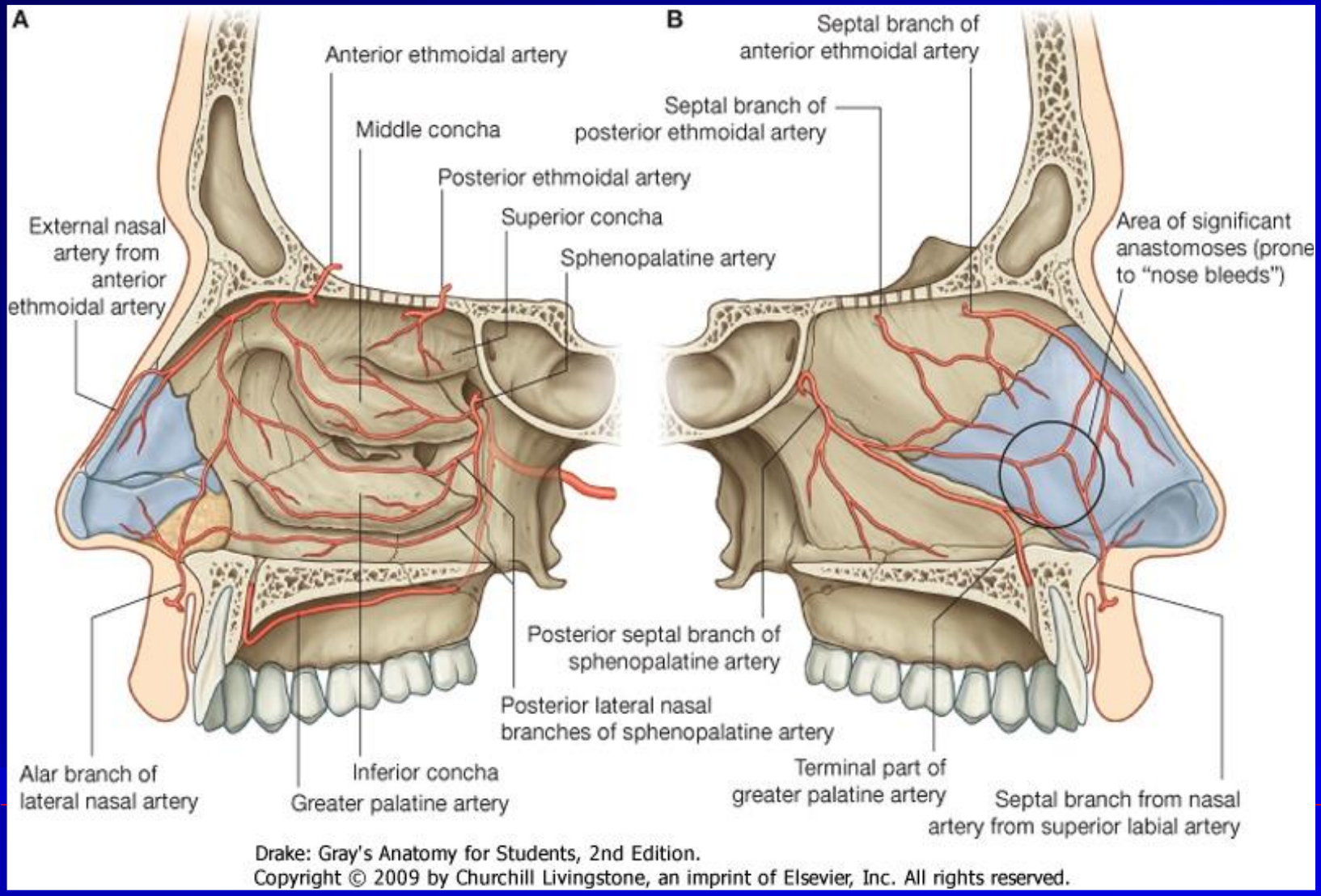
Notice the dorsal aspect of the nasal septum consisting of bone and cartilage



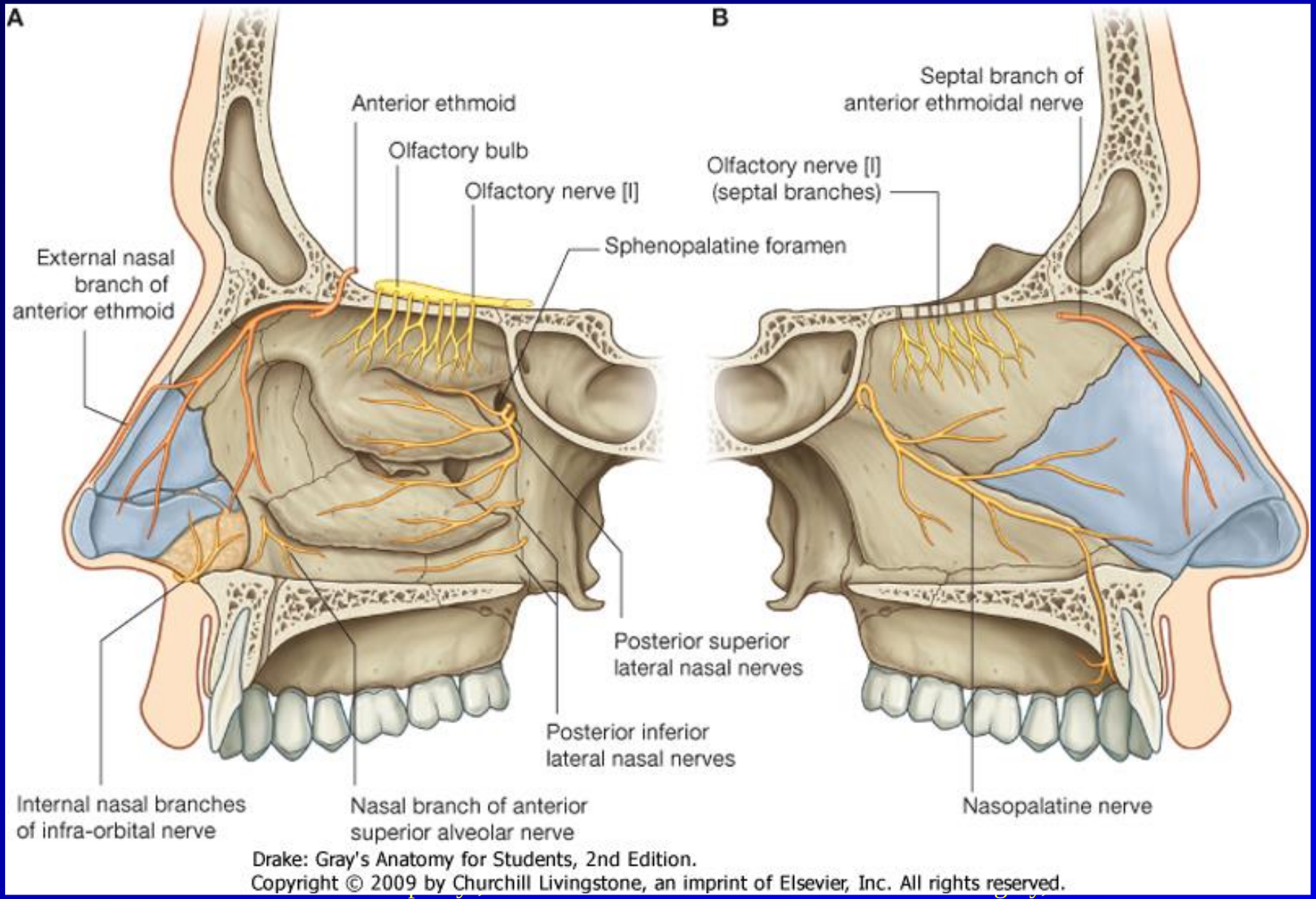
Nasal blood supply

Rich plexus of arteries originating both from internal and external carotid arteries

Arteries of the nasal septum and the lateral nasal wall (for reference only)



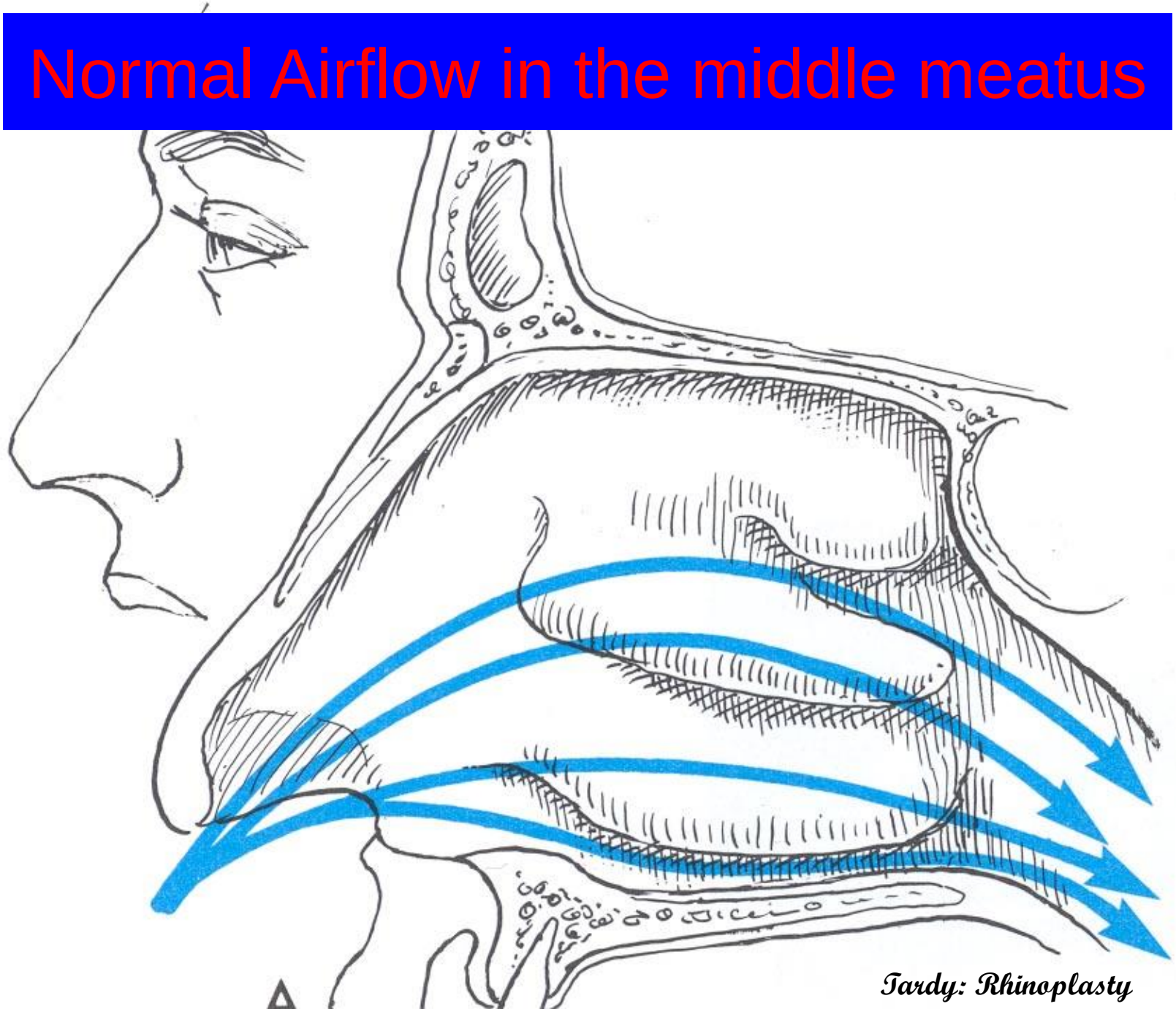
Innervation of septum and lateral wall



Nasal functions

- Voice resonance
- Humidification and temperature control of inspired air
- Olfaction (sense of smell)
- Filtration of particulate matter (mucociliary transport)
- Anti-viral, antimicrobial and immunologic defense roles within nasal mucosa for protection of the lower respiratory tract

Normal Airflow in the middle meatus



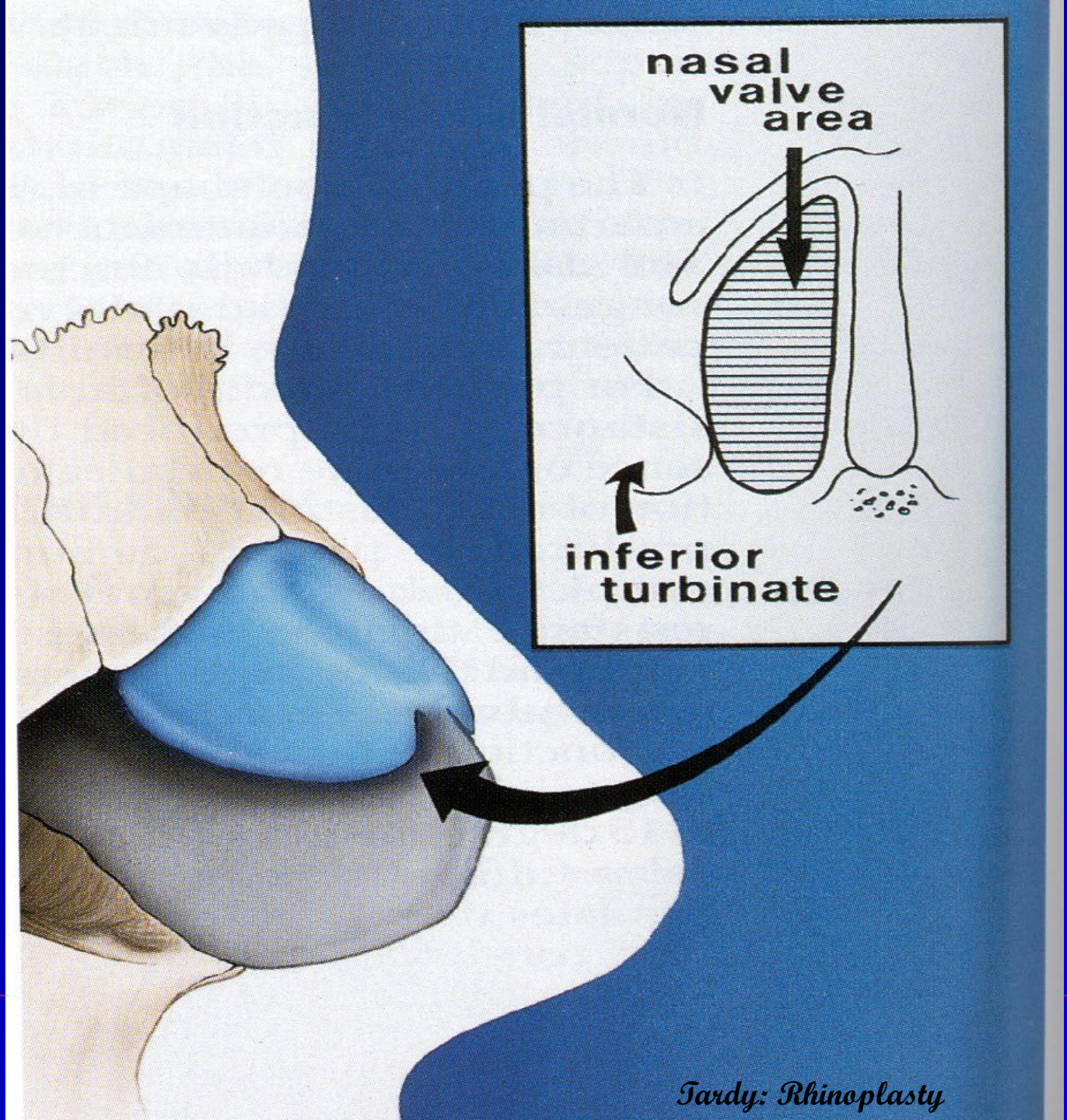
Tardy: Rhinoplasty

NASAL AIR FLOW

Air flows through the nasal cavity in a laminar, curved pattern principally below the middle turbinate and over the inferior turbinate (the middle meatus). The flow is directed through the nasal valve. **The nasal valve** is the region of greatest resistance to flow and is the flow-limiting region of the nasal airway pasage.

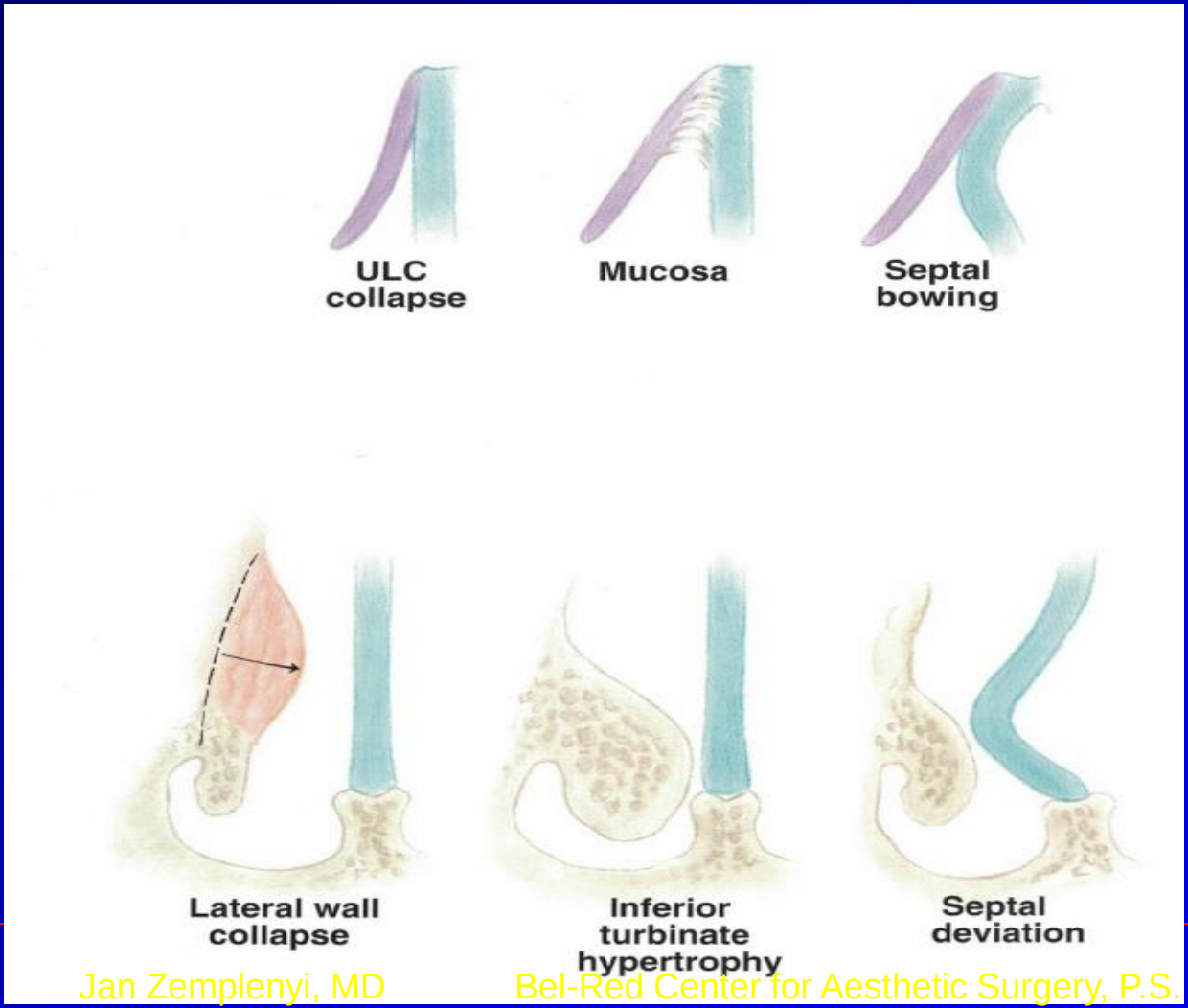
INTERNAL NASAL VALVE

In cross-section the nasal valve area is bordered by the caudal portion of the upper lateral cartilage, the septum medially and the head of the inferior turbinate infero-laterally



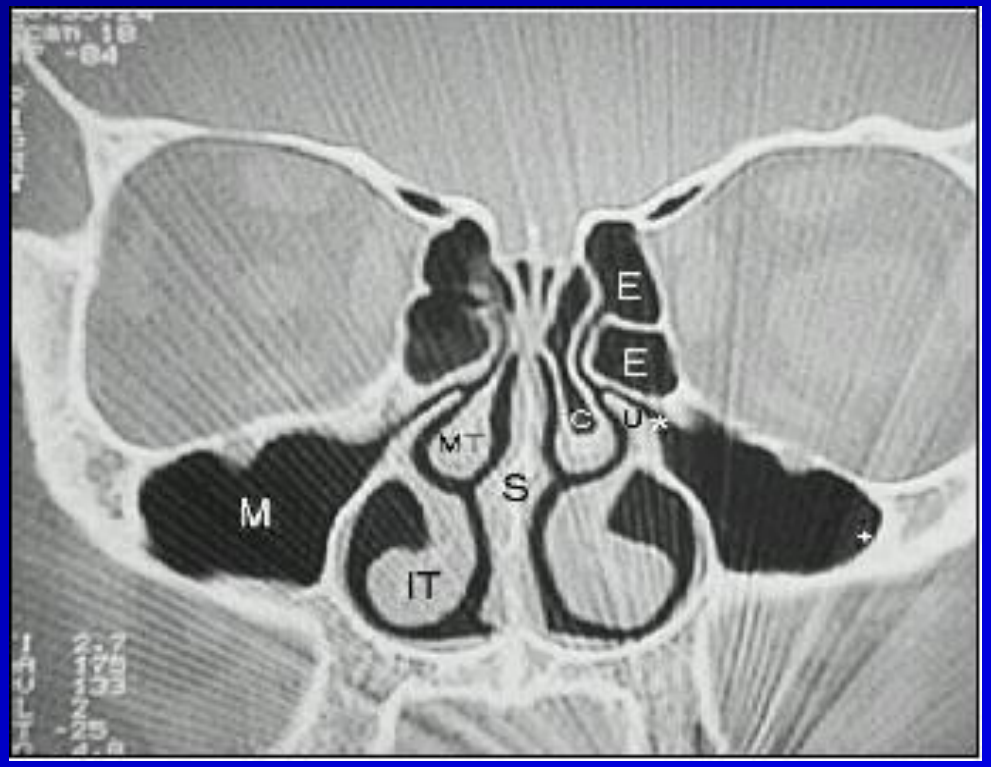
Tardy: Rhinoplasty

Various causes of internal nasal valve obstruction (for reference only)



Coronal CT of the nose & sinuses (for refence only)

- E - ethmoid air cells
- M - maxillary sinus
- IT- inferior turbinate
- MT- middle turbinate
- S - septum
- U - uncinate process
- C - concha bullosa



PATIENT EVALUATION

Pertinent Patient History

- Define patient's precise concerns about the nasal appearance and function
- Prior nasal surgery or trauma?
- Presence of nasal dysfunction, obstruction, dryness, environmental allergies, decrease smell, recurrent epistaxis or sinus problems (discharge, post-nasal drip, facial pain)?
- Patient with nasal dysfunction needs a referral for an ENT evaluation

Danger signs (patient selection)

Be careful and aware of potential issues in young men *more than in > women who seek rhinoplasty.*

Rohrich et al: *Plast. Recon Surg 2004*

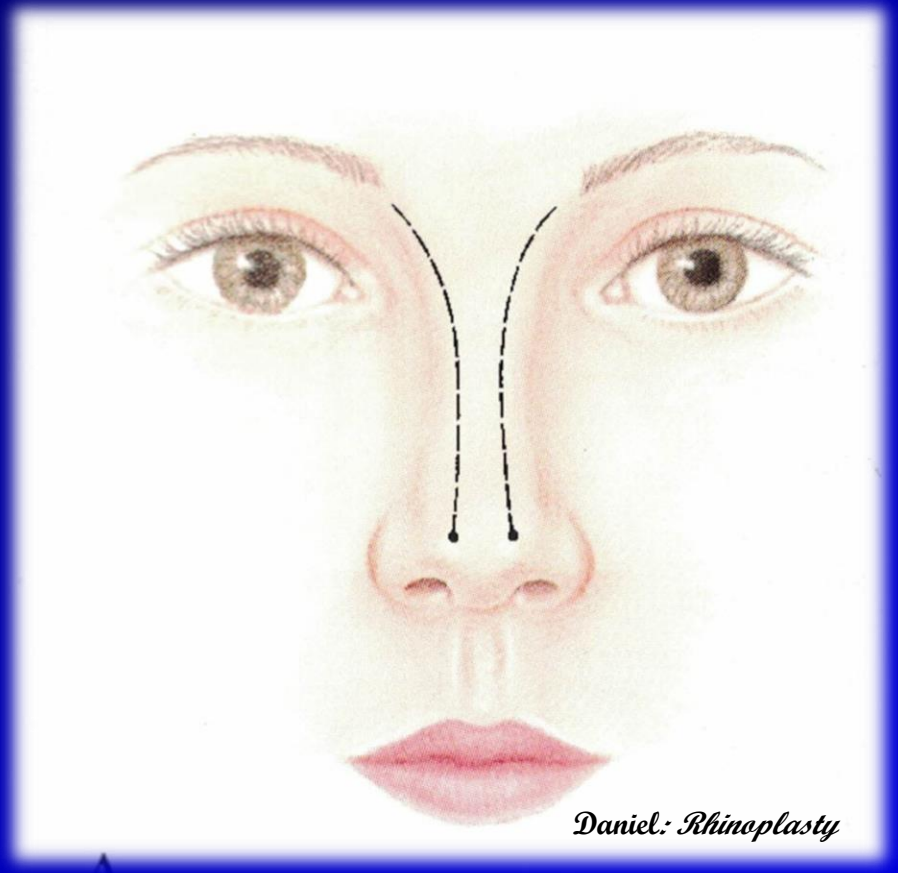
Patient evaluation

- **Obtain standard nasal photographs** for documentation and for interactive discussion with the patient;
- Standard views: frontal, basal (worm's eye), right & left profile, R & L 45^{o} obliques, bird's eye, lateral while smiling;
- Computerized imaging is helpful for discussion**—analyze the nasal photographs with the patient**

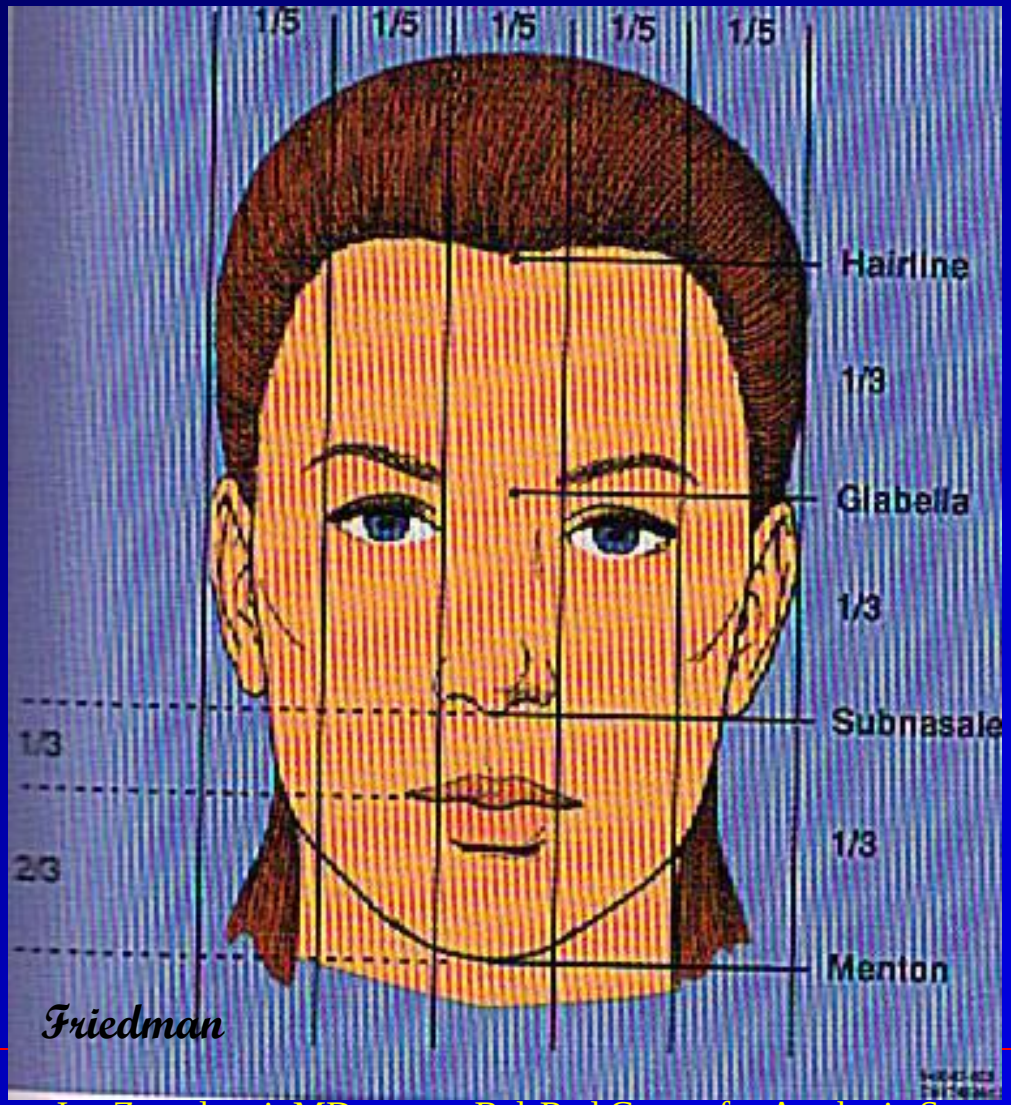
Patient evaluation – frontal view

- Assess nose for asymmetry, drift & twist
- Assess thickness of skin envelope
- Assess width of the nasal pyramid
- Assess for constriction of mid-vault or the “key-stone” region at the bony-osseous junction (upper lateral cartilage)
- Domes and alar cartilages (width, orientation)
- Evaluate width of the alar base
- Note tip irregularities
- Observe for collapse of external and internal nasal valve cartilages with deep nasal inspiration

Smooth, curved medial brow-to-tip line and the “tip-defining” highlight points



Nasal length and basal width: rule of thirds & fifths



Thickness of the nasal skin and rigidity of the cartilages

- **Palpaltion of the cartilages & the skin envelope**

- Thickness of the nasal skin envelope, firmness (rigidity) and position of the alar cartilages are major factors in determining the amount of achievable narrowing & sculpting the nasal tip. Thin skin allows for more tip sculpting but also shows even small irregularities

- African-American & Asian noses (platyrrhine noses) tend to have thick skin, wide alae, soft cartilages with an under-projected tip and a low bony dorsum – **these present challenging issues in rhinoplasty surgery**

Evaluate skin thickness

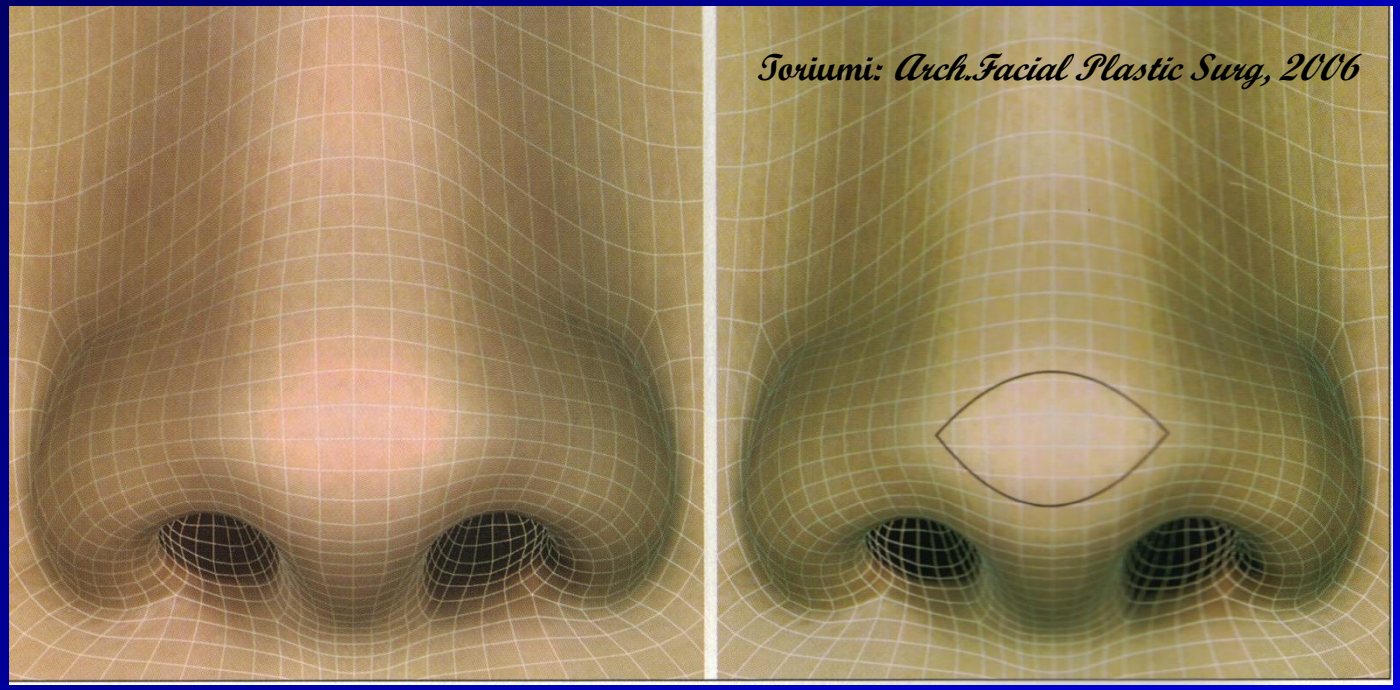
- **Rhinoplasty is surgery of nasal skeleton (bone and cartilage) and does not involve modifications of the skin envelope.**
- Skin re-drapes post-operatively over the modified structures
- **Presence of thick skin limits tip achievable** tip “definition” even once the normal post-op edema resolves in 6-12 months

Abnormal skin envelope: Rhinophyma

Before After

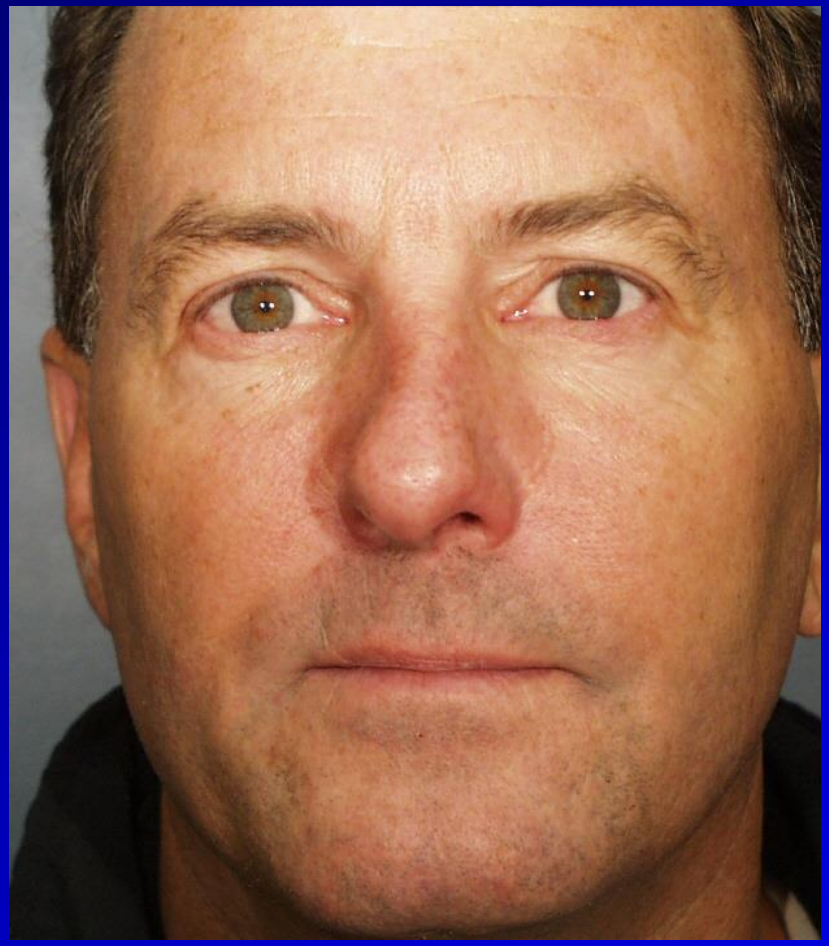
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

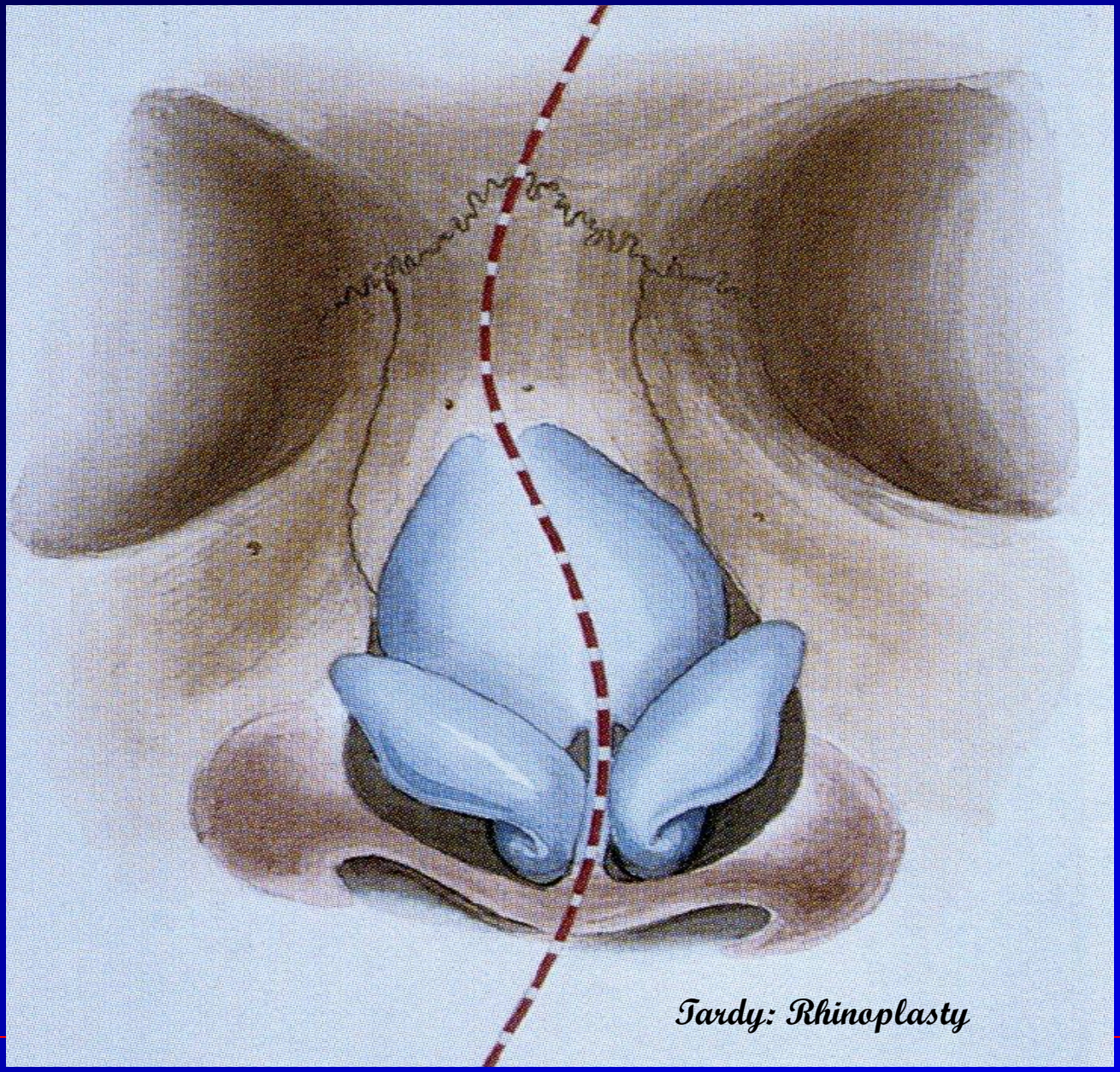
Interaction of light and shadow

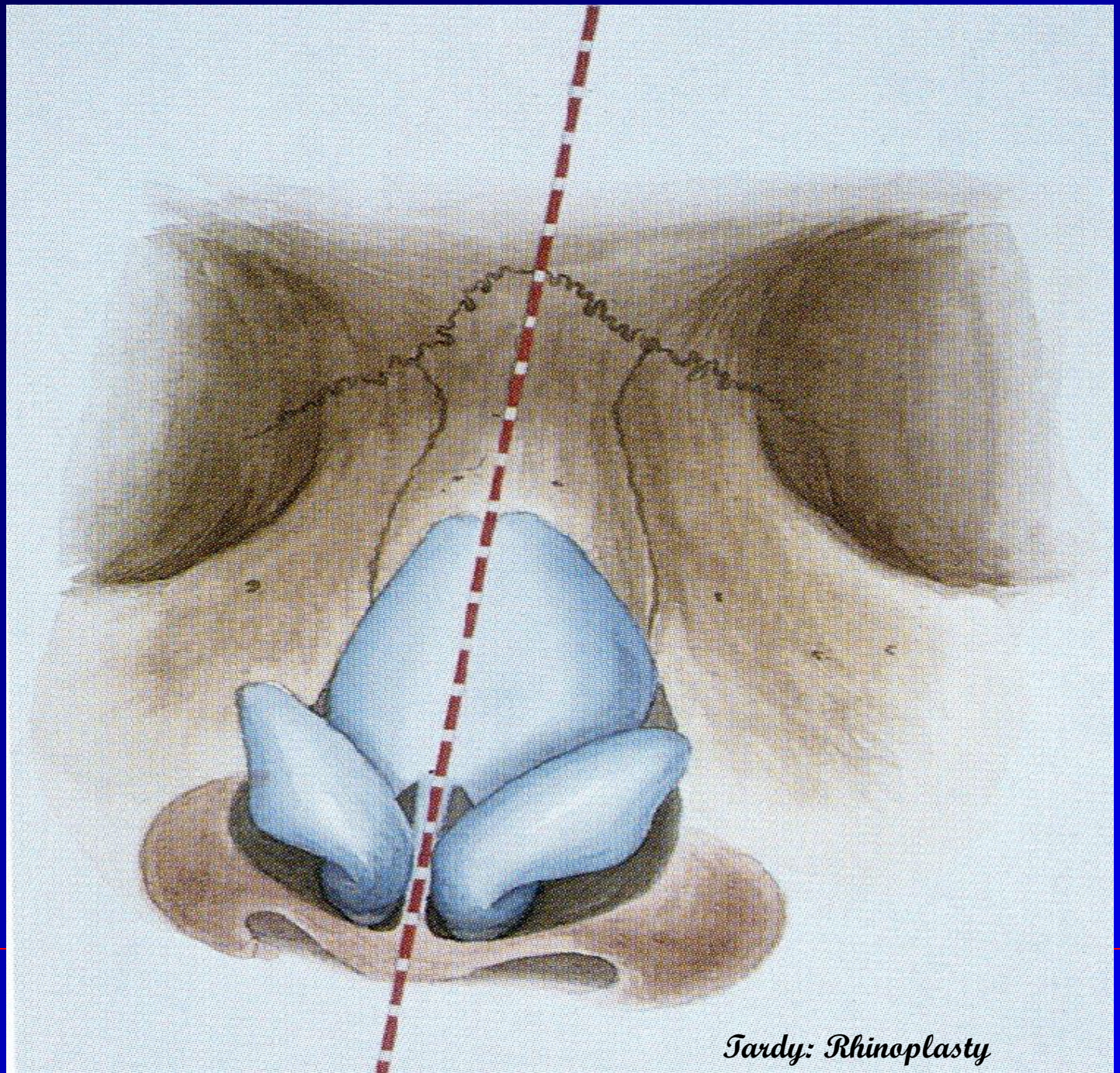


Smooth contour transition between tip lobule & lateral alar lobule. Alar rim margins resemble a seagull in flight.

Drifting, twisted nose



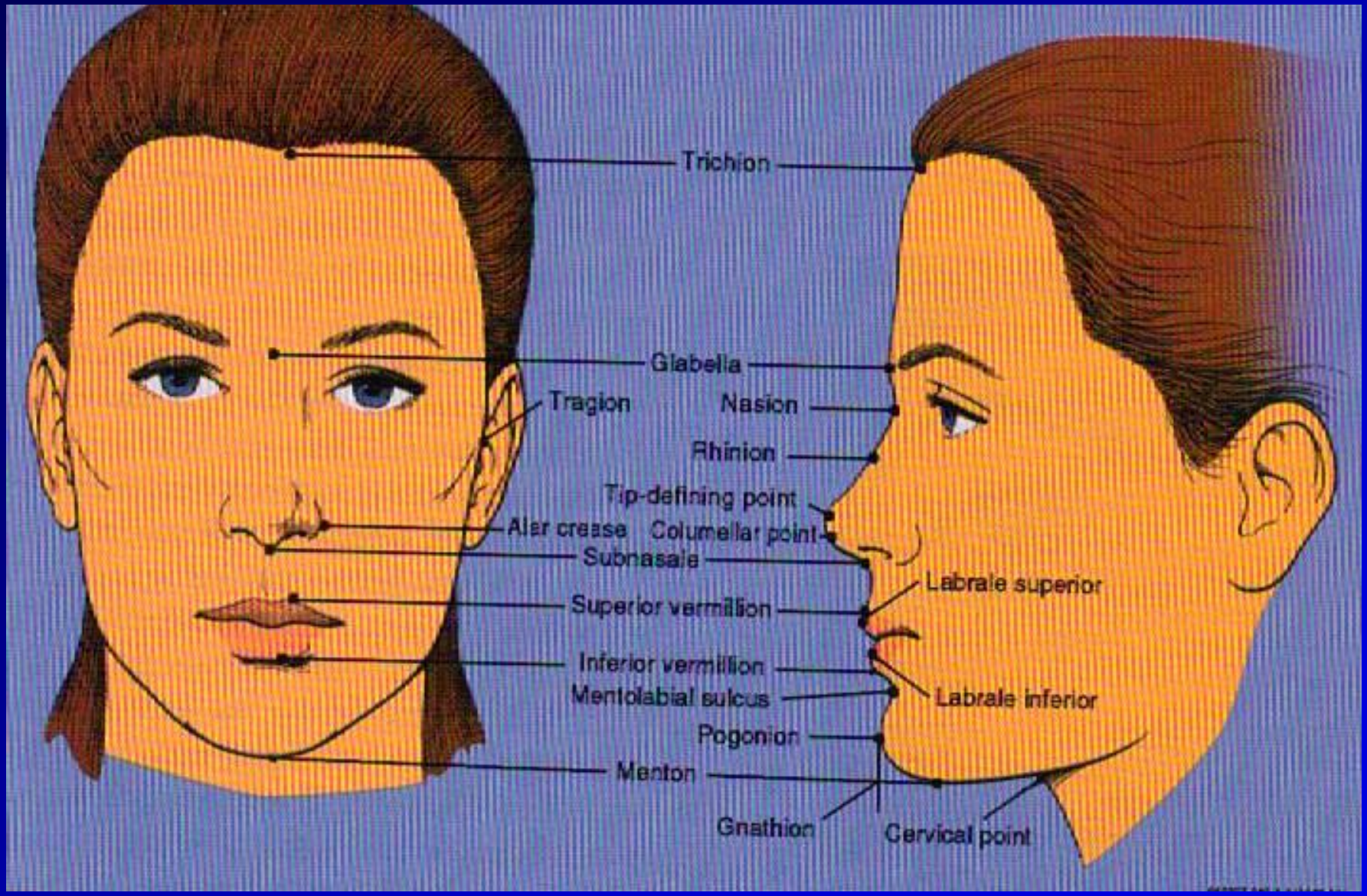

Tardy: Rhinoplasty



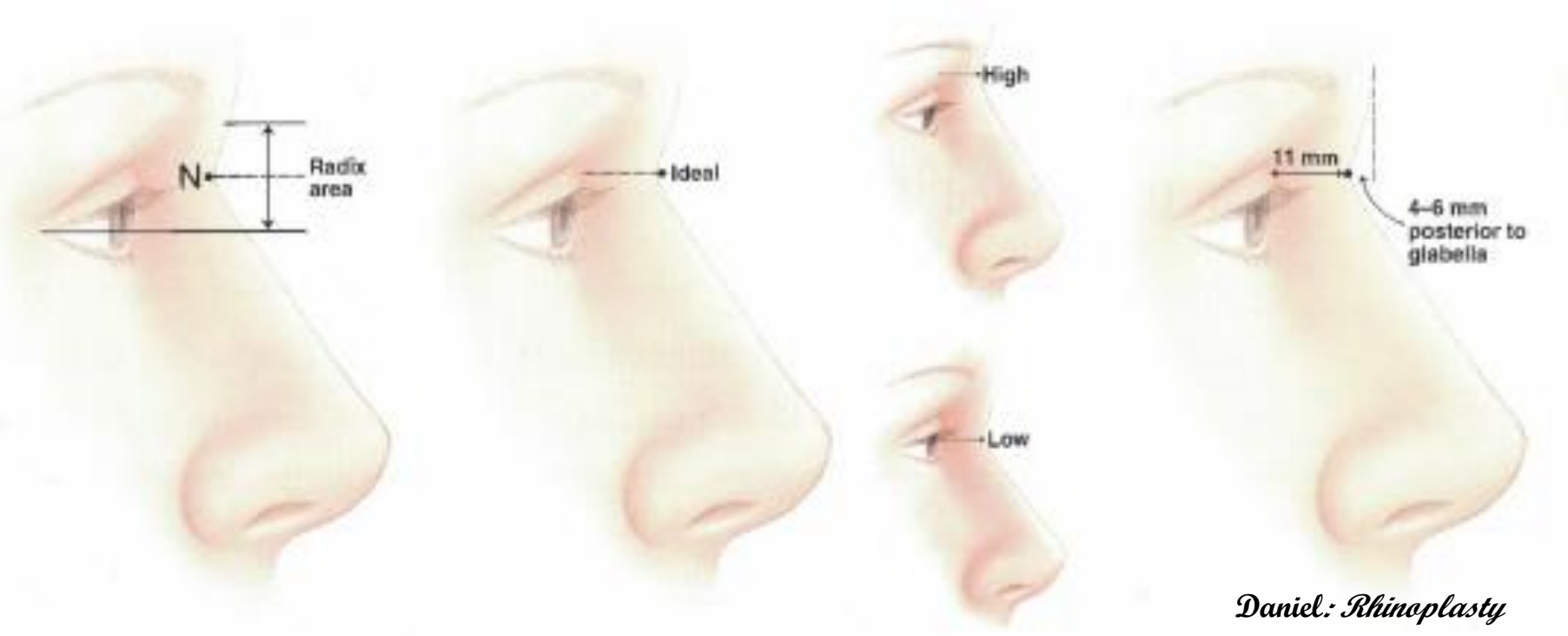
Tardy: Rhinoplasty

Patient evaluation – lateral view

- Evaluate the radix region: its depth and relation to the forehead
- Bony & cartilagenous hump or deficiency
- Supra-tip fullness
- **Tip projection and tip rotation & nasolabial angle (rotation)**
- Columellar & upper lip lengths
- Alar-columellar relationship
- Relation to the pogonion (point of maximum chin projection)

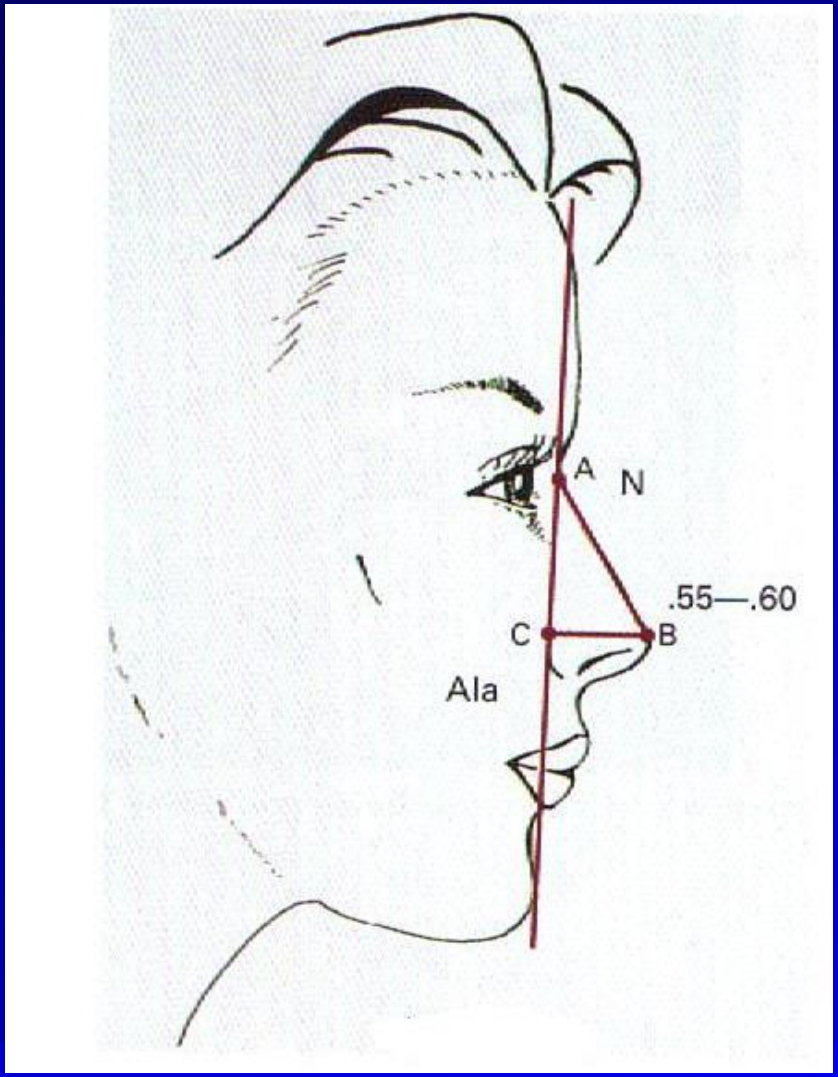

Trichion
Glabella
Tragion
Nasion
Rhinion
Tip-defining point
Alar crease
Columellar point
Subnasale
Labrale superior
Superior vermillion
Inferior vermillion
Mentolabial sulcus
Labrale inferior
Pogonion
Menton
Gnathion
Cervical point

Radix, nasion and the naso-frontal angle



Nasal length is determined by the height & position of the radix and position/rotation of the tip (nasolabial angle)

Goode's method to assess tip projection



BC= .55 to 0.6 AB

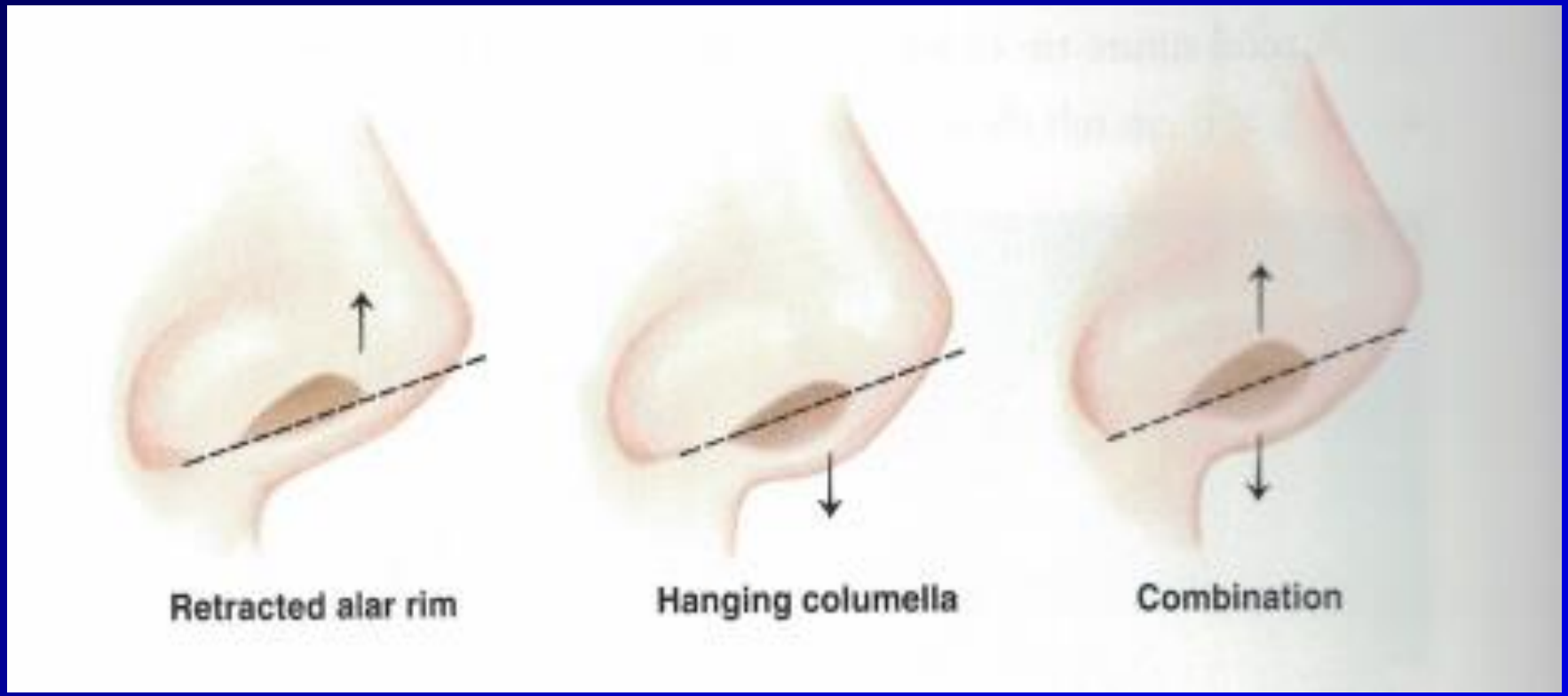
“Ideal” tip projection and rotation

Assuming normal length of the upper lip, the distance from the naso-labial angle to the tip should be about the same as the height of the lip, (i.e. 1:1 ratio)

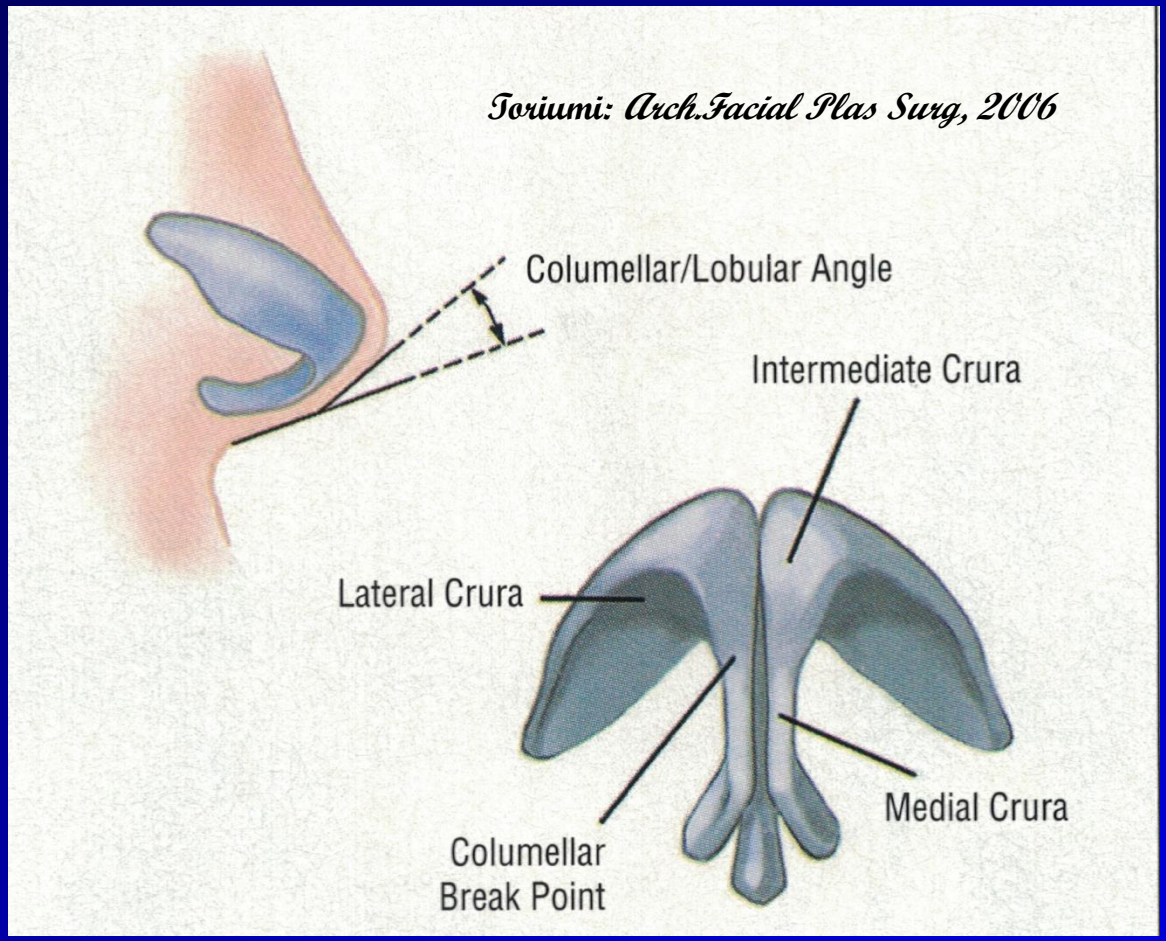
Ideal Naso-labial angle

- in a male is about 90 degree
- in a female is 95-105 degrees

Alar-columellar relationship

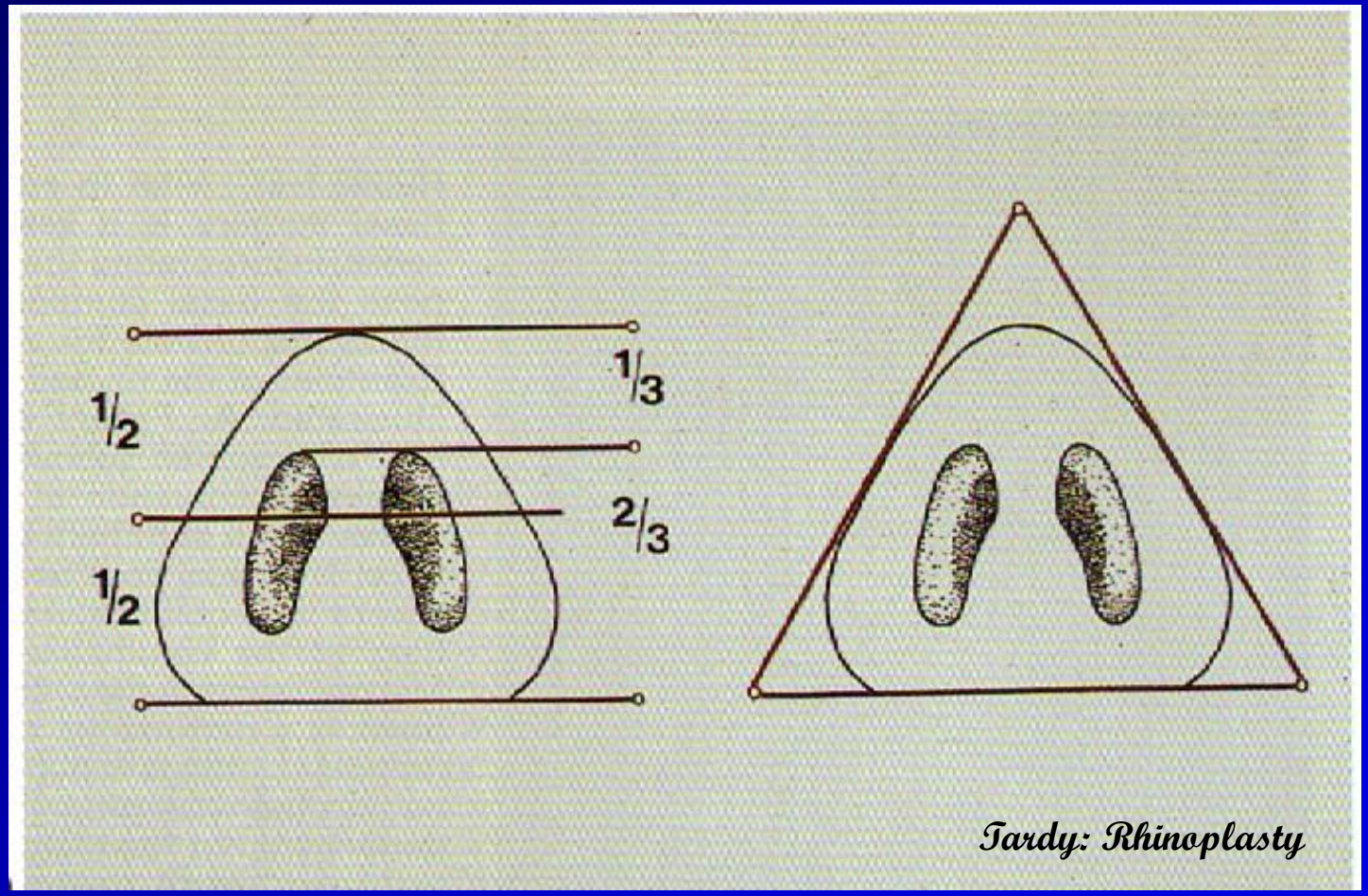


Columellar/lobular angle - columellar “double-break”



The columellar “double-break” is located at the junction between the nasal lobule and the columella; It has an angle of about 15 degrees and is formed by the divergence of the caudal border of inter-mediate crura .

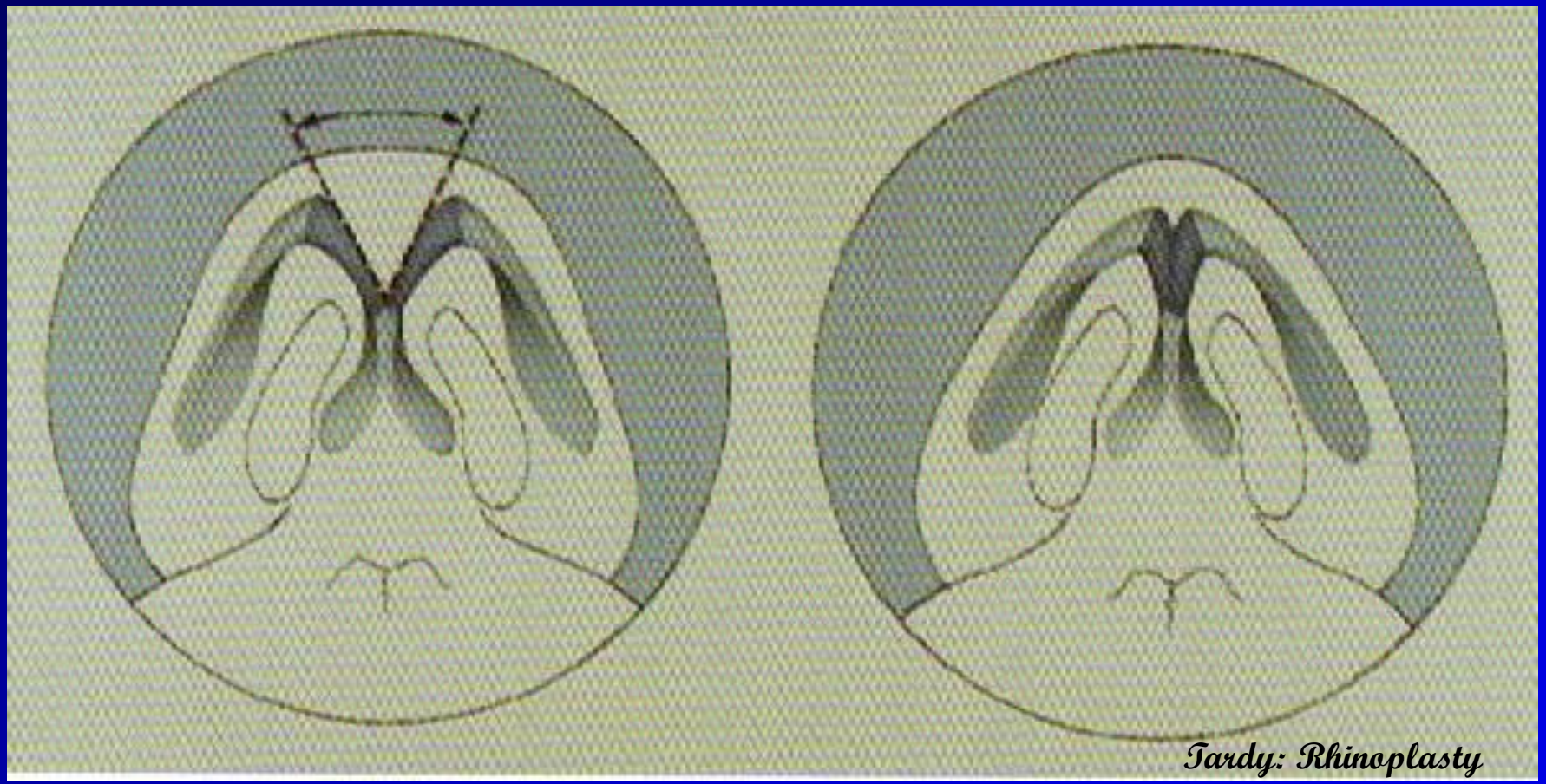
Ideal nasal base- equilateral triangle



Patient evaluation – basal view or “worm’s eye” view

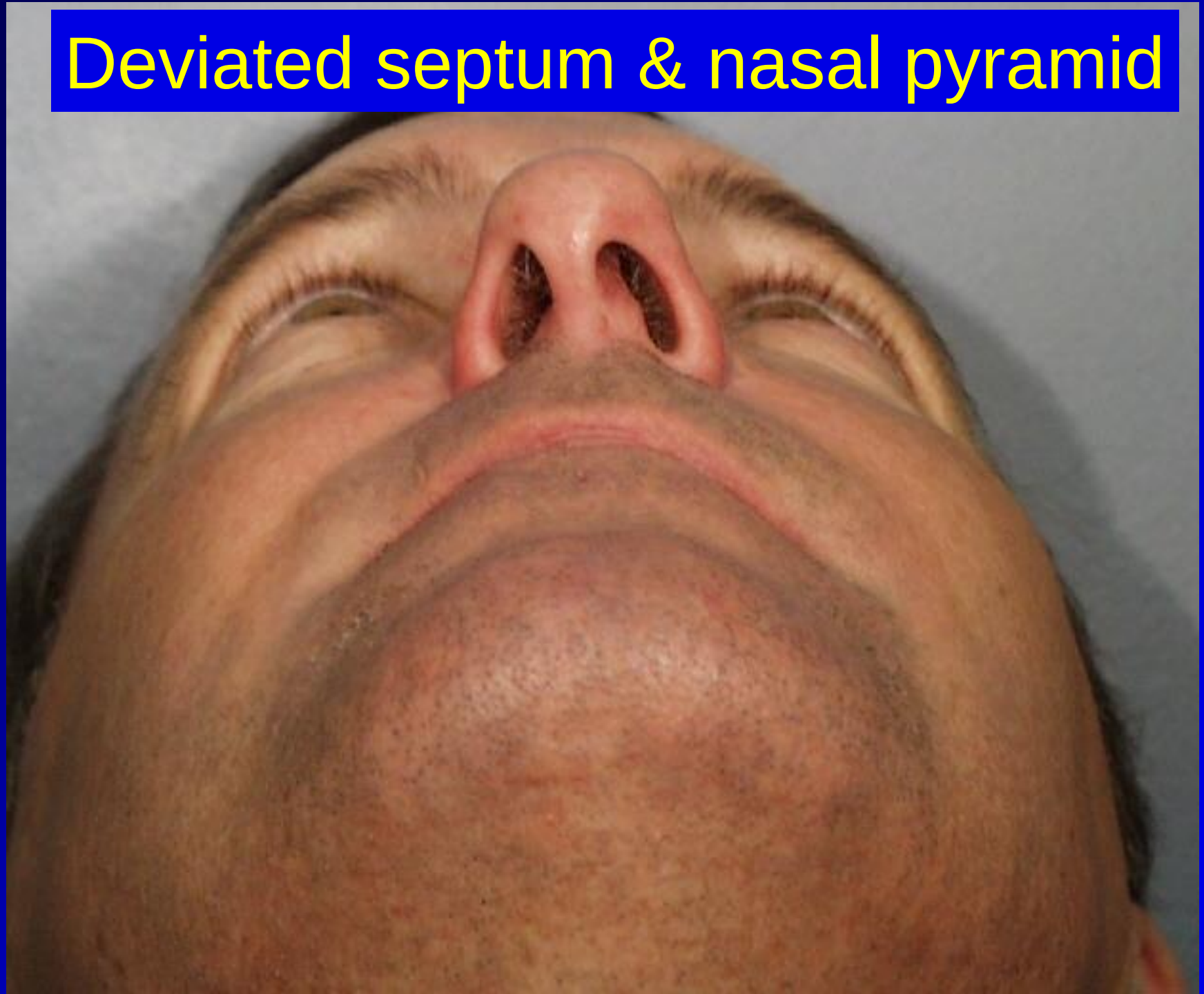
- Assess overall symmetry and nasal drift
- Assess width of the tip and the domes
- Assess width of the alar base
- Assess tip asymmetry
- Tip projection - essentially should be an equilateral triangle
- Columellar and caudal septal deviation
- Assess width of medial crura (pedestal)

Divergence of the intermediate crura (excess results in a bifid, wide tip)



Wide nasal columella-pedestal

Deviated septum & nasal pyramid



Patient examination

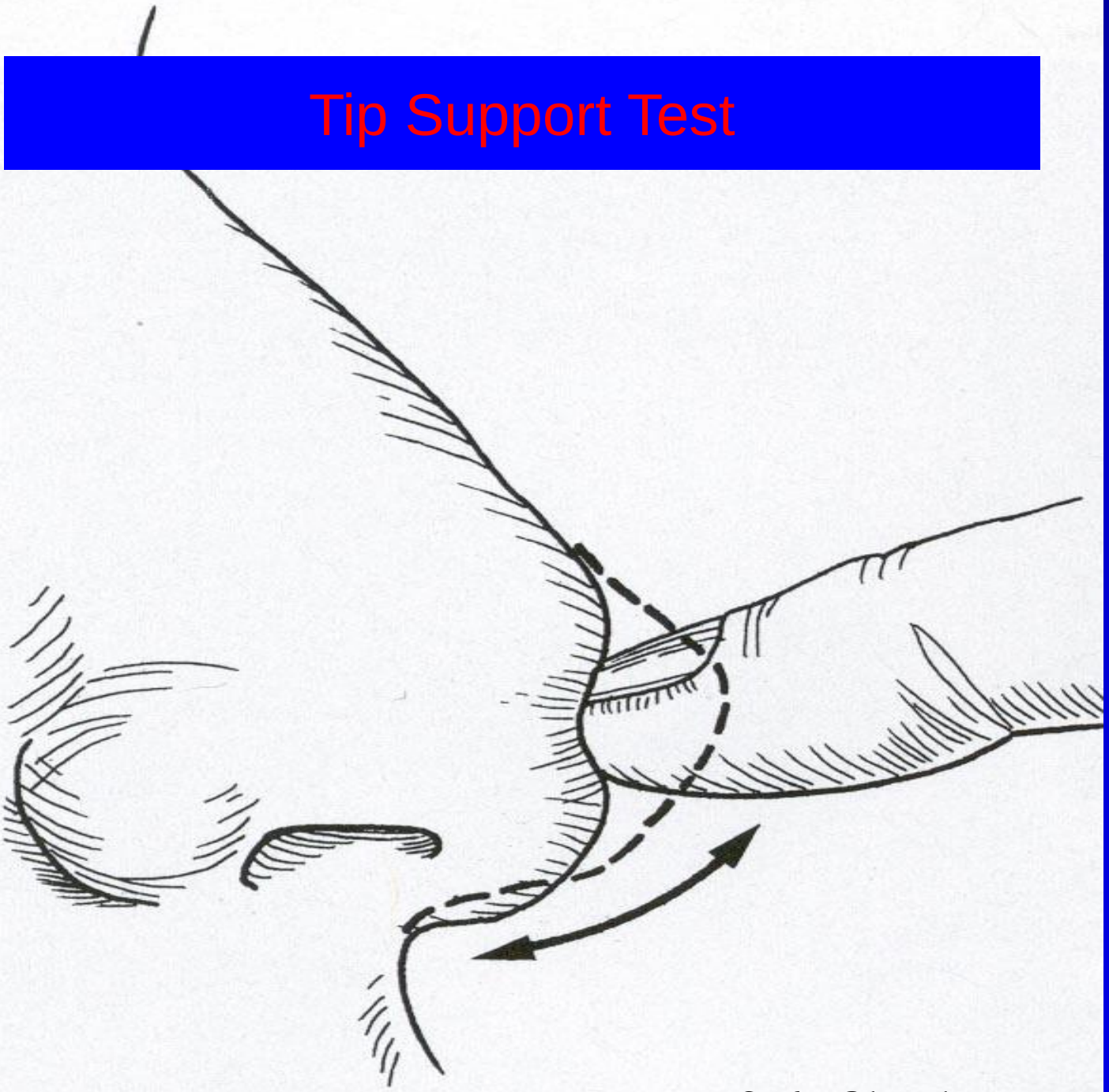
- **Palpate** the nasal pyramid, cartilagenous dorsum and alar cartilages
- **Assess** the tip for adequacy of support
- **Palpate** the caudal septum and assess for deviation, vomerine bony ridges and size of the pre-maxillary spine
- Examine with a nasal speculum & headlight observing for a **septal deviation**, septal perforation, size of inferior turbinates, presence of masses, narrowing of nasal valve

Patient examination

Evaluate the septum (quadrilateral) cartilage for deviation in the caudal, posterior and anterior portions.

Intra-nasal speculum exam for evidence of cephalic obstruction of the bony and cartilagenous septum. If present, these deviations must be corrected along with a septoplasty along with a rhinoplasty (a septo-rhinoplasty).

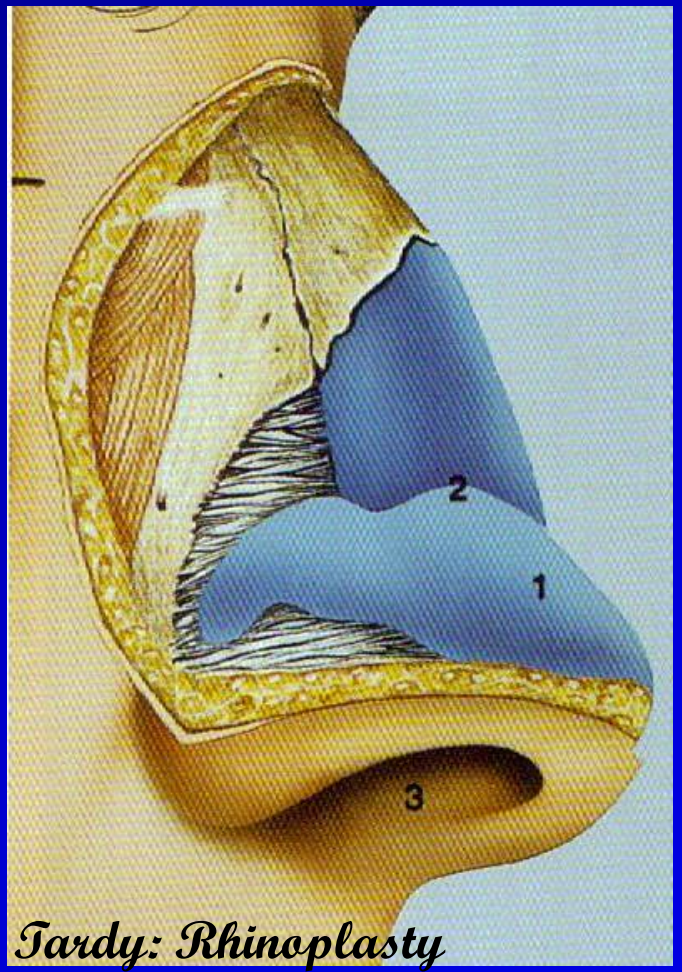
Tip Support Test



Tardy: Rhinoplasty

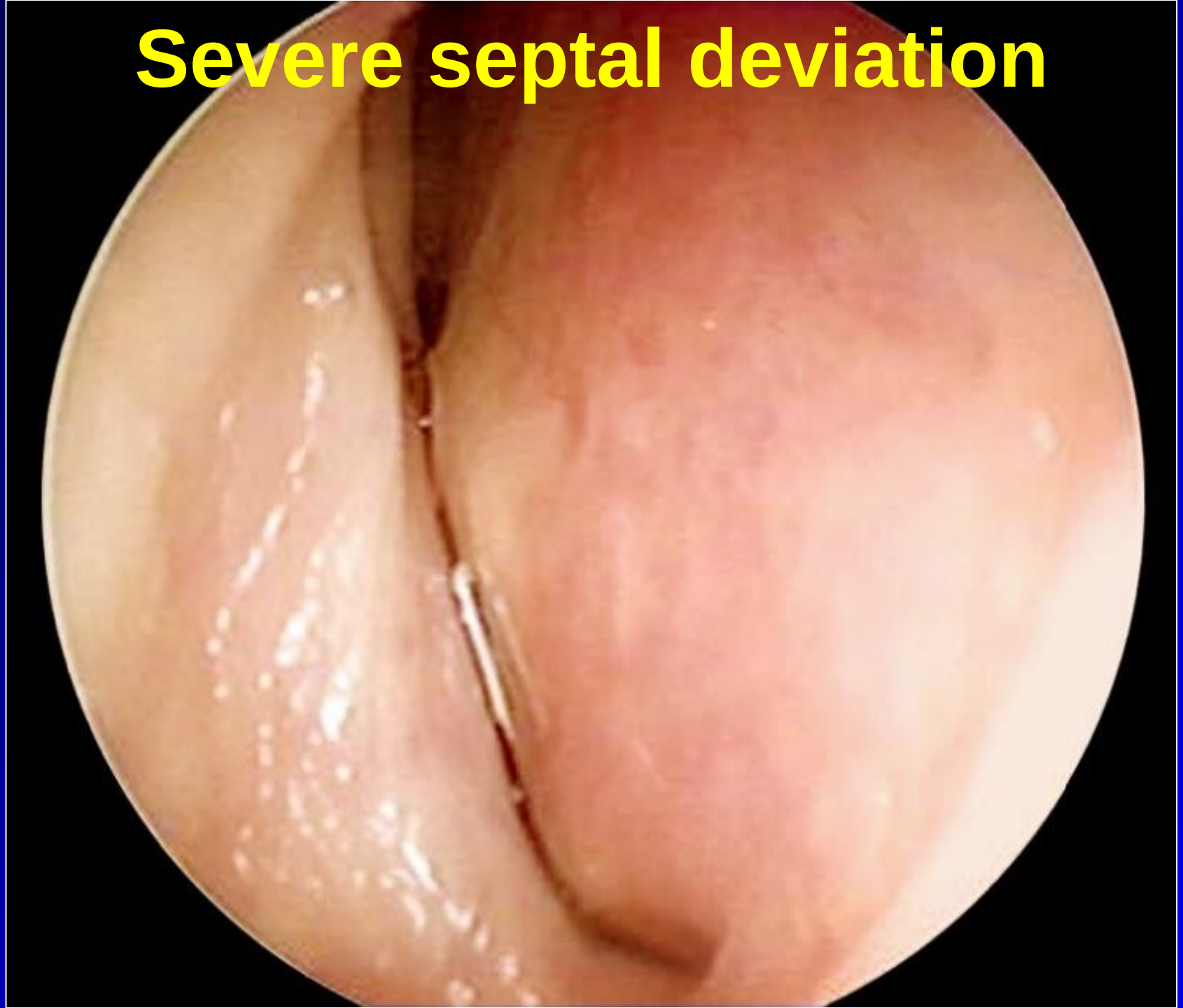
Nasal tip support

1. Strength of the lateral crus
2. Cephalic scroll between the lower & upper lateral
3. Attachment of the medial crura to the septum



Anterior rhinoscopy with a headlight & a speculum

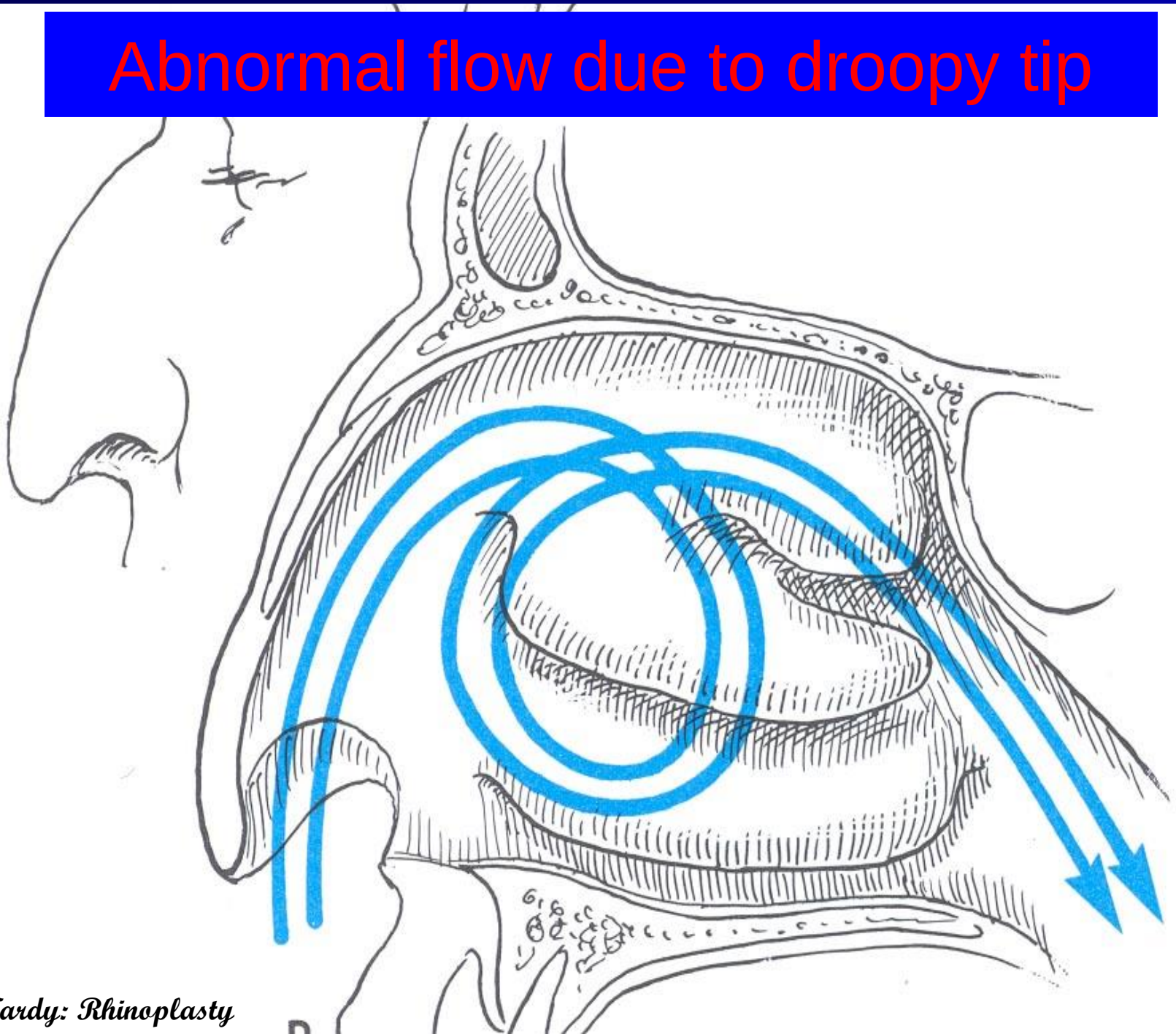
Severe septal deviation



Severe septal deviation

Poor tip support - i.e.droopy tip

Abnormal flow due to droopy tip



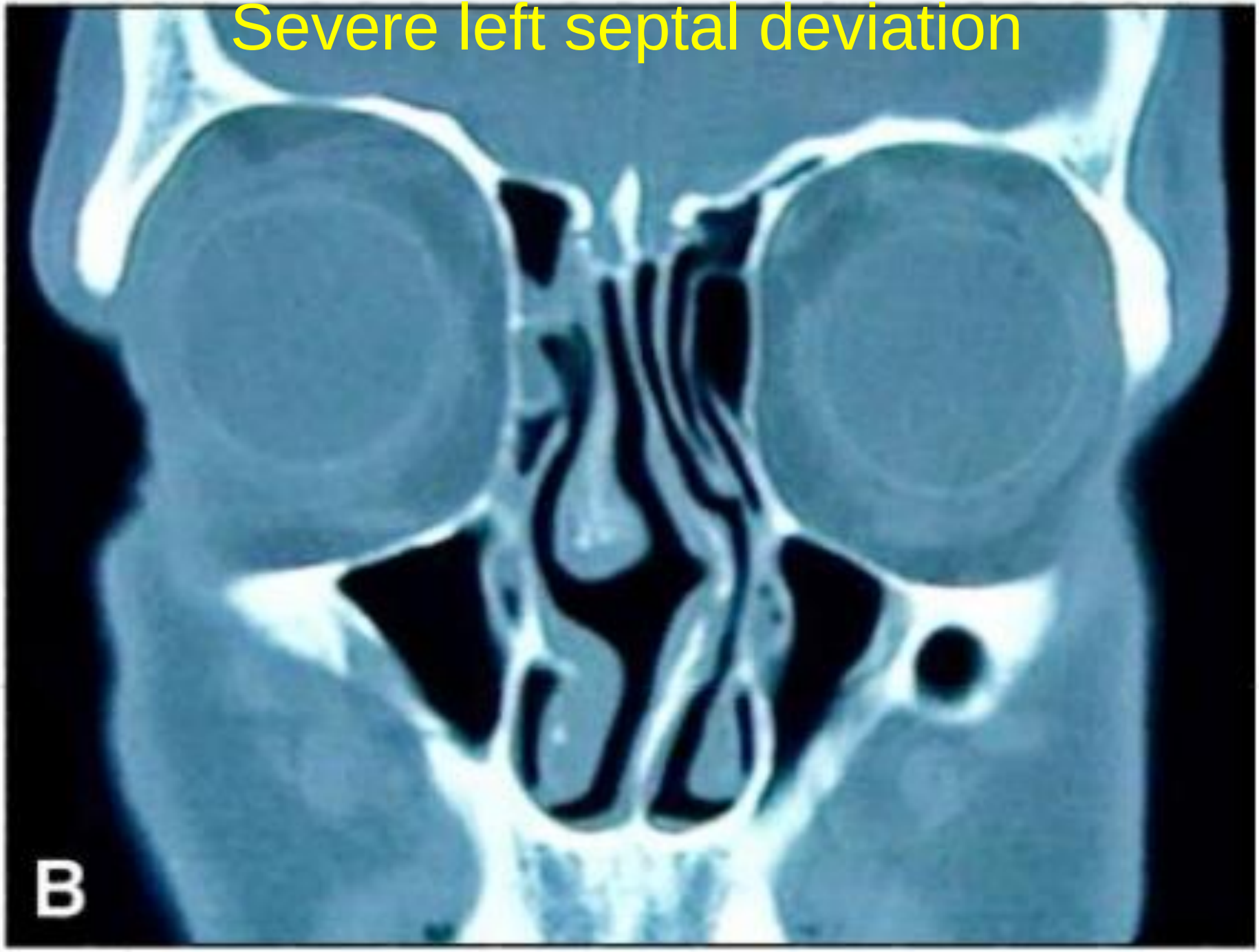
Tardy: Rhinoplasty

Post-traumatic saddle deformity

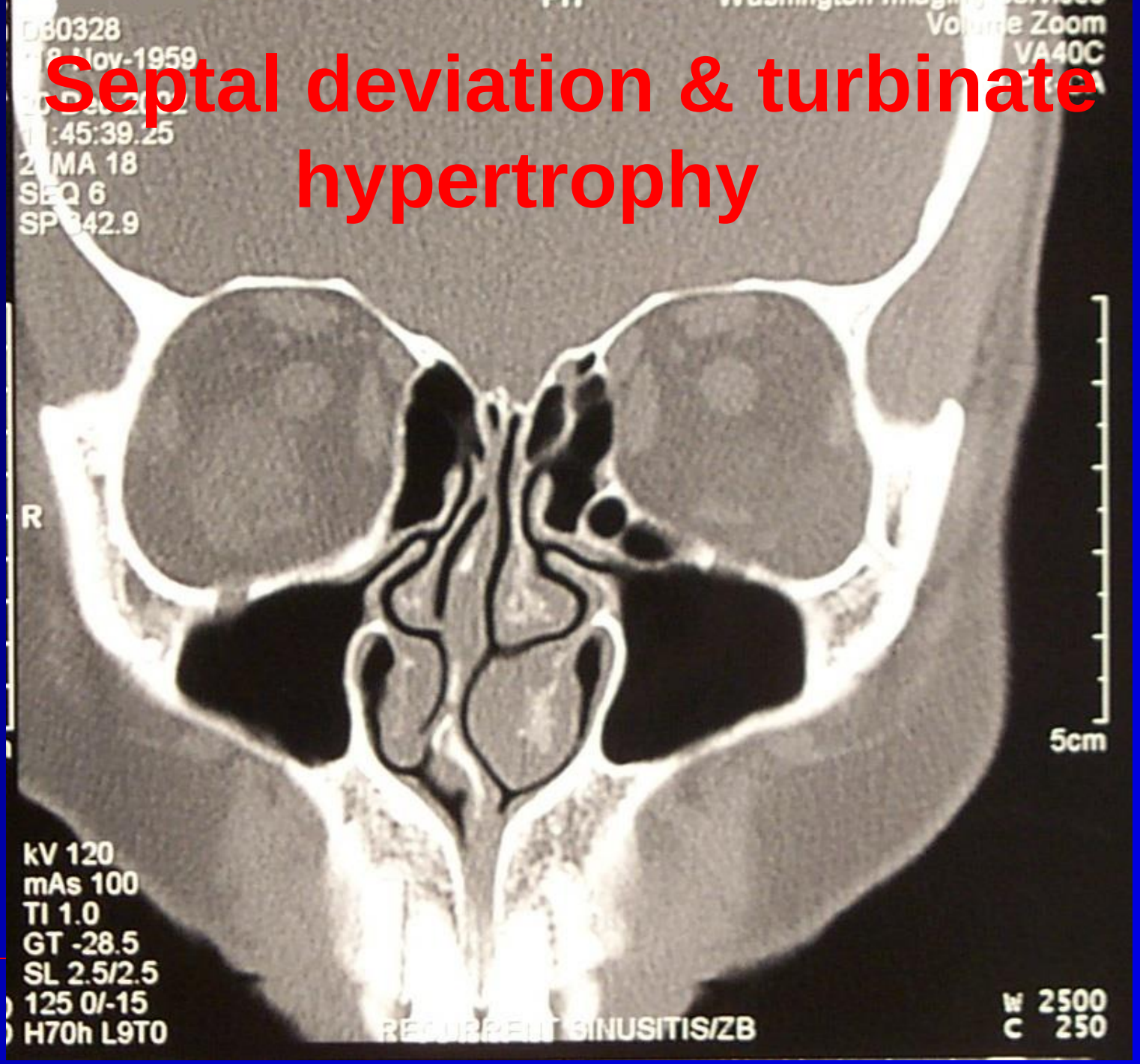
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.


Lateral wall collapse during strong inspiratory effort

Severe left septal deviation



Septal deviation & turbinate hypertrophy



Observations prior to surgery are part of the informed consent. Post-operative "observations" are nothing but an excuse.

OPERATIVE TECHNIQUE

The operative plan

Based on the exam & analysis of nasal characteristics, formulate a plan to address the specific features of the nose that need to be altered: reduced, augmented, narrowed or supported to approximate the "ideal" proportions

Choice of the Technique

- The septoplasty is frequently needed to address obstruction, nasal drift and to harvest a cartilage graft
- Closed rhinoplasty (endo-nasal) approach is theoretically applicable in most primary rhinoplasty cases
- HOWEVER, it is more difficult to learn and more difficult achieve precise suturing
- Reserve the closed approach for minor modifications of the tip, dorsum and bony pyramid– otherwise use the **open approach**

Typical tasks in rhinoplasty

- Nasal pyramid: Narrow the width (osteotomies); remove the hump (rasp); deepen or augment the radix; augment the dorsum
- Mid-vault: Reduce or augment the cartilagenous dorsum; re-align upper lateral cartilages; support with spreader grafts
- Tip: Rotate (shorten nasal appearance); de-rotate (difficult to achieve); alter tip projection; narrow & align domes
- Alar base: reduce in width

Sequence of steps during a rhinoplasty

- Exposure of tip, mid-vault and dorsum
- Adjust the dorsal height (profile-plasty)
- Component separation of upper lateral cartilages from the dorsal septum
- Septoplasty & septal cartilage harvest
- Mid-vault grafting, if needed (spreaders)
- Tip-plasty (suture stabilize, refine, graft)
- Mid-vault reconstruction
- Precise closure and splint application

Typical tasks in nasal tip-plasty

- Full exposure of the tip cartilages
- Conservative resection or in-folding of the cephalic border of the lower lateral cartilage, leave at least 6.5mm strip
- Strut or septal extension graft between medial crura for support and to increase of projection, or “tongue-in-groove” tip support based on the caudal septum
- Alignment & stabilization of domes with inter-domal sutures
- Domal defining, narrowing sutures

Typical tasks in nasal tip-plasty

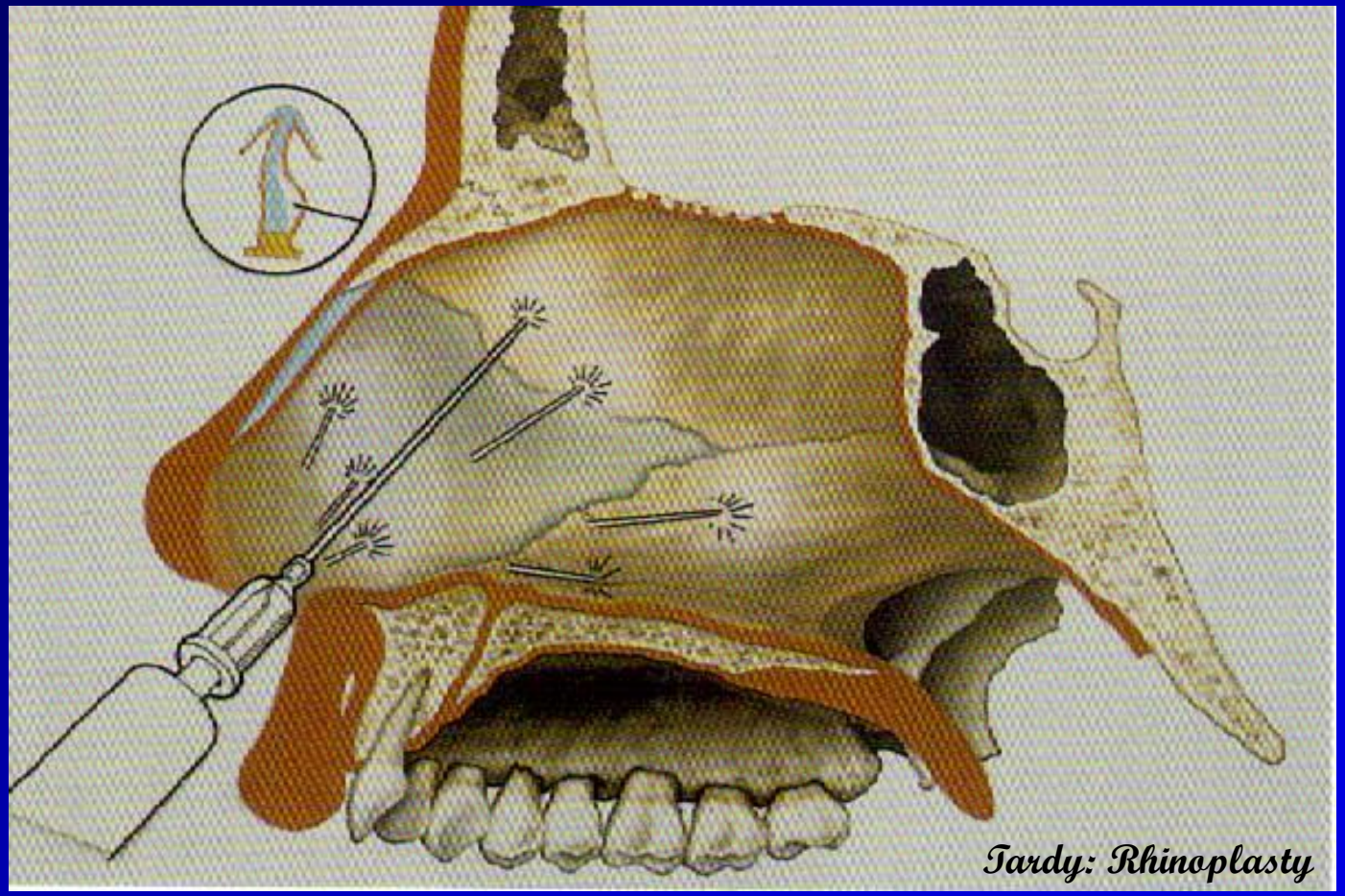
- Use of various tip grafts harvested from septal, conchal or rib cartilage may be used to re-enforce, stiffen, augment, increase or decrease nasal tip projection or to de-rotate a short, over-rotated tip

- Crushed, morselized or diced cartilage may be used for camouflage of small defects

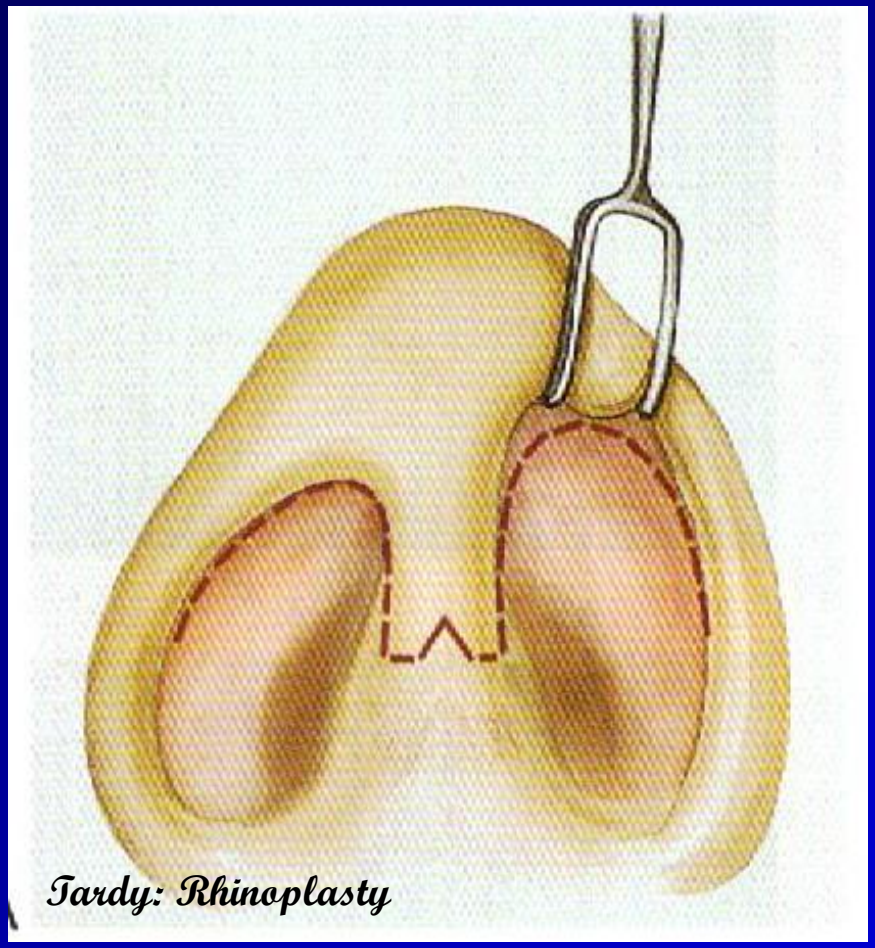
OPEN RHINOPLASTY TECHNIQUE

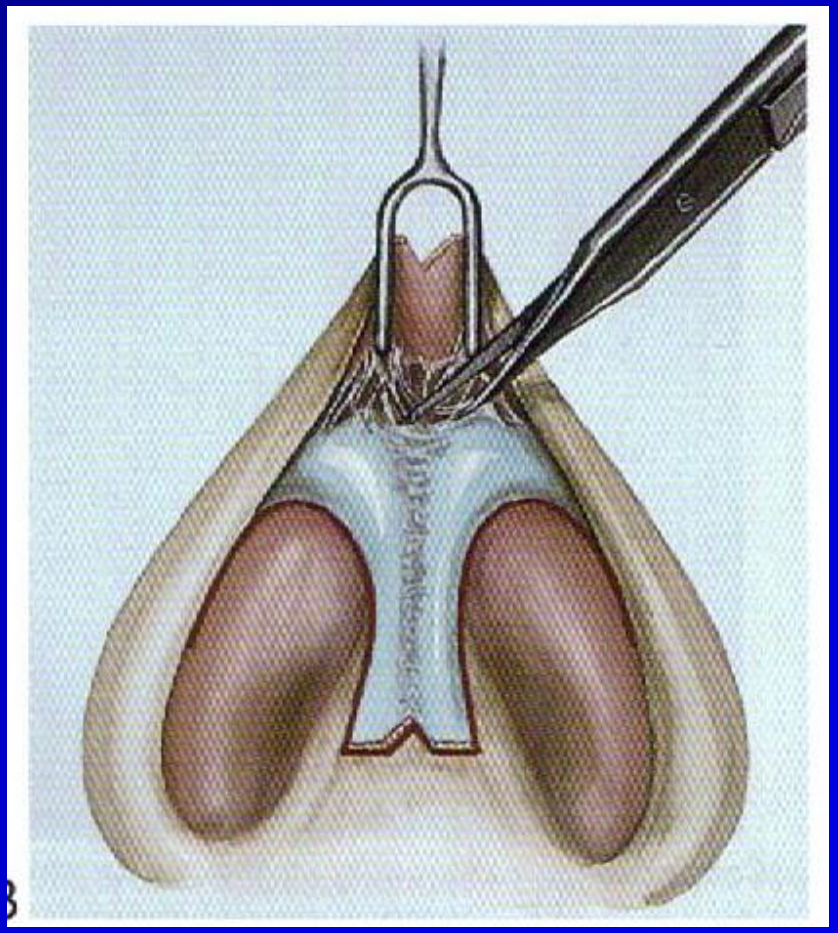
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Injection & blanching of the septal perichondrium and periosteum

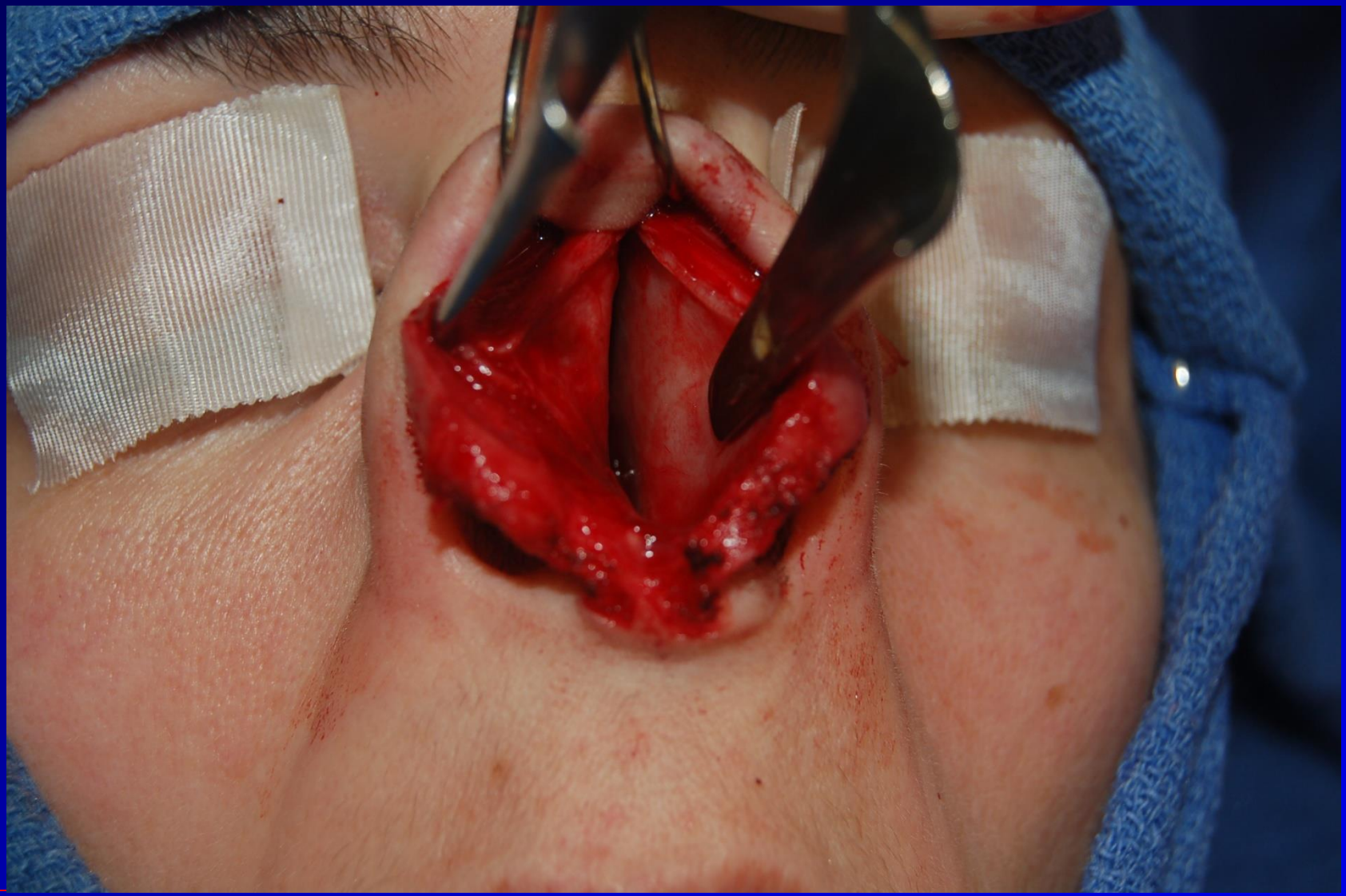


Open rhinoplasty approach

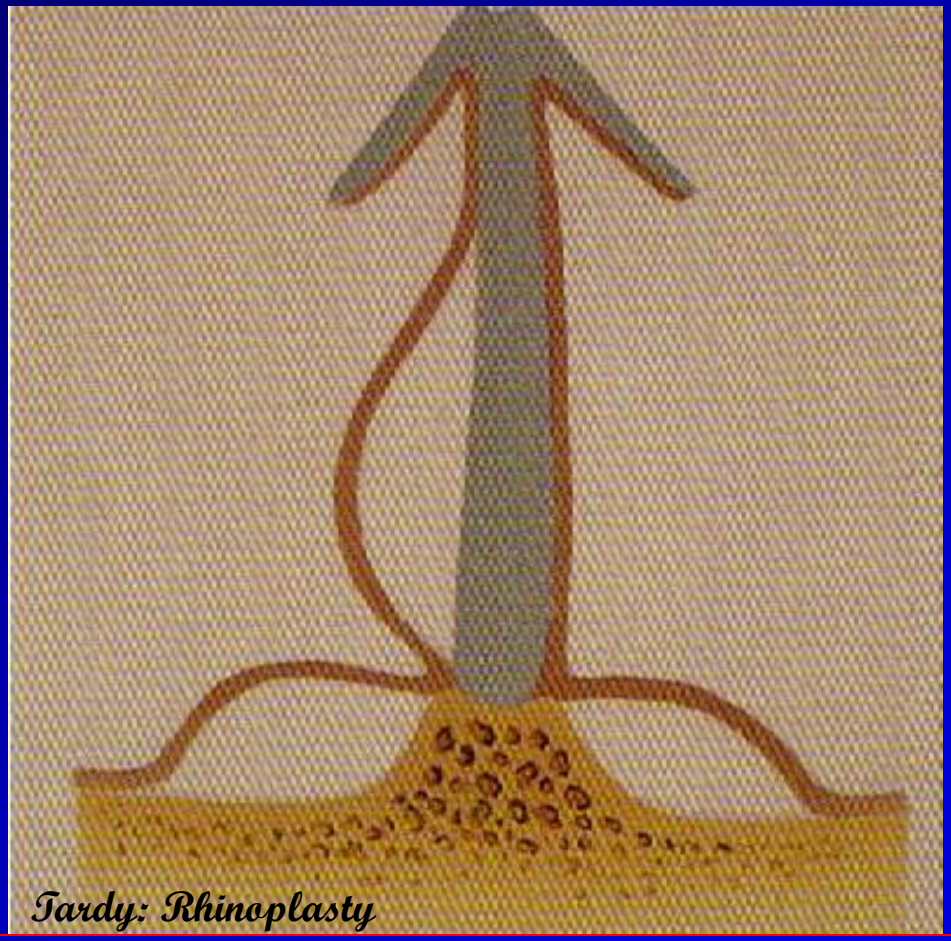




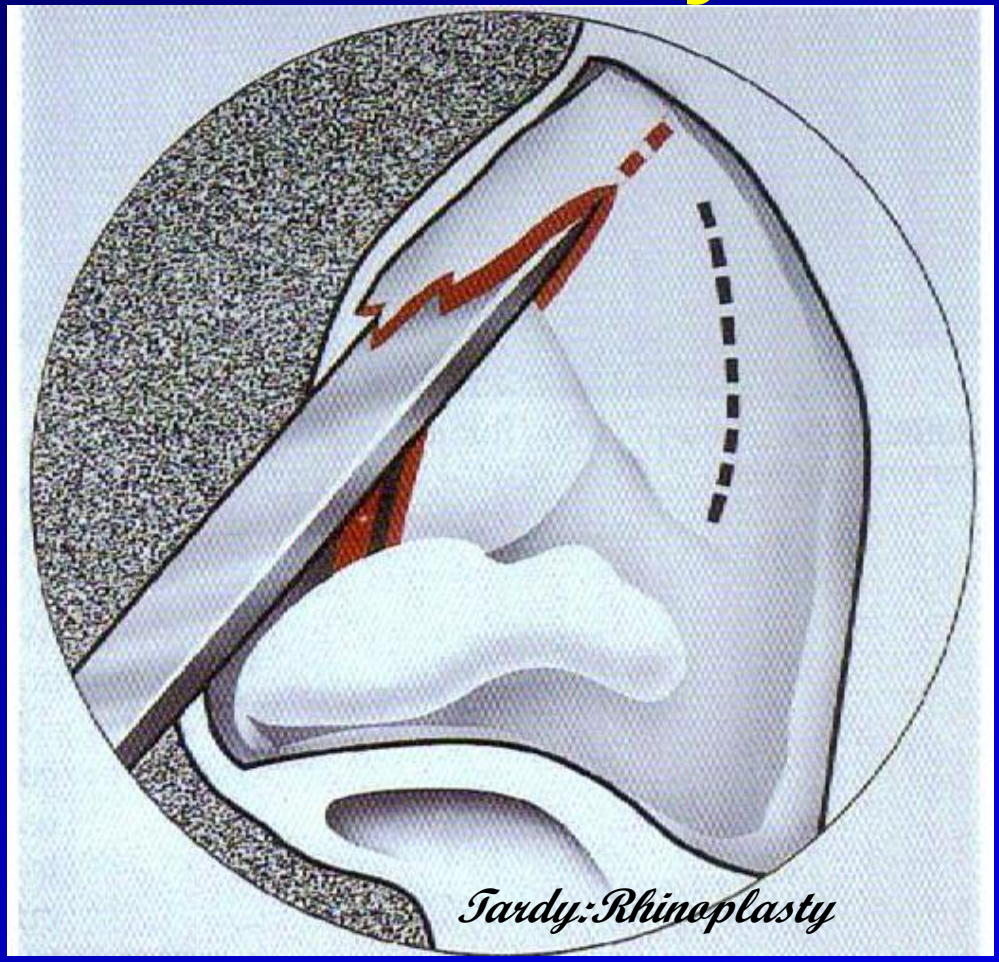
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.



Septoplasty- elevation of the mucoperichondrial flap

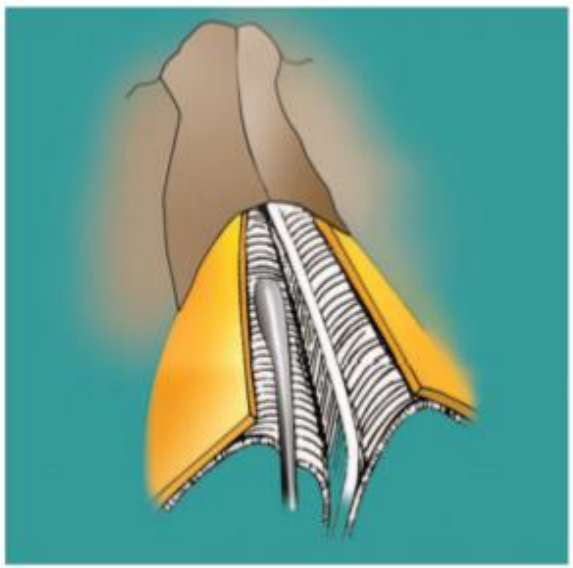


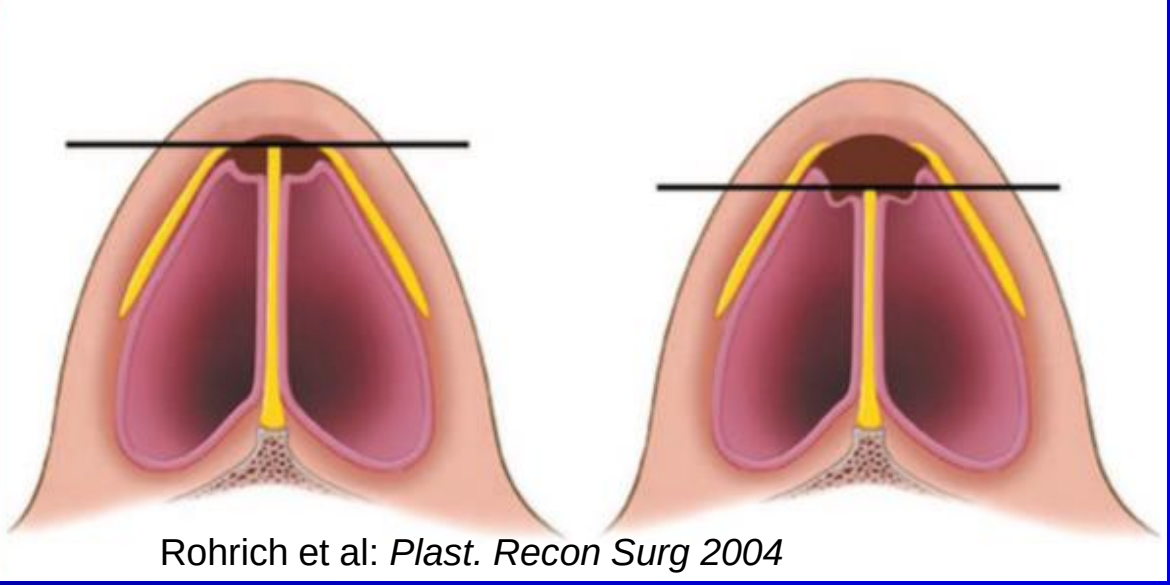
Nasal pyramid dorsal hump osteotomy



Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Component Dorsal Hump Reduction

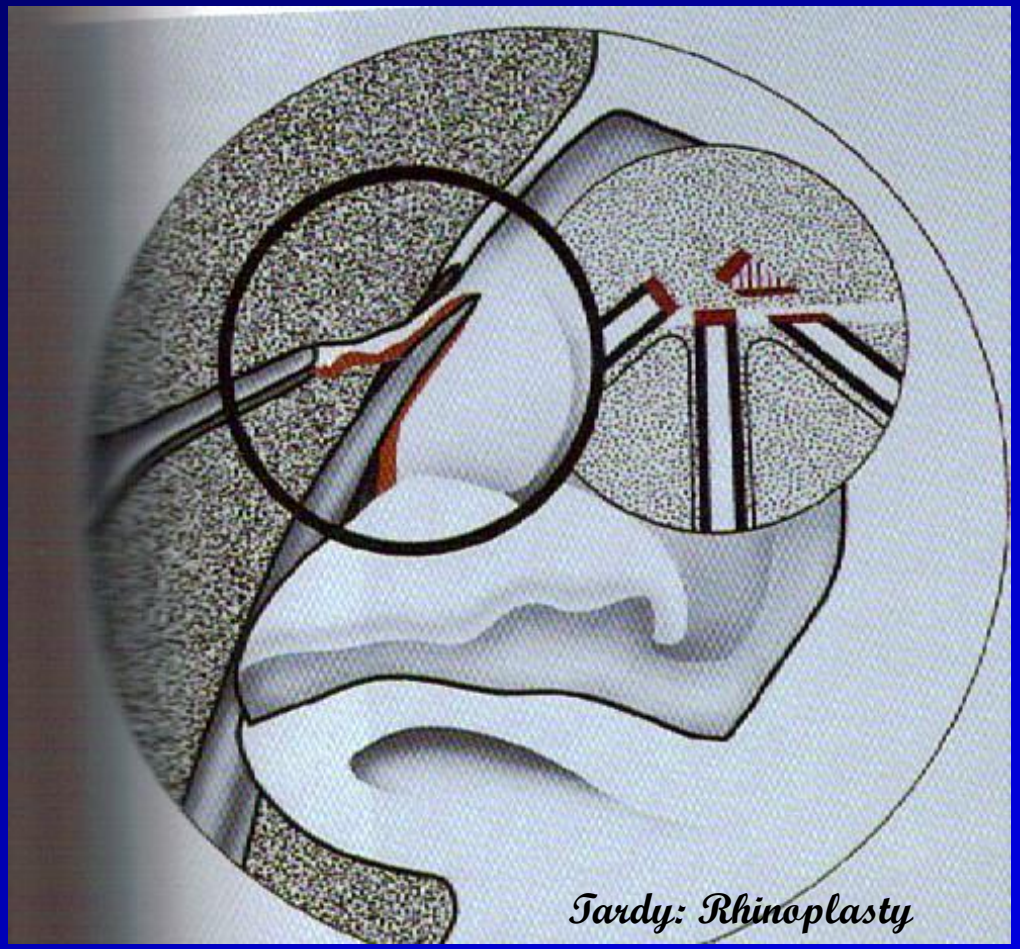




Rohrich et al: *Plast. Recon Surg 2004*

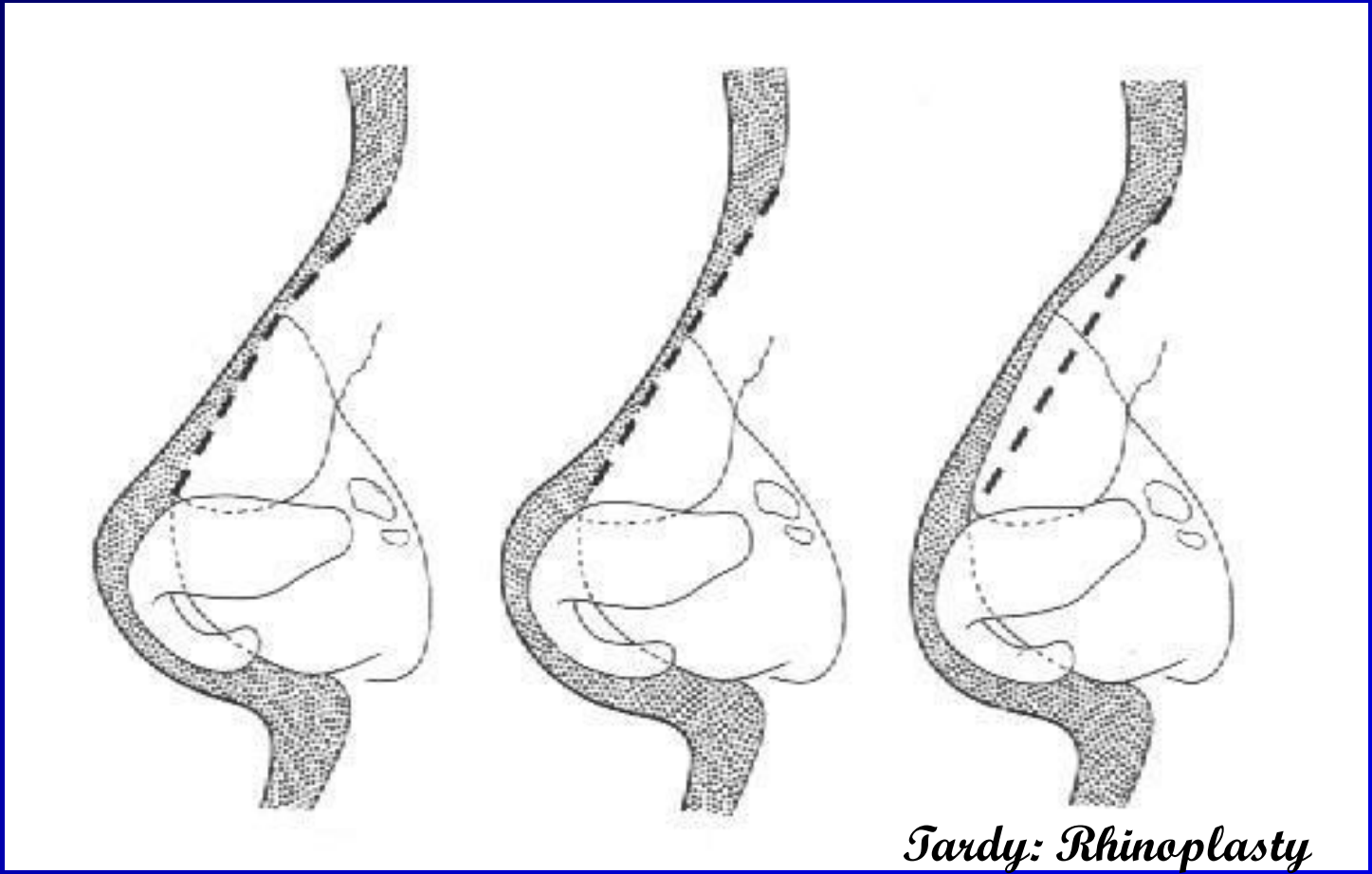
Superichondrial tunnels are elevated, upper laterals are separated from the dorsal septum. The septum is now lowered with additional adjustment of upper lateral if needed.

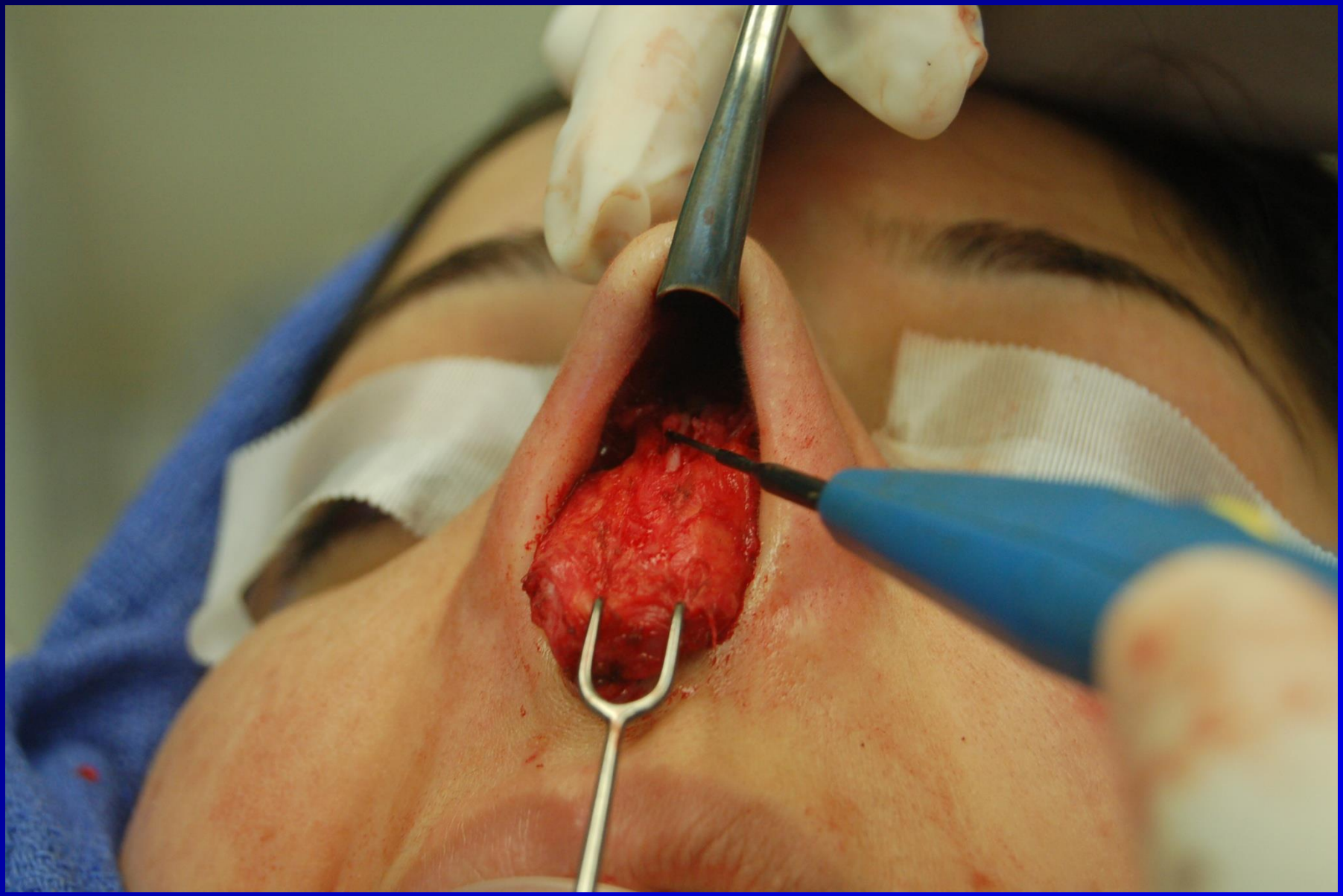
Dorsal bony osteotomy & open roof



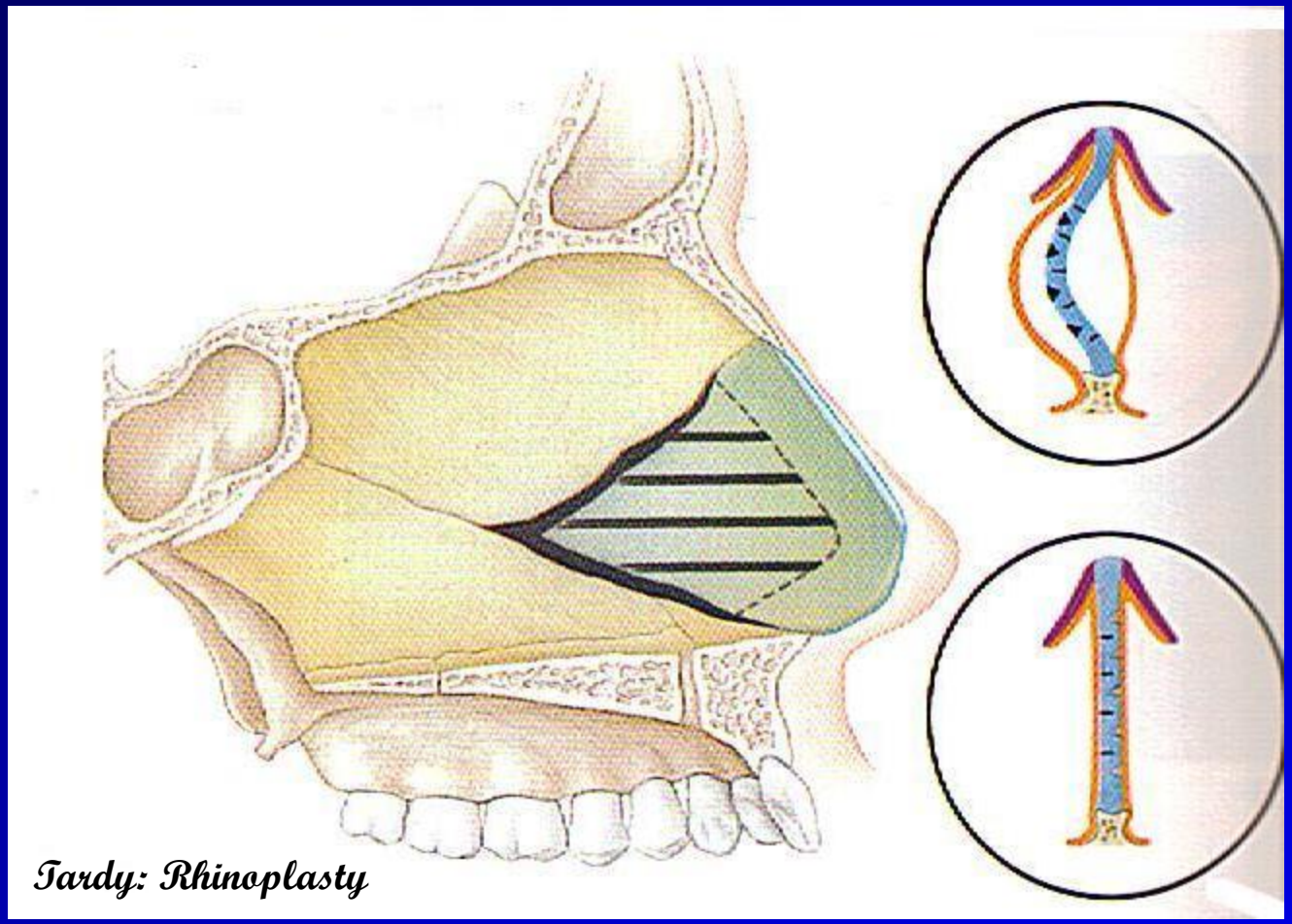
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Compensation for variable thickness of skin in dorsal profile-plasty

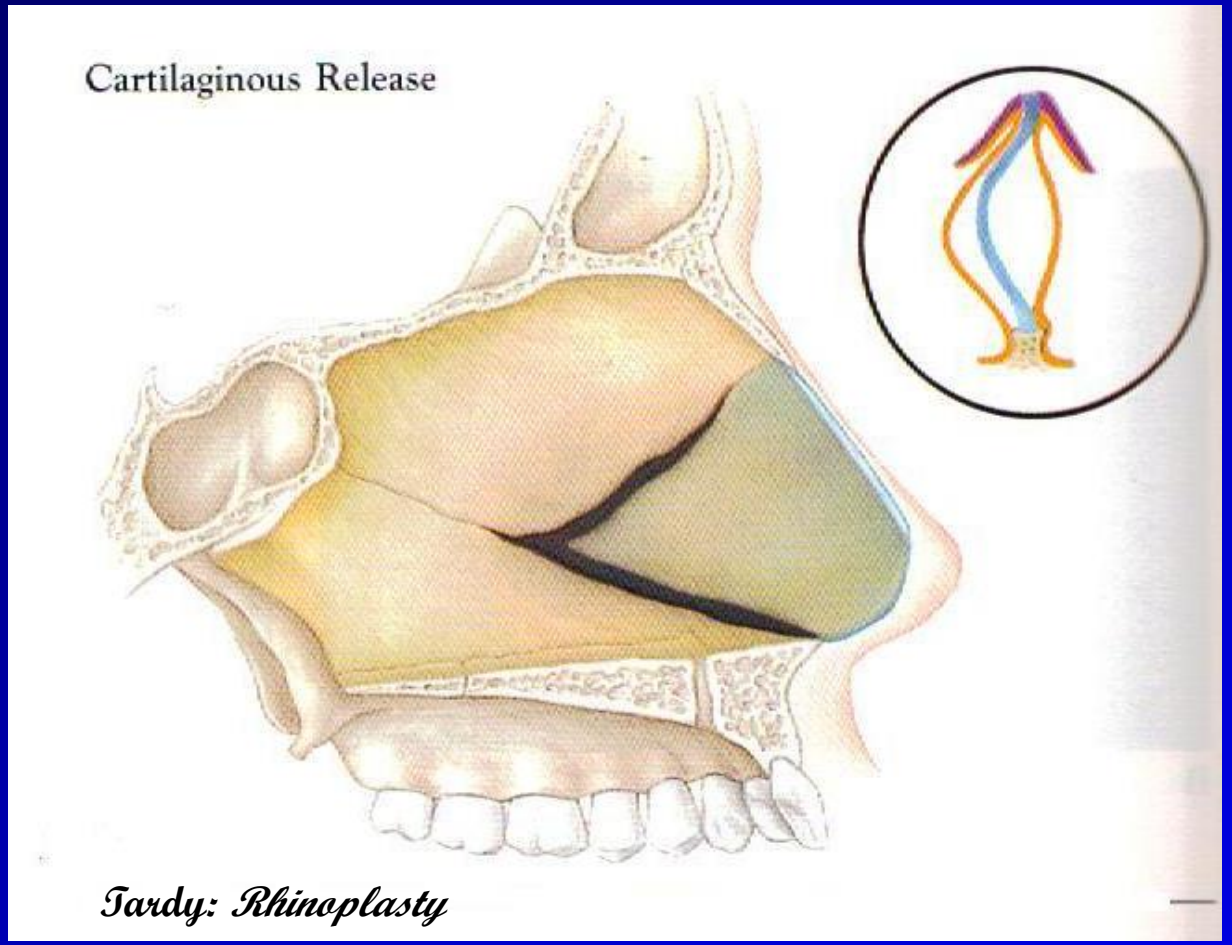




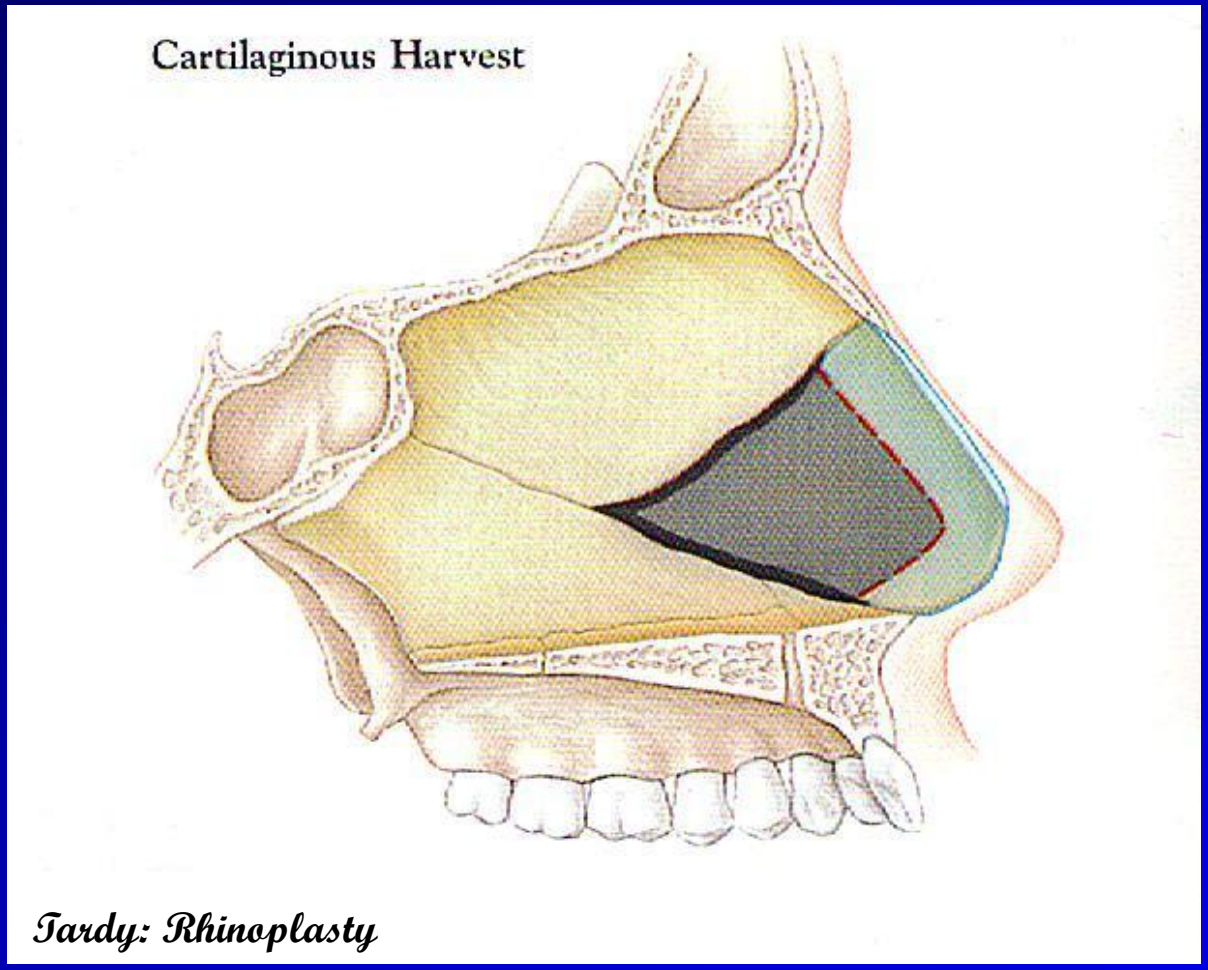
Harvest of septal cartilage



Mobilization of septal cartilage from bony septum (ethmoid bone)

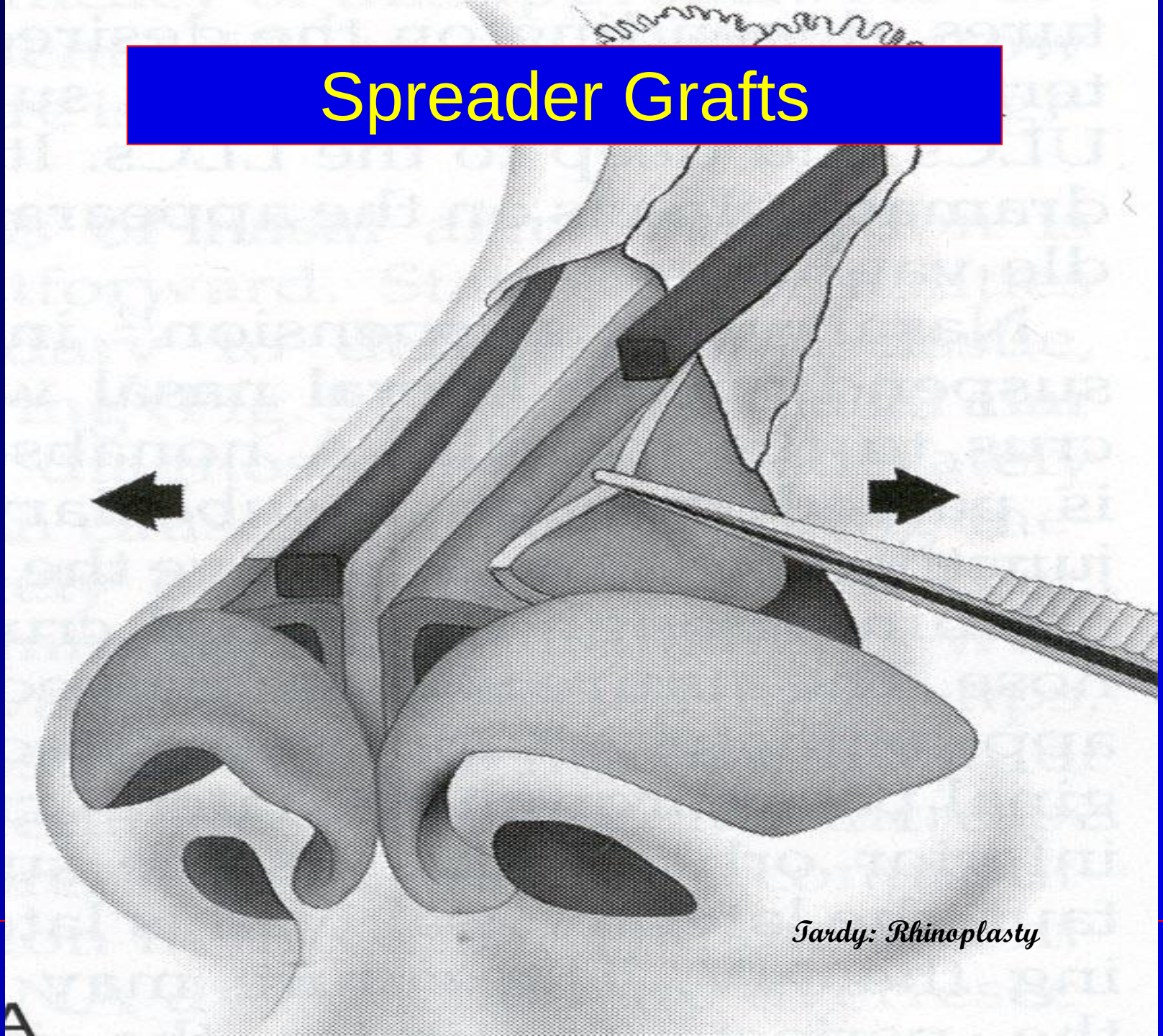


Preservation of the 1 cm L-strut



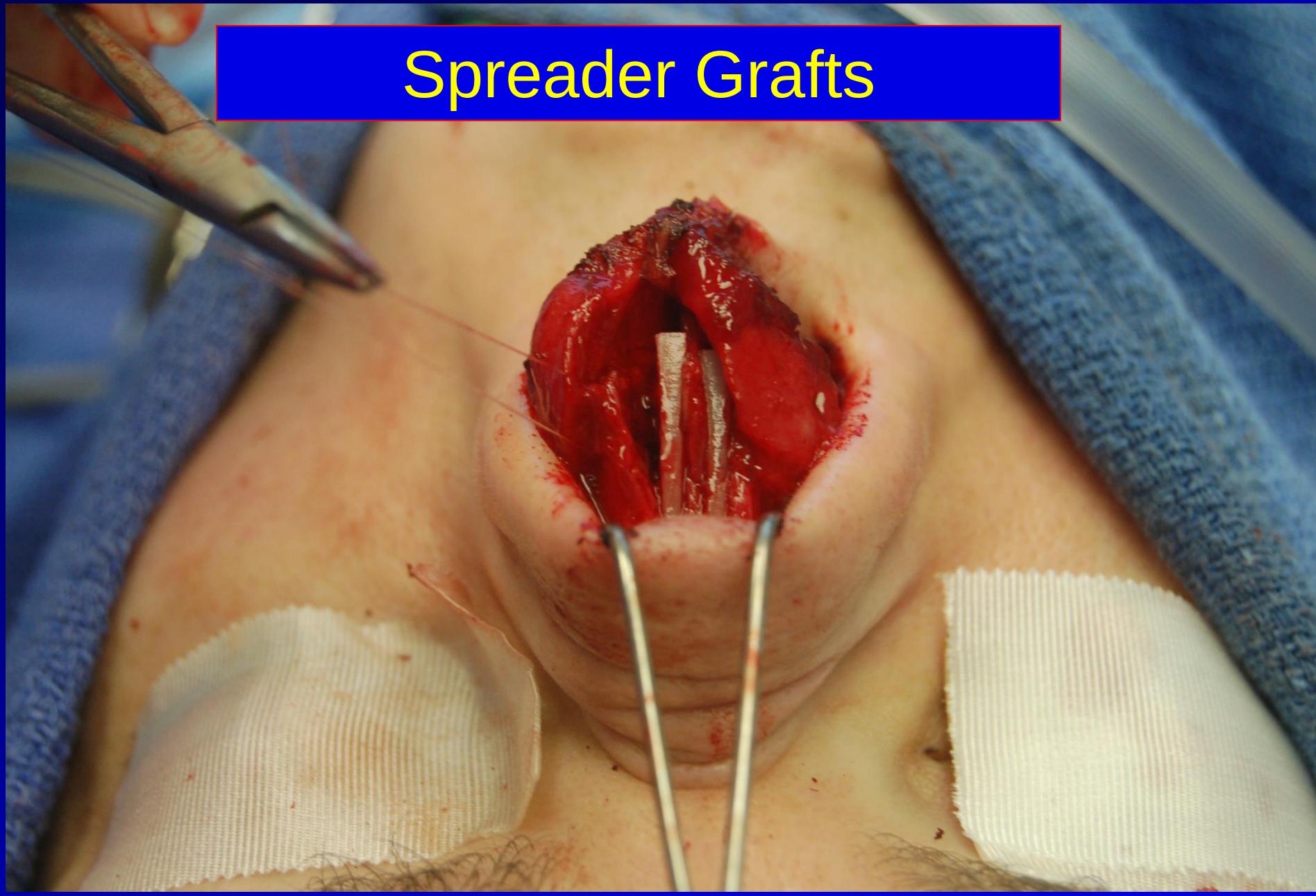
Septal cartilage carved into a columellar strut and two spreader grafts

Spreader Grafts



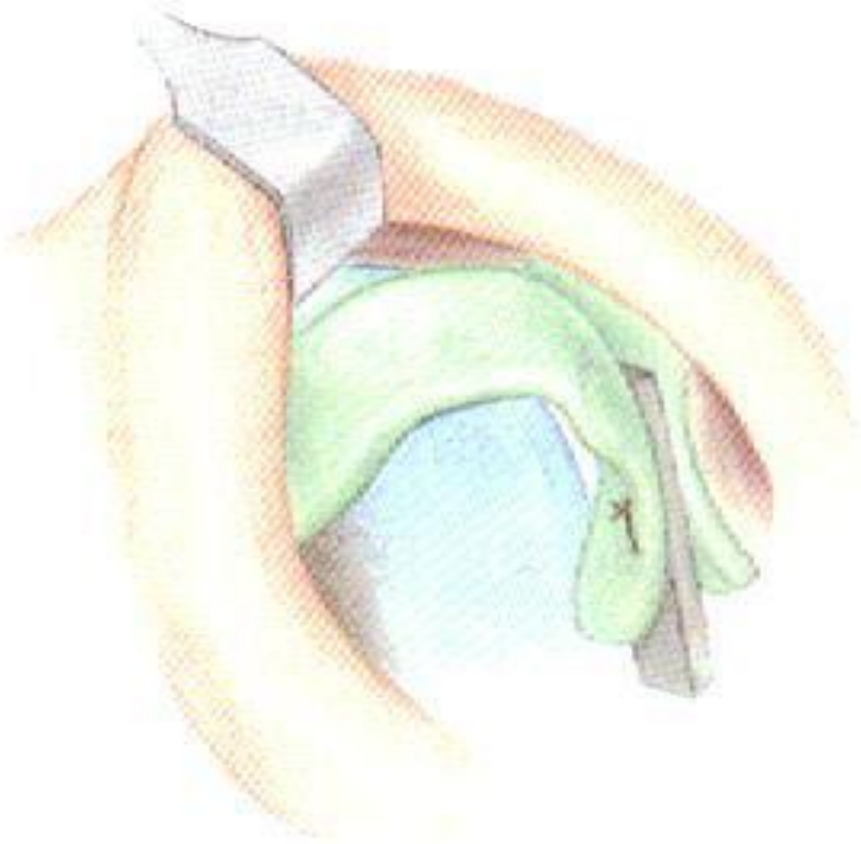
Tardy: Rhinoplasty

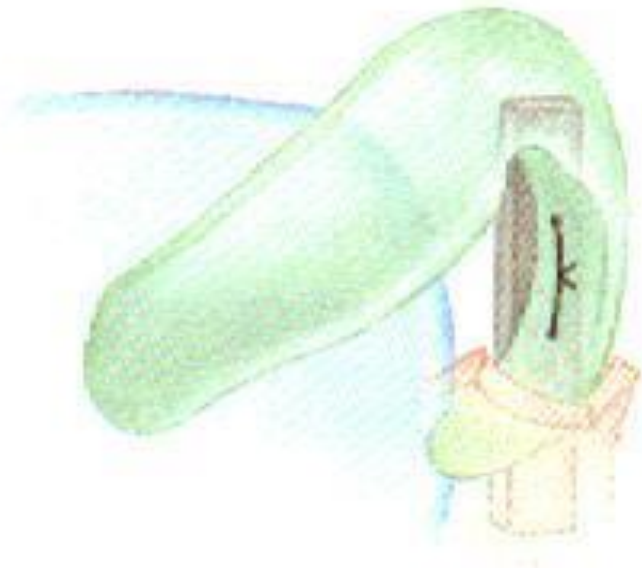
Spreader Grafts



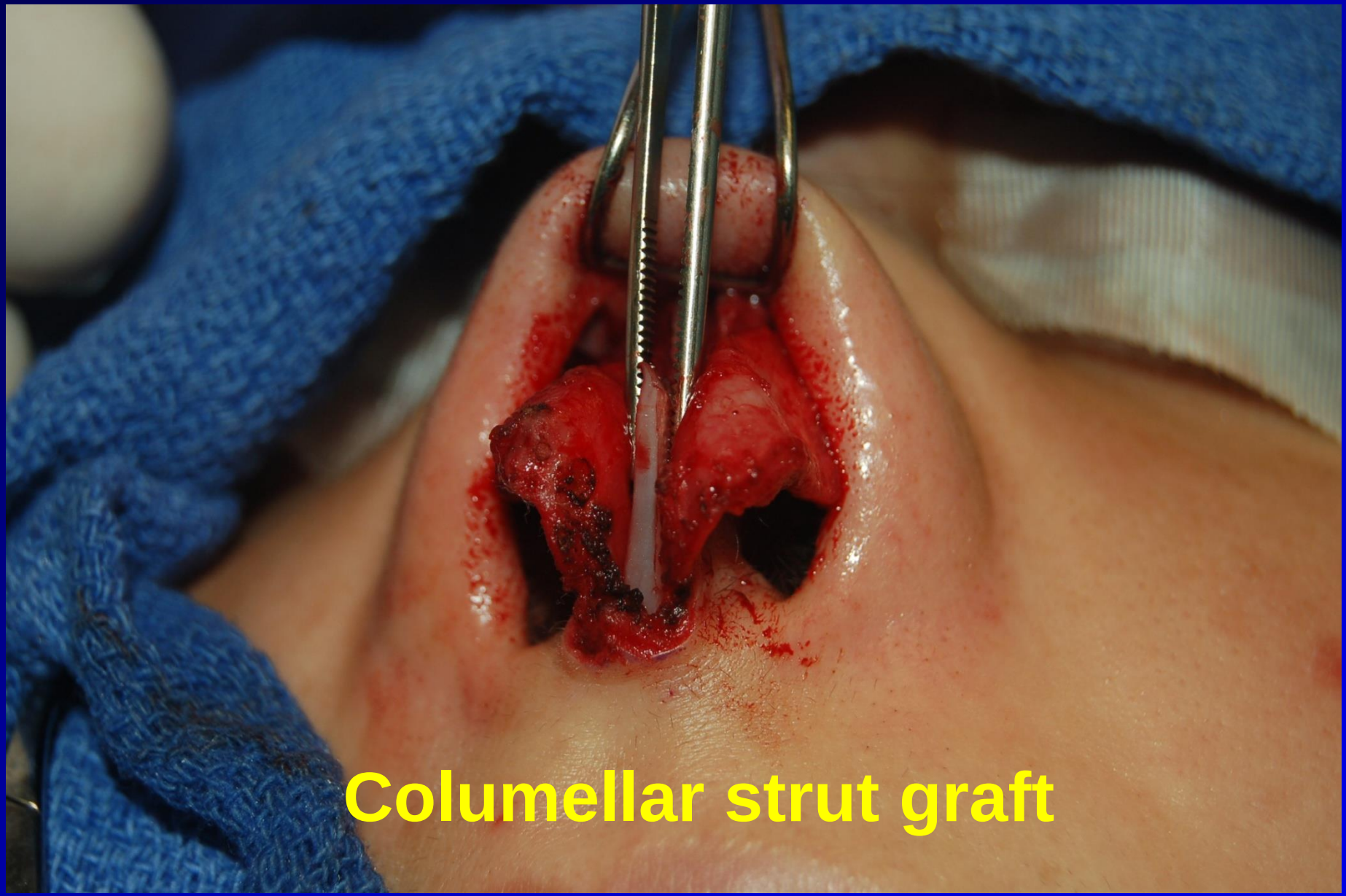
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Columellar strut graft





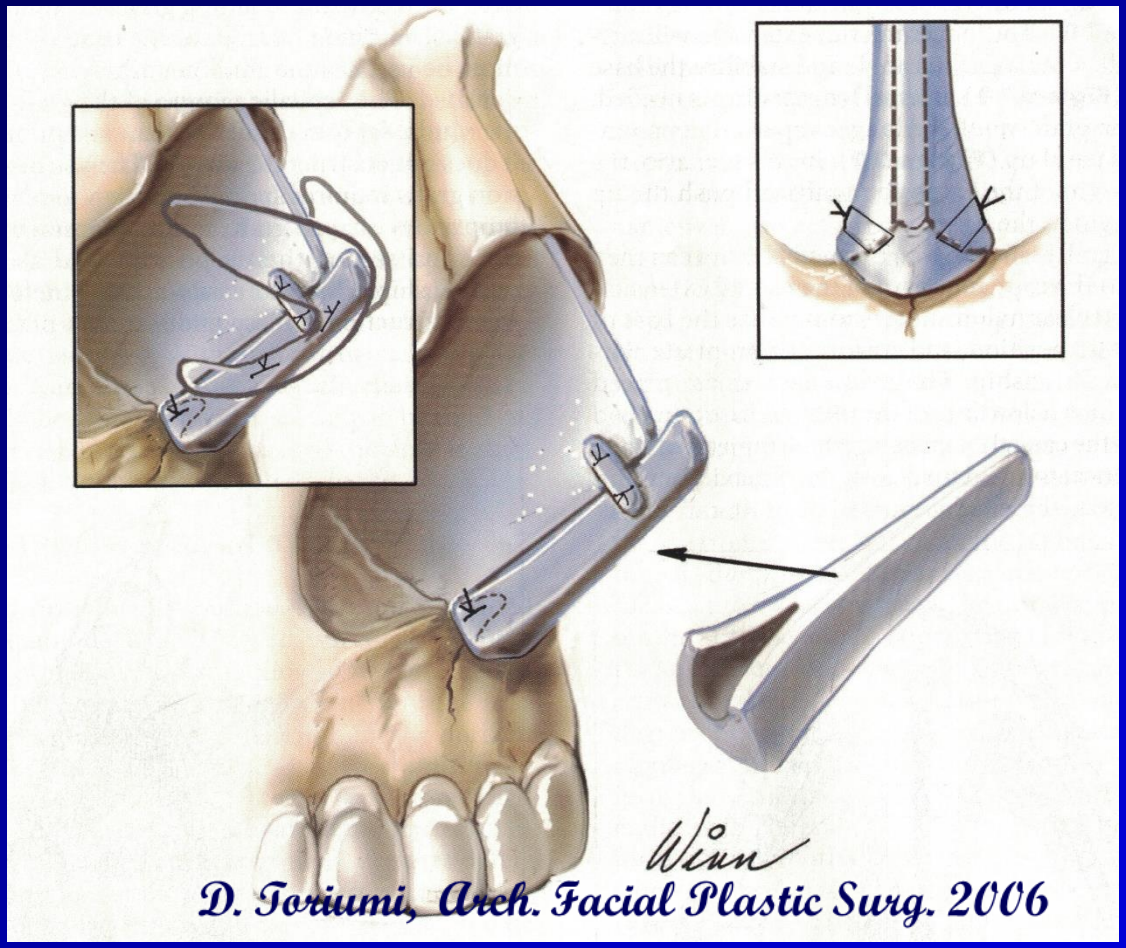
Daniel: Rhinoplasty



Columellar strut graft

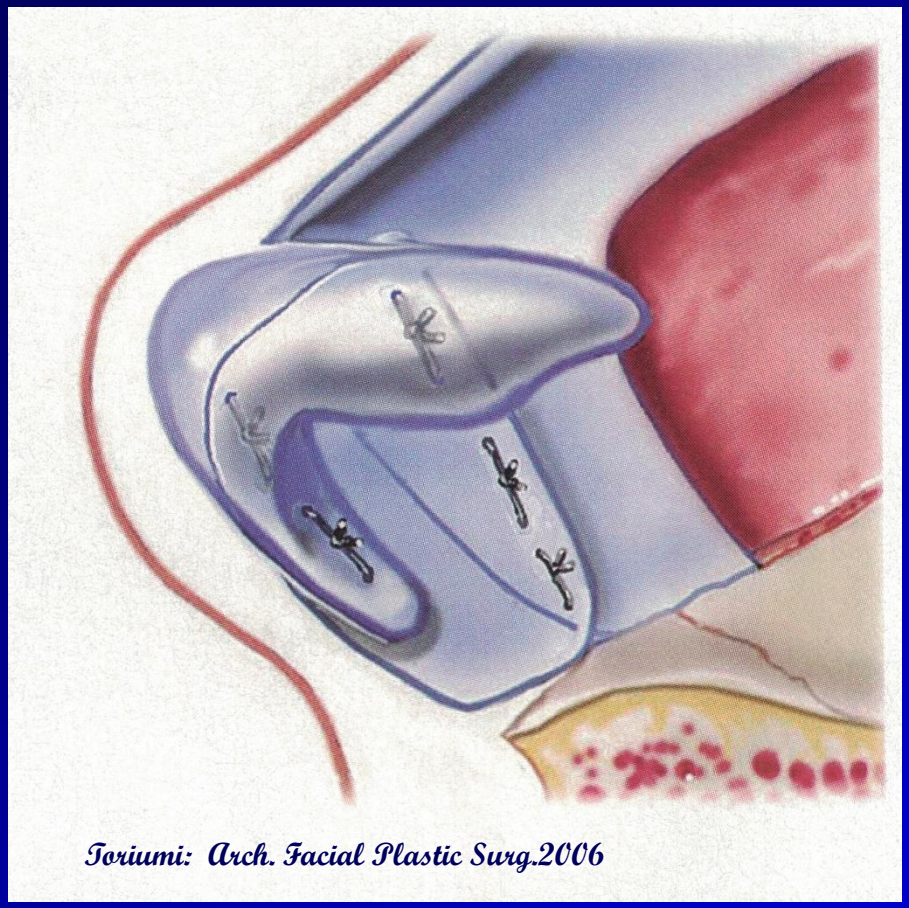
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

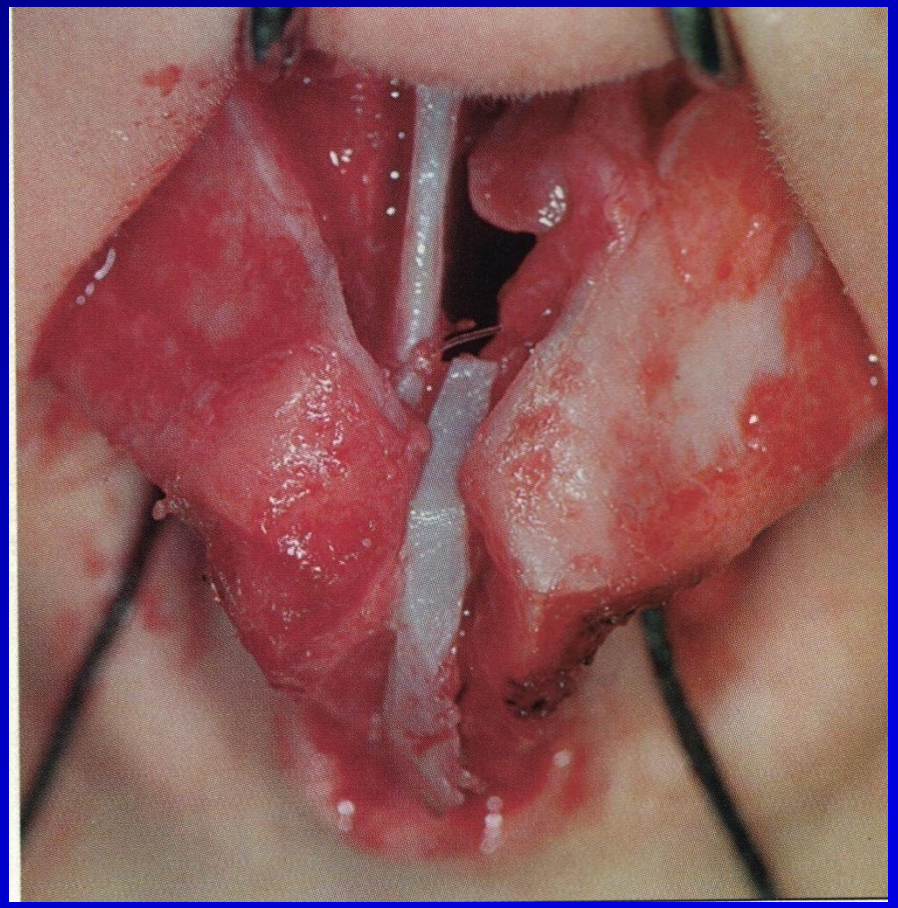
Septal Extension Graft and Extended Columellar Strut Graft Fixed to the Premaxillary Spine



These powerful grafts, used for correction of a short, over-rotated & under-projected nasal tip, are usually obtained from the rib. (Autologous or homologous costal cartilage grafts)

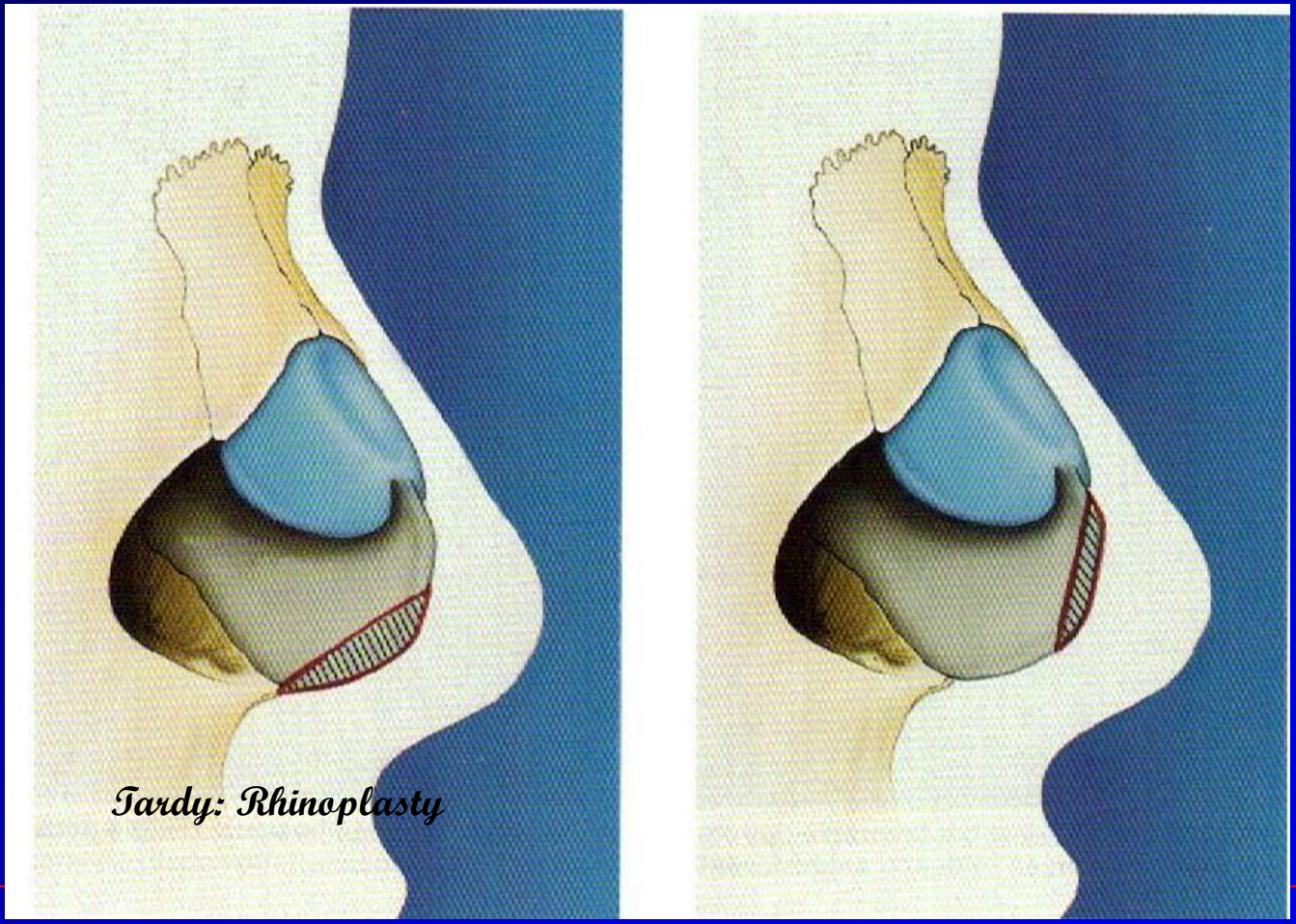
Septal Extension Graft



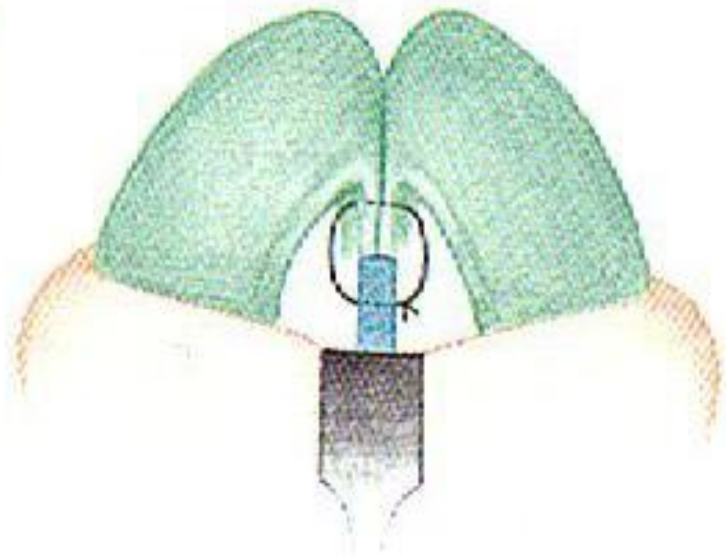


Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

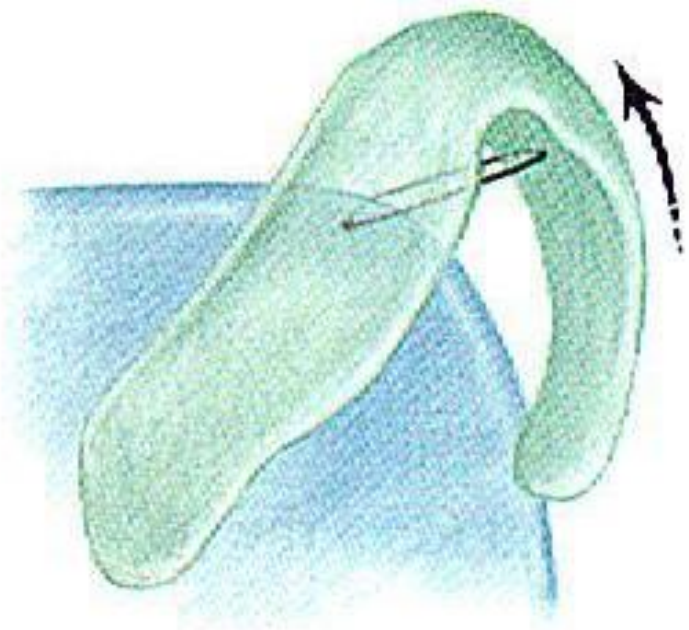
Resection of caudal septum for conservative shortening and rotation



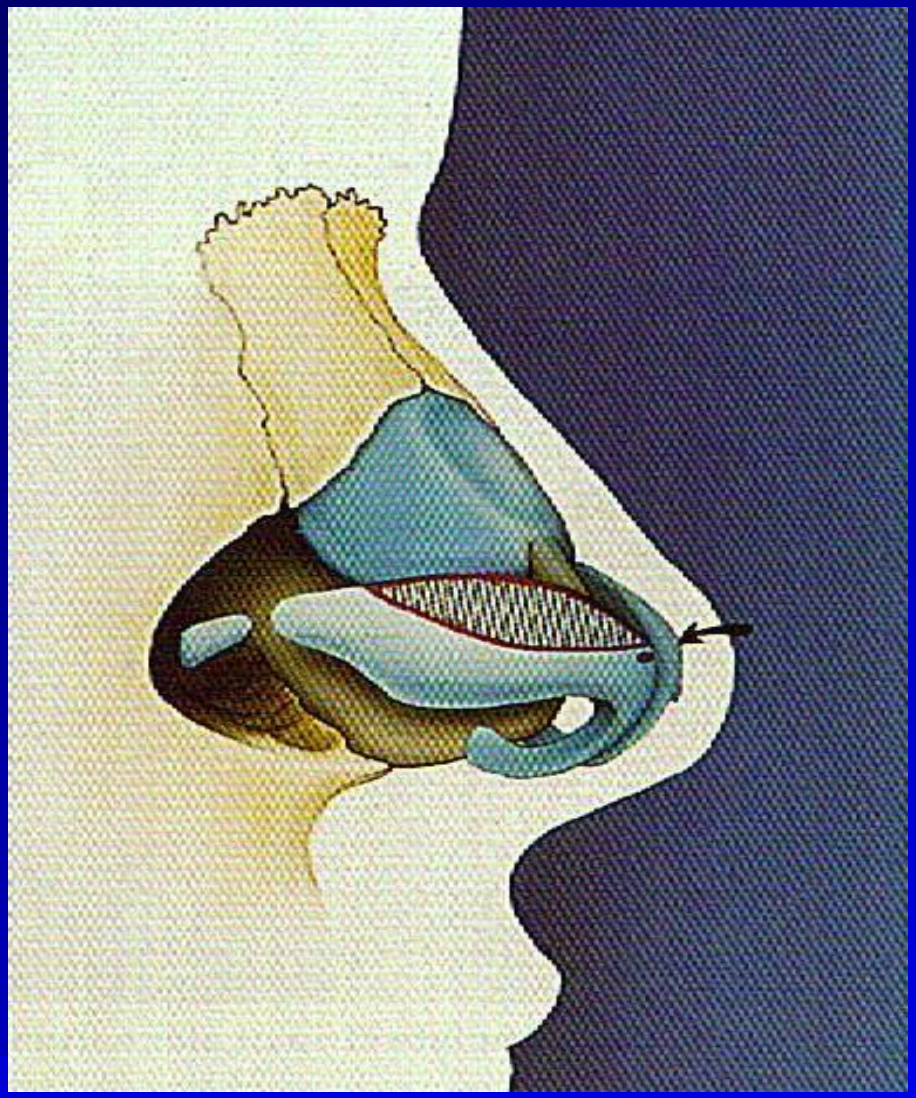
Tip rotation suture (if needed)



D *Daniel: Rhinoplasty*

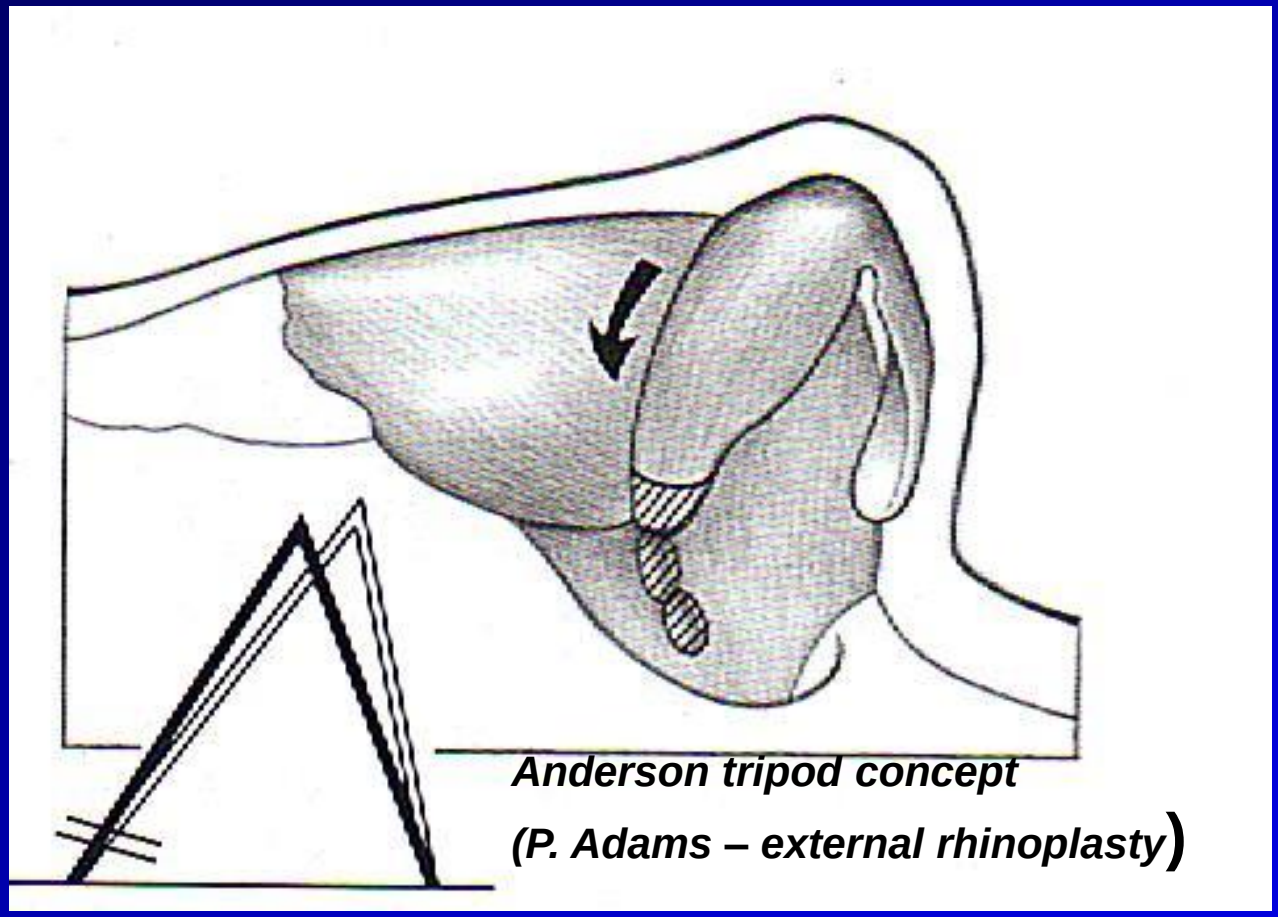


Tip refinement – resection of LLC



Tardy: Rhinoplasty

Tip plasty tripod concept – shortening of lateral crura

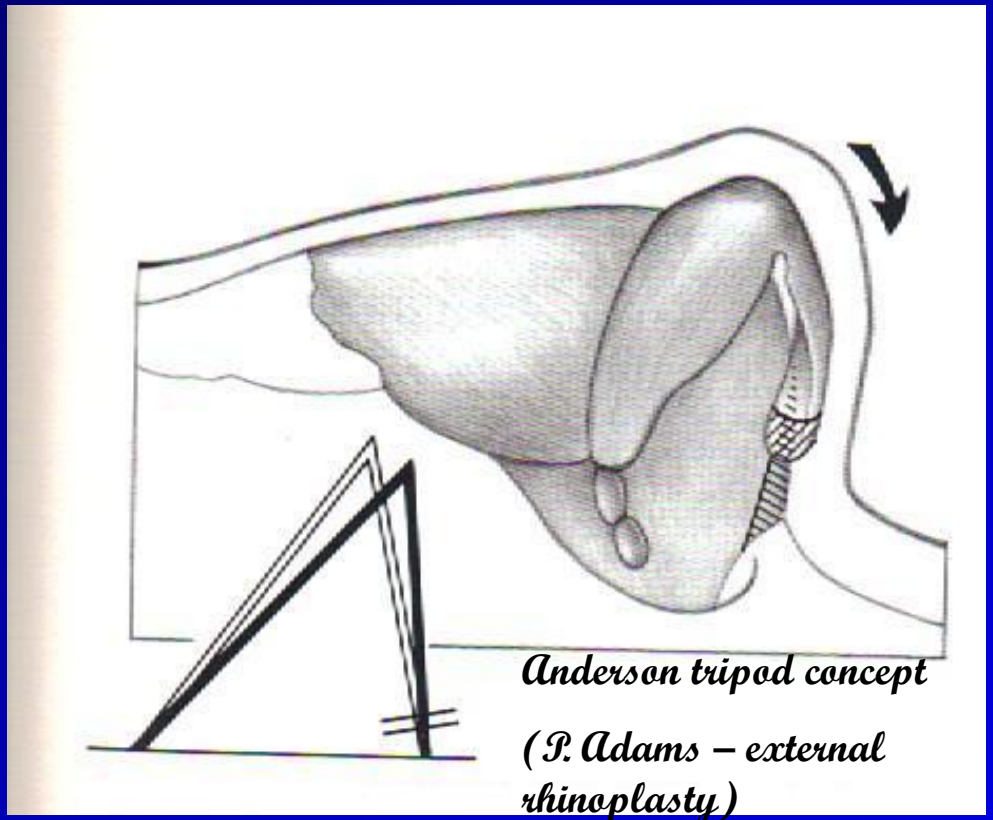


Anderson tripod concept

(P. Adams – external rhinoplasty)

Tip retro-displacement and rotation

Tip plasty--tripod concept – shortening of medial crura



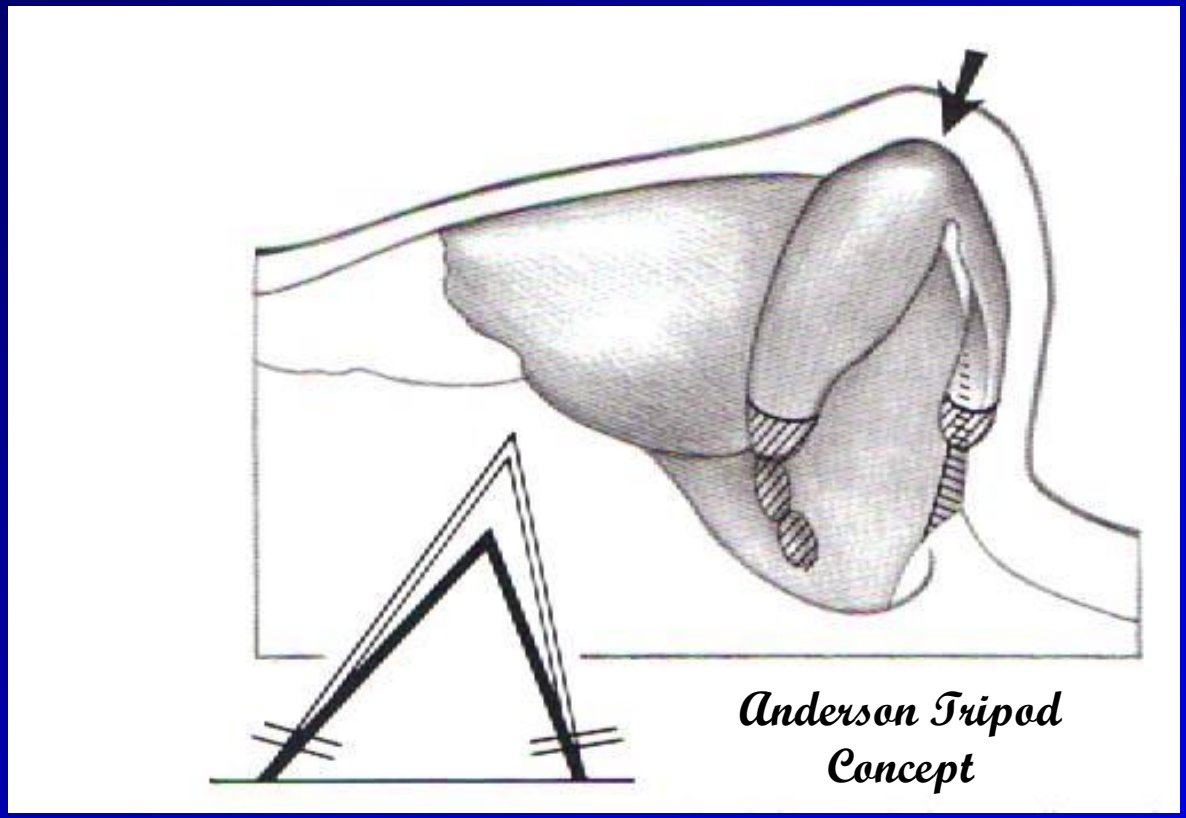
Anderson tripod concept

(P. Adams – external rhinoplasty)

Tip retro-displacement and lengthening (counter-rotation)

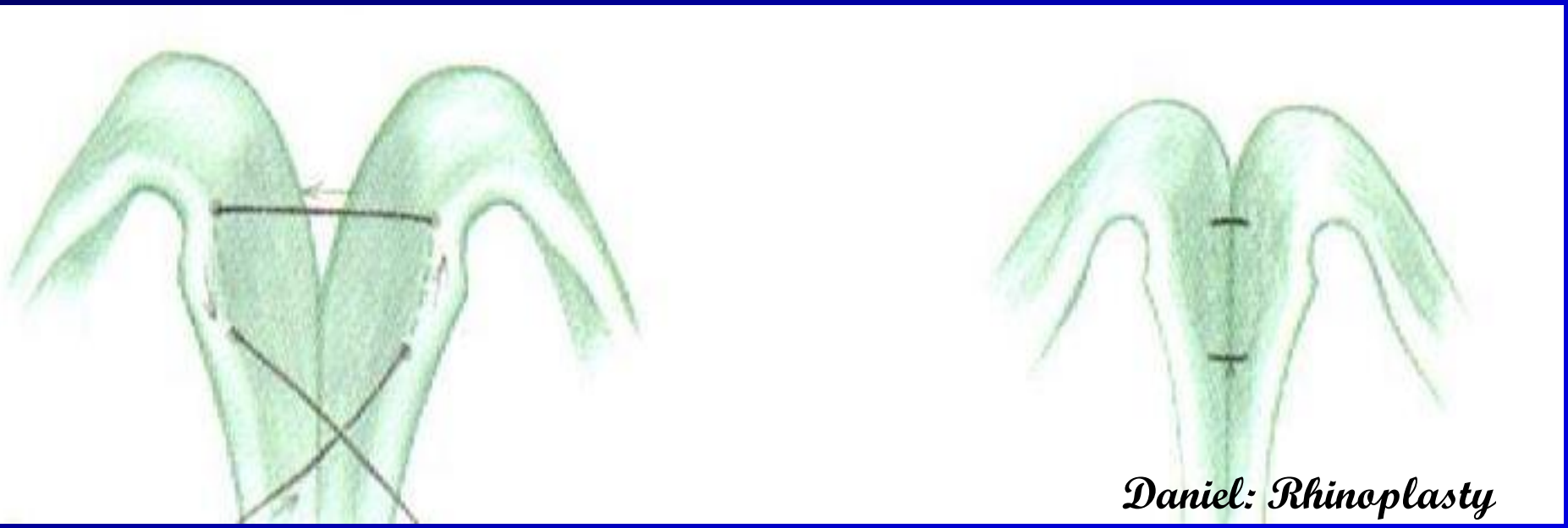
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Tip plasty--tripod concept – resection of both medial and lateral crura

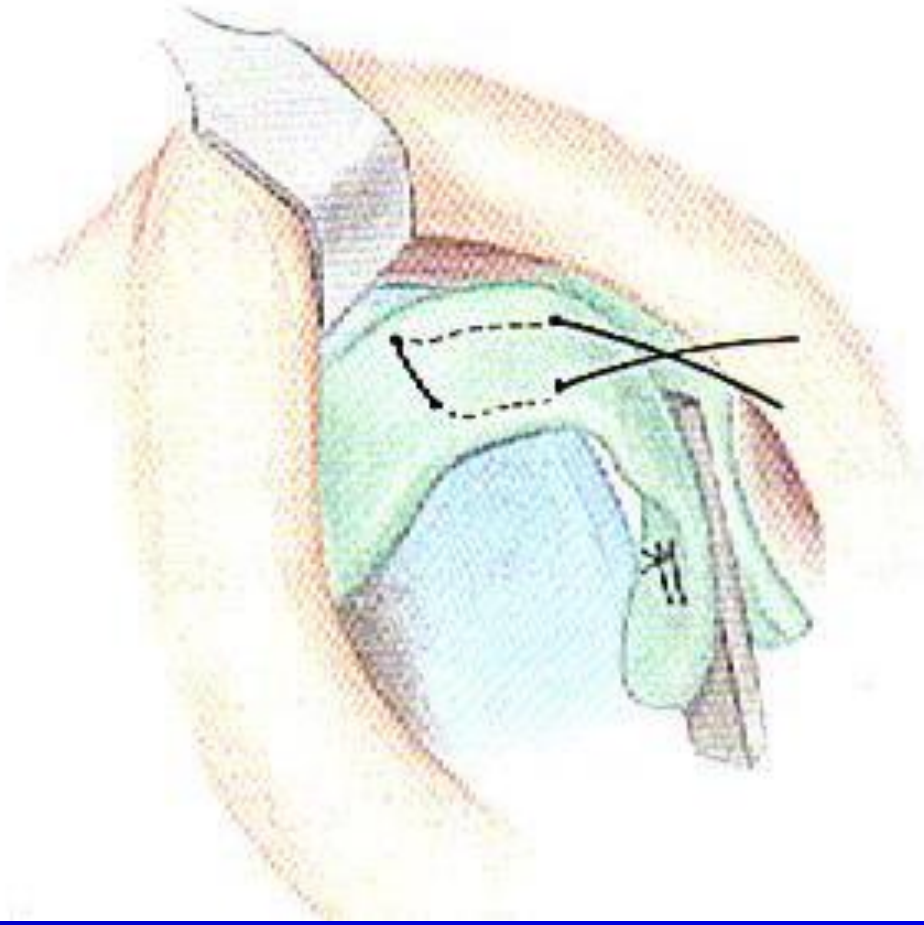


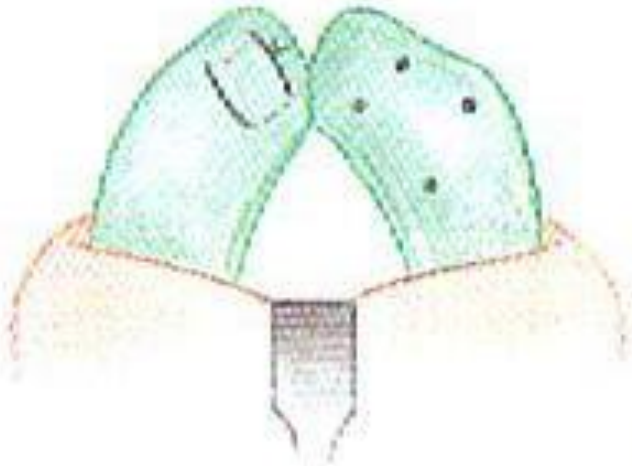
Tip retro-displacement – (to decrease of tip projection)

Interdomal stabilization suture



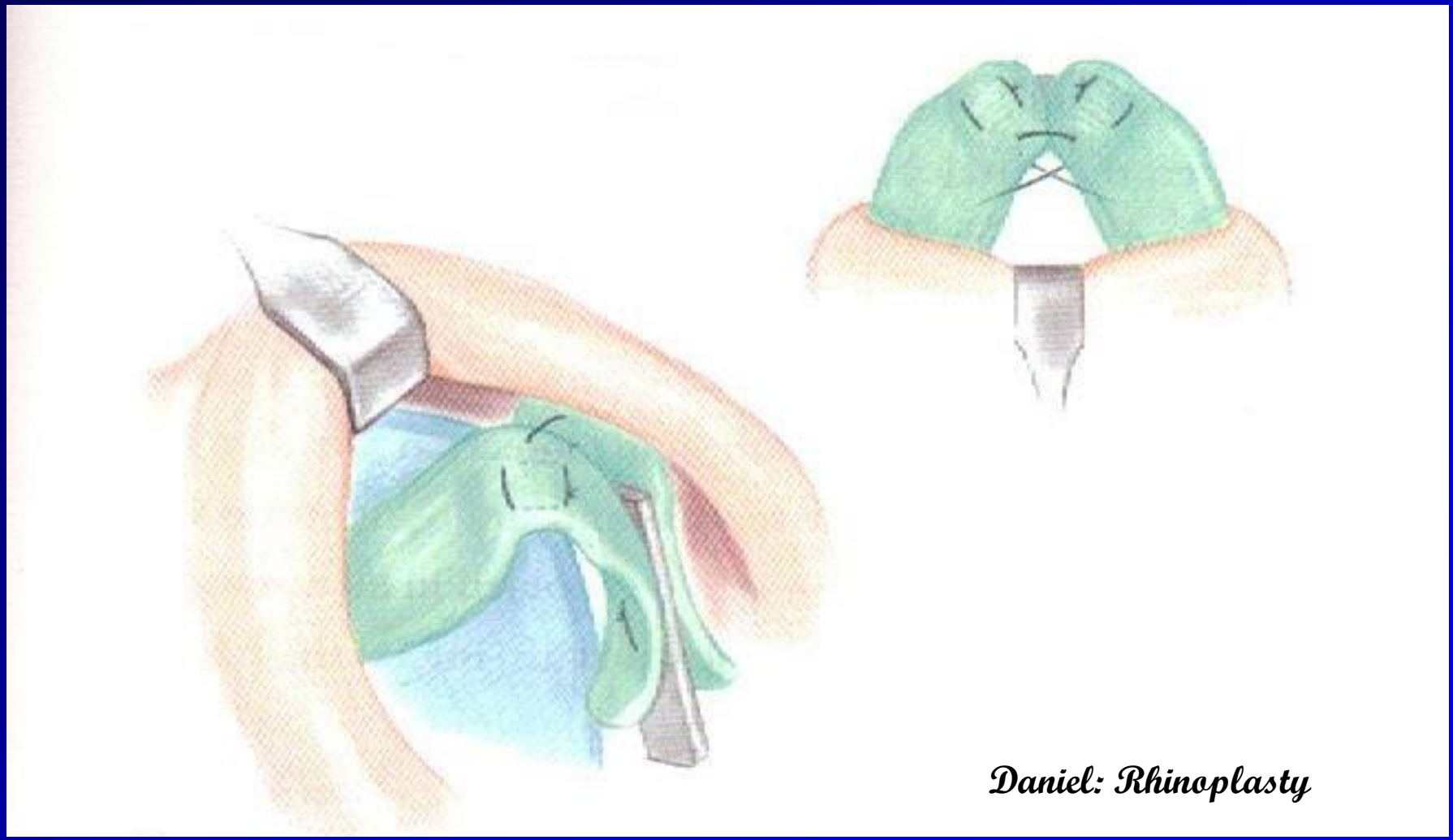
Domal defining sutures tip definition



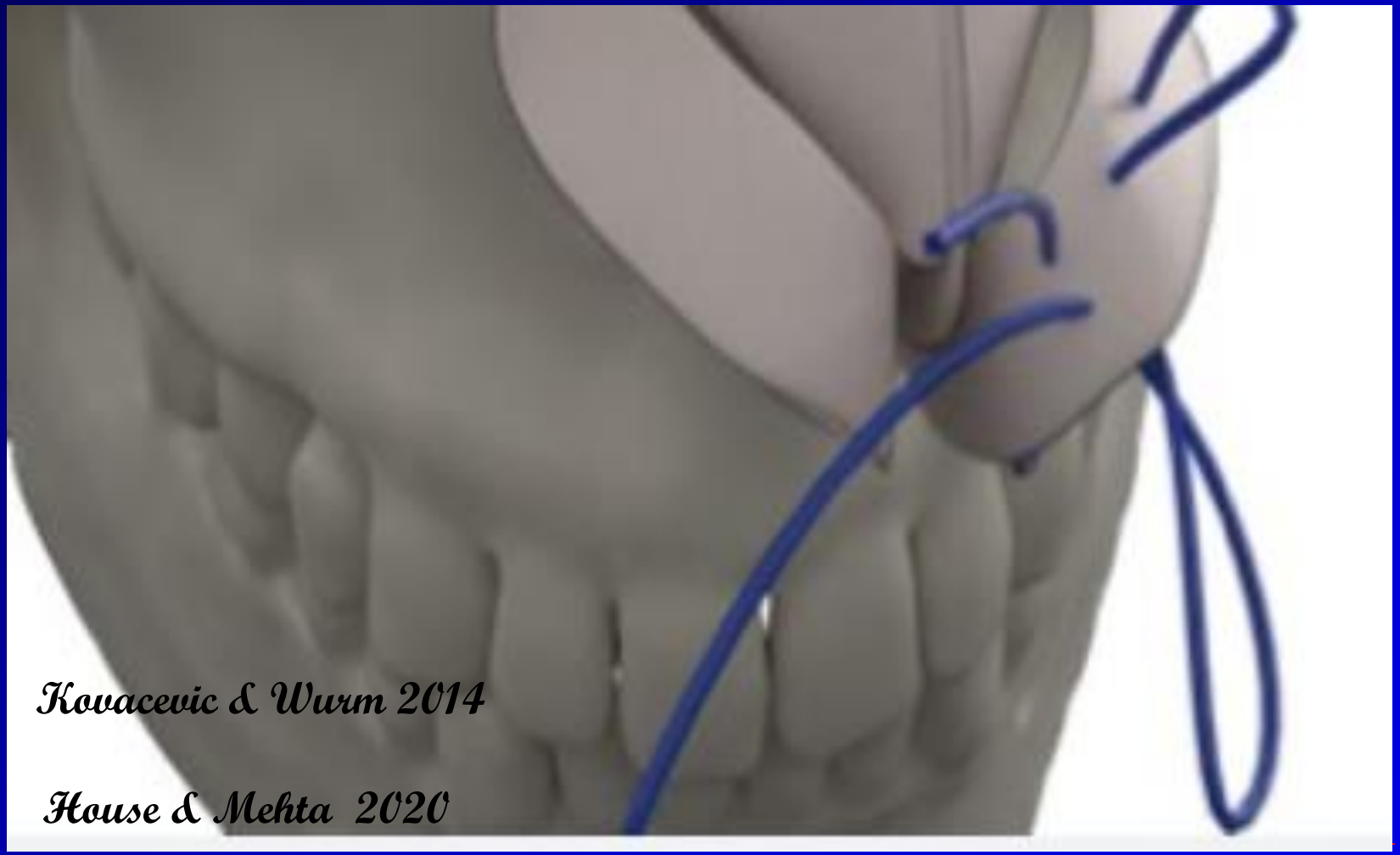


Daniel: Rhinoplasty

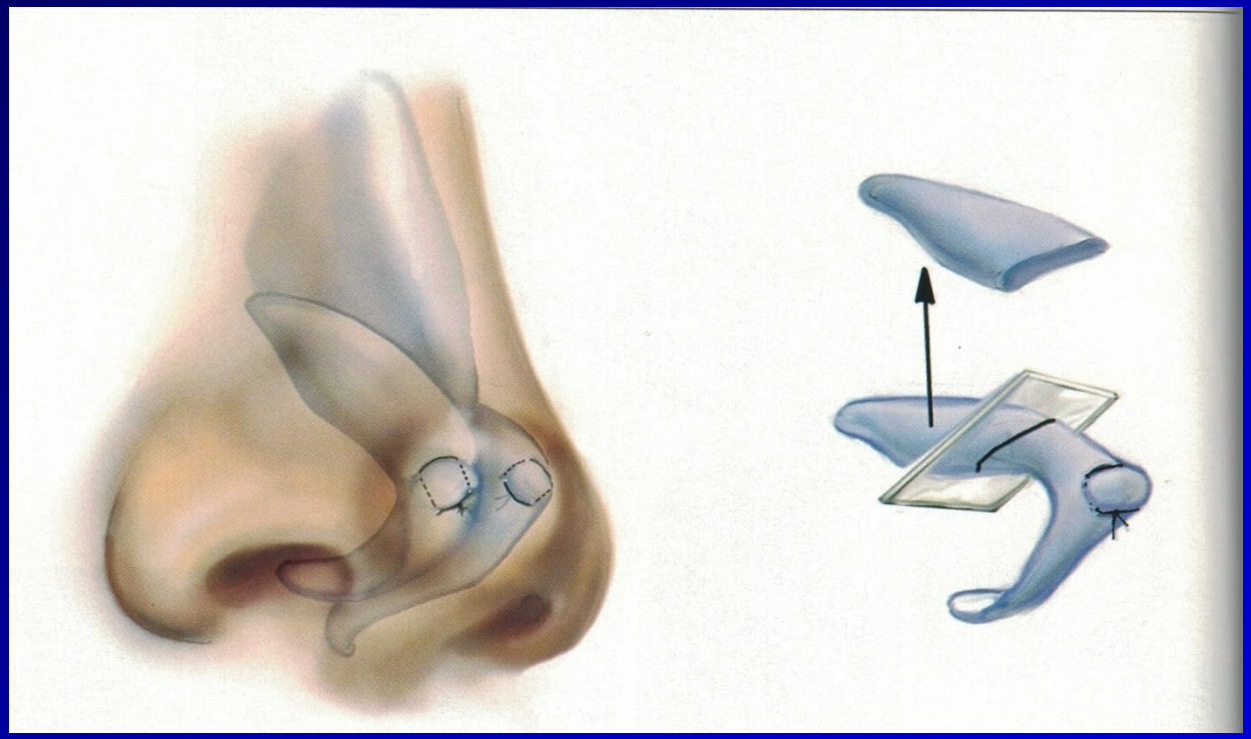
Domal defining sutures for tip definition



Cranial tip domal suture



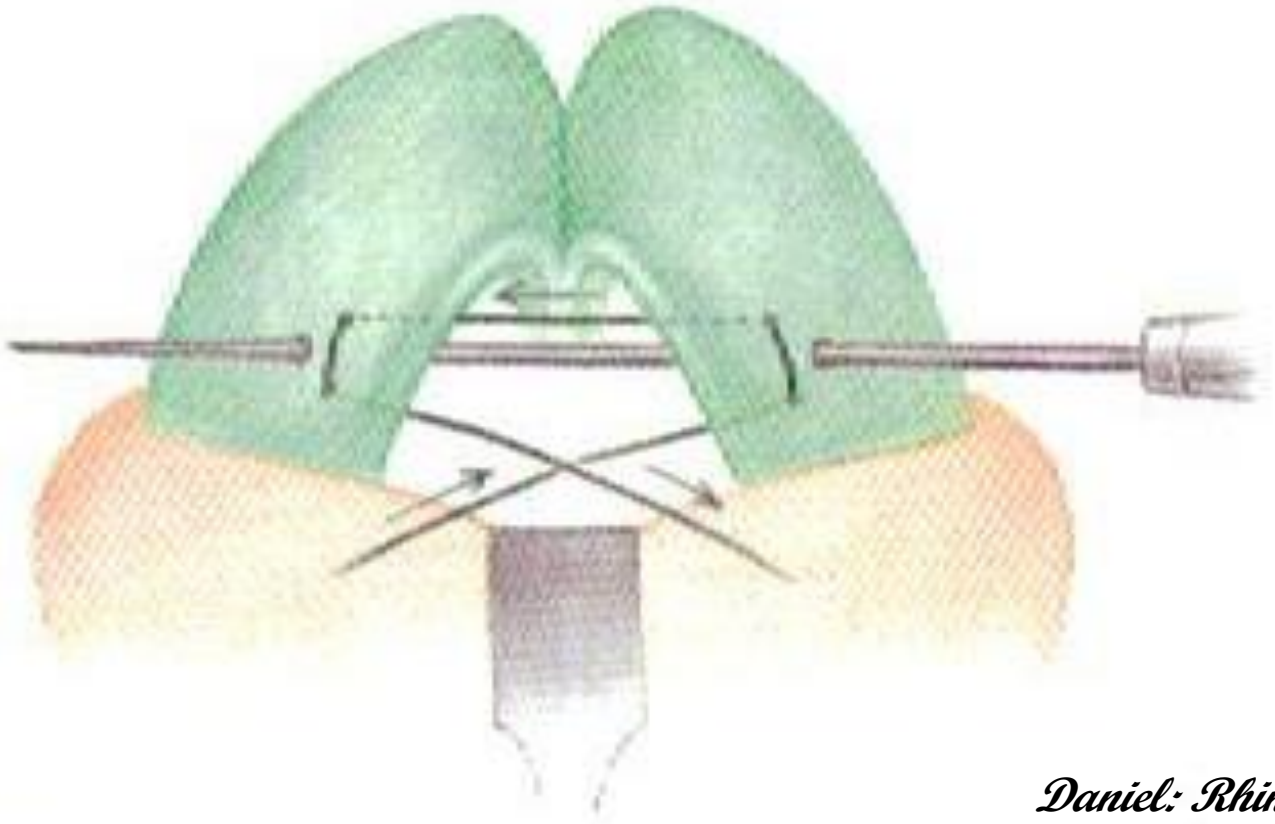
Mal-rotation of the lateral crura



Domal defining sutures are causing pinching and medial displacement of the caudal margin of the lateral crus

Lateral crura spanning suture

Need to avoid alar tilt or notching caused by this suture

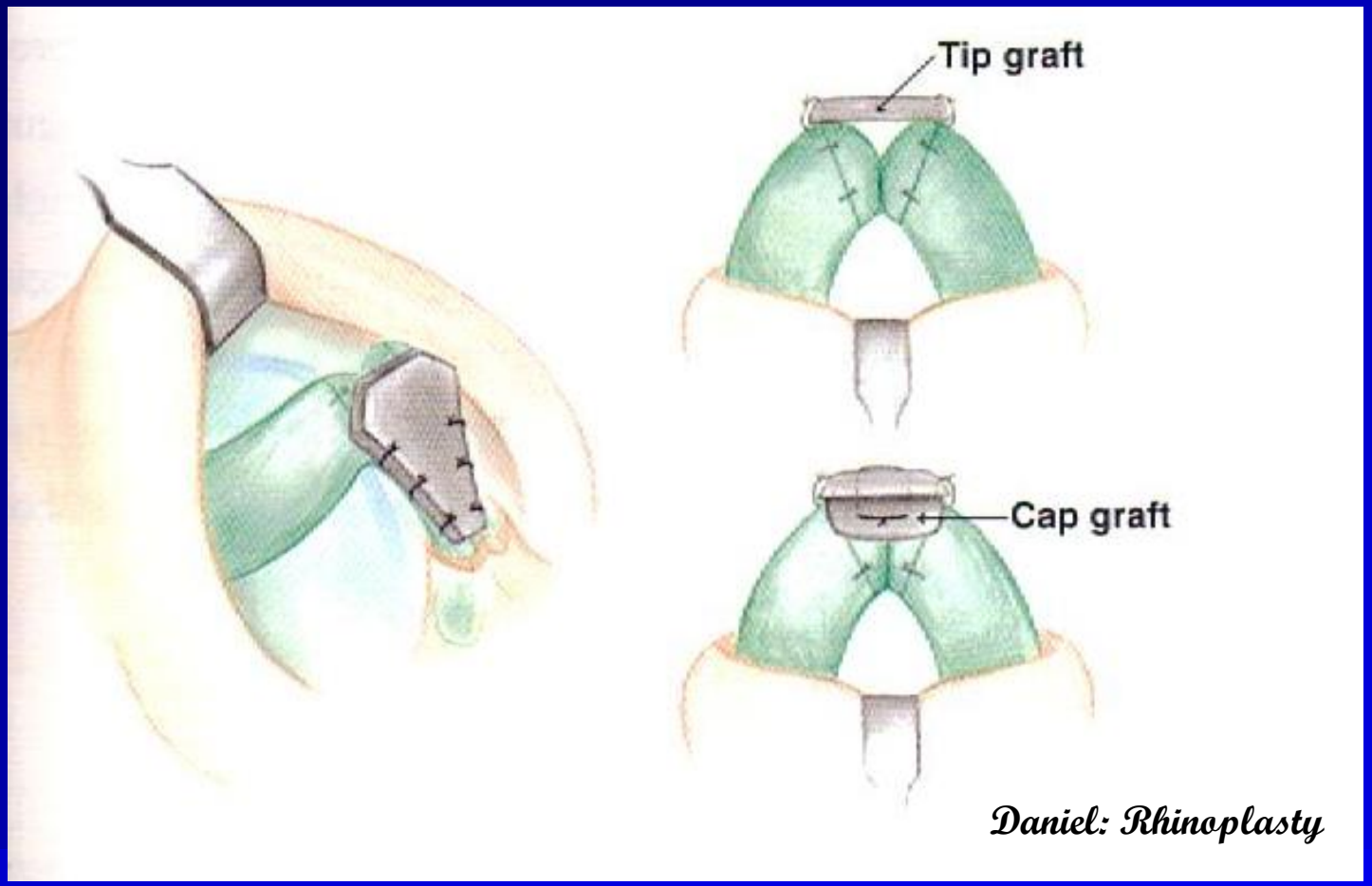


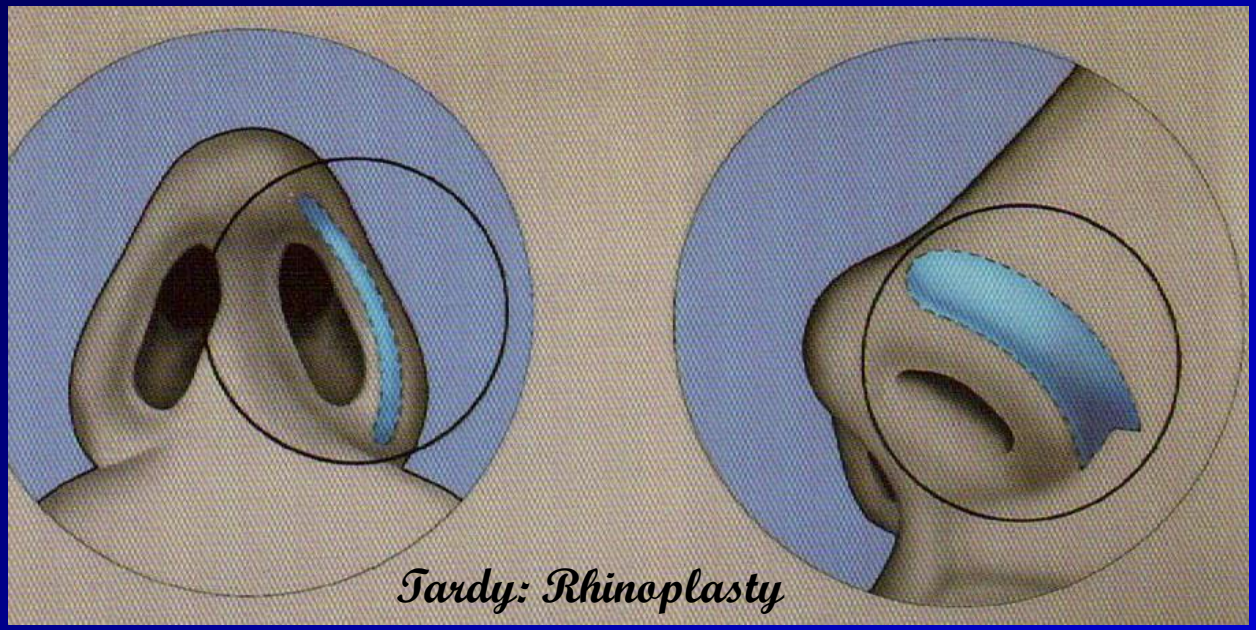
Daniel: Rhinoplasty

Grafts used in open rhinoplasty

- Columellar strut graft for tip support, projection
- Spreader grafts for nasal valve and mid-vault
- Septal extension graft for tip support & rotation
- Shield tip graft for definition & lengthening
- Cap graft for domal definition & projection
- Alar strut (underlay) grafts for LLC support
- Alar rim (overlay) grafts for alar contour
- Batten grafts for support of lateral nasal wall
- Dorsal augmentation with solid rib & diced cartilage on-lay graft or with subdorsal grafting

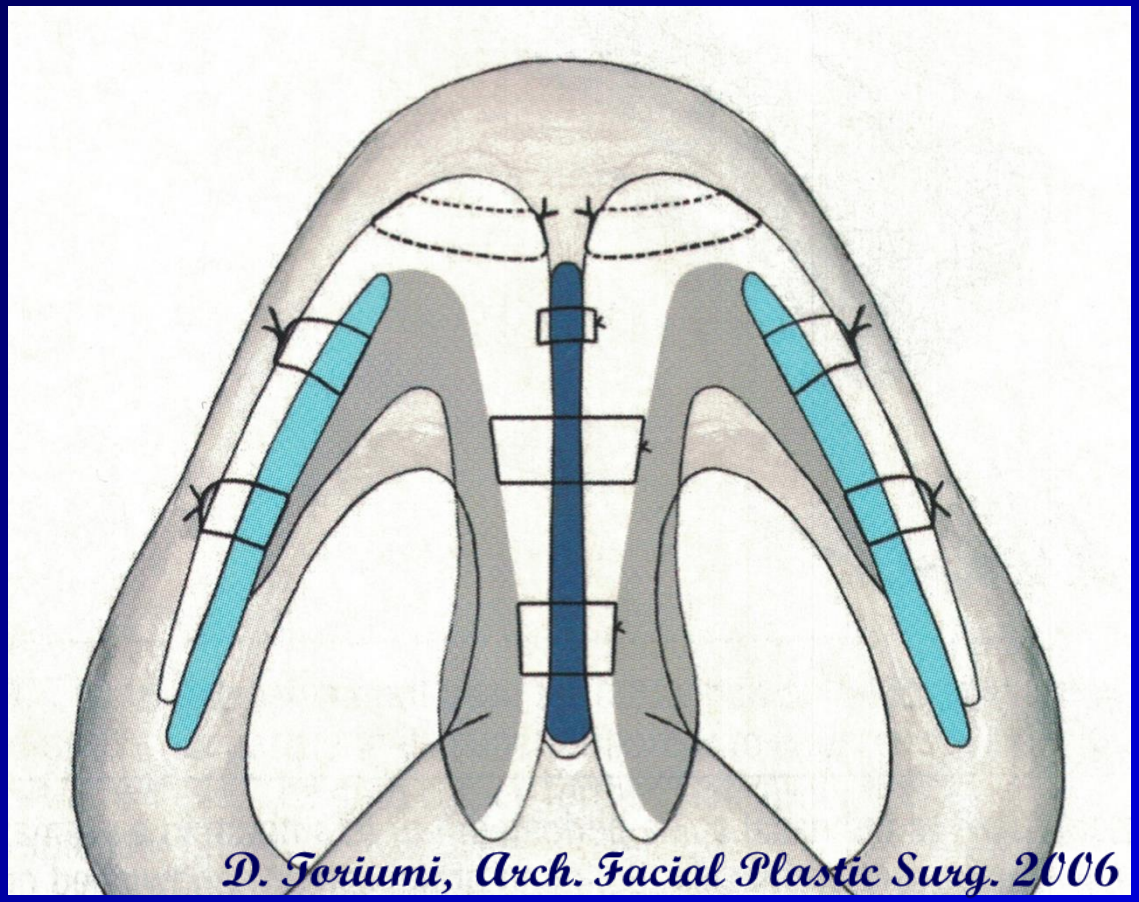
Tip grafting (shield graft for tip definition, increased projection and lengthening)





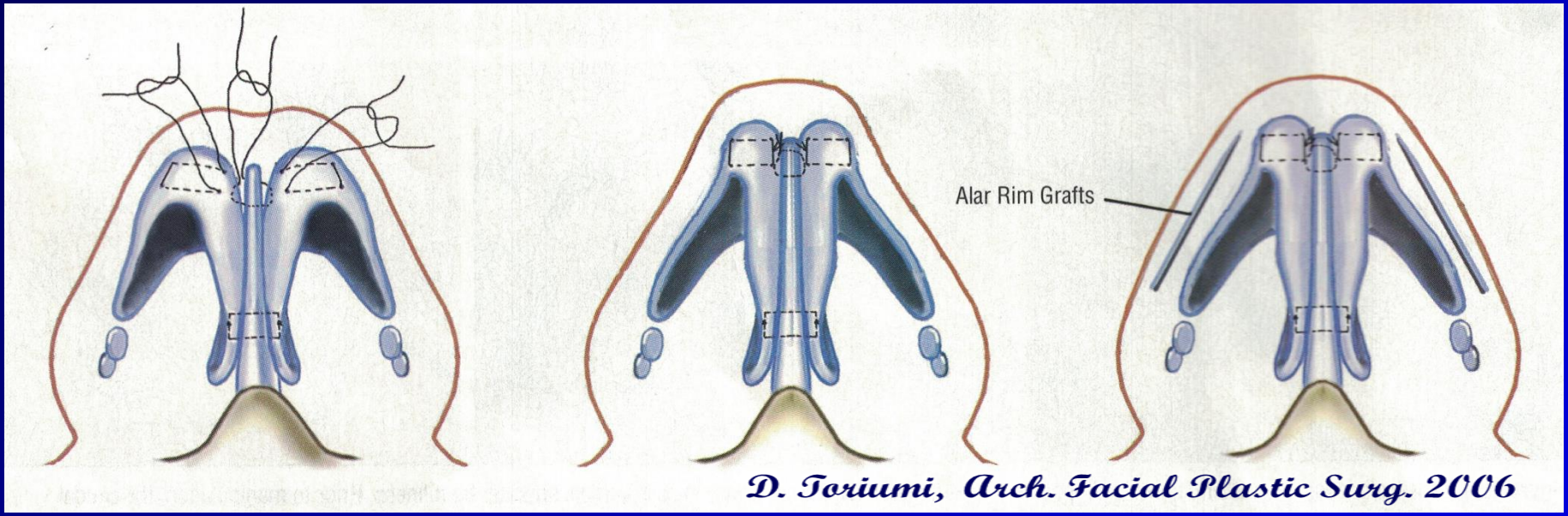
Batten graft to support the lateral nasal wall

Lateral Strut Under-lay Grafts



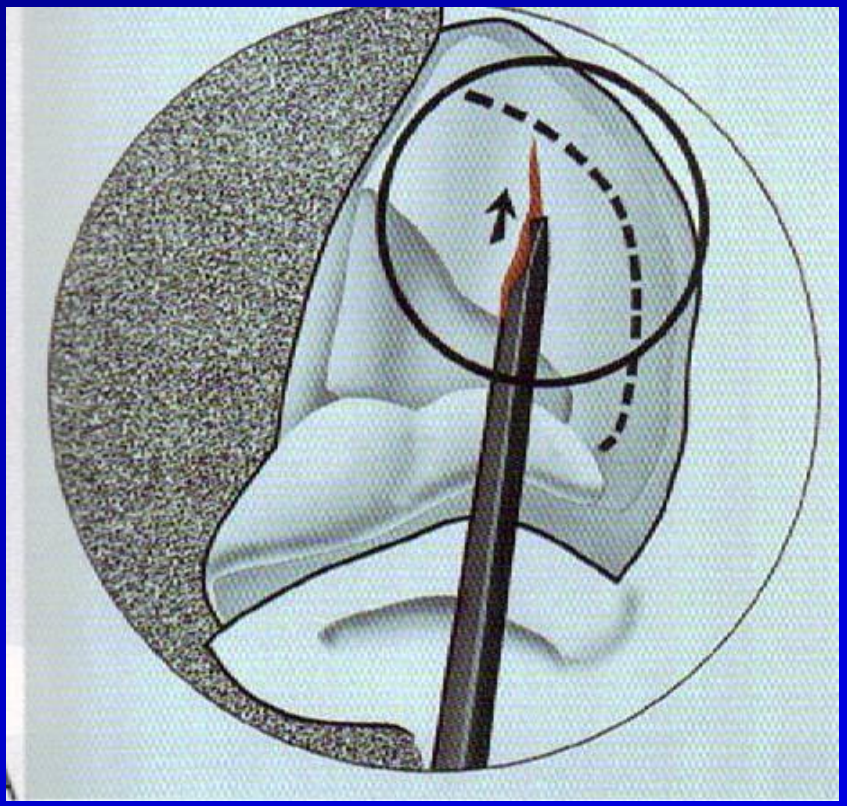
Grafts shown in blue are inserted under the lateral crura and are attached in order to straighten the crura and reduce bulbosity; also shown are columellar strut graft and domal sutures

Alar Rim Grafts (overlay grafts)

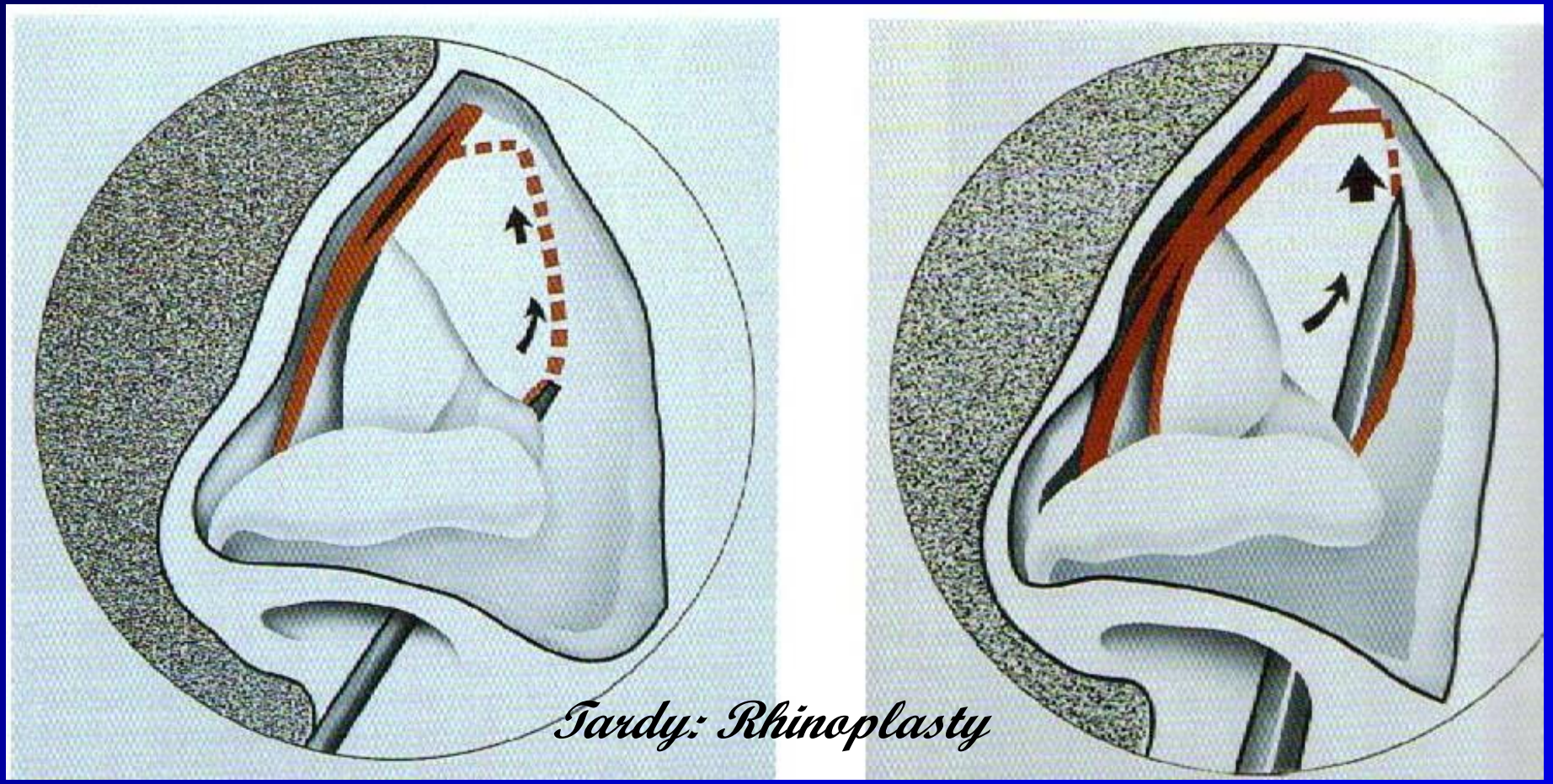


Domal narrowing sutures caused pinching of the alar cartilages. This alar pinching was overcome by placement of thin, alar rim grafts inserted into subcutaneous pockets along the alar rim and caudal to the lateral alae. Also shown are inter-domal and medial crura stabilization sutures.

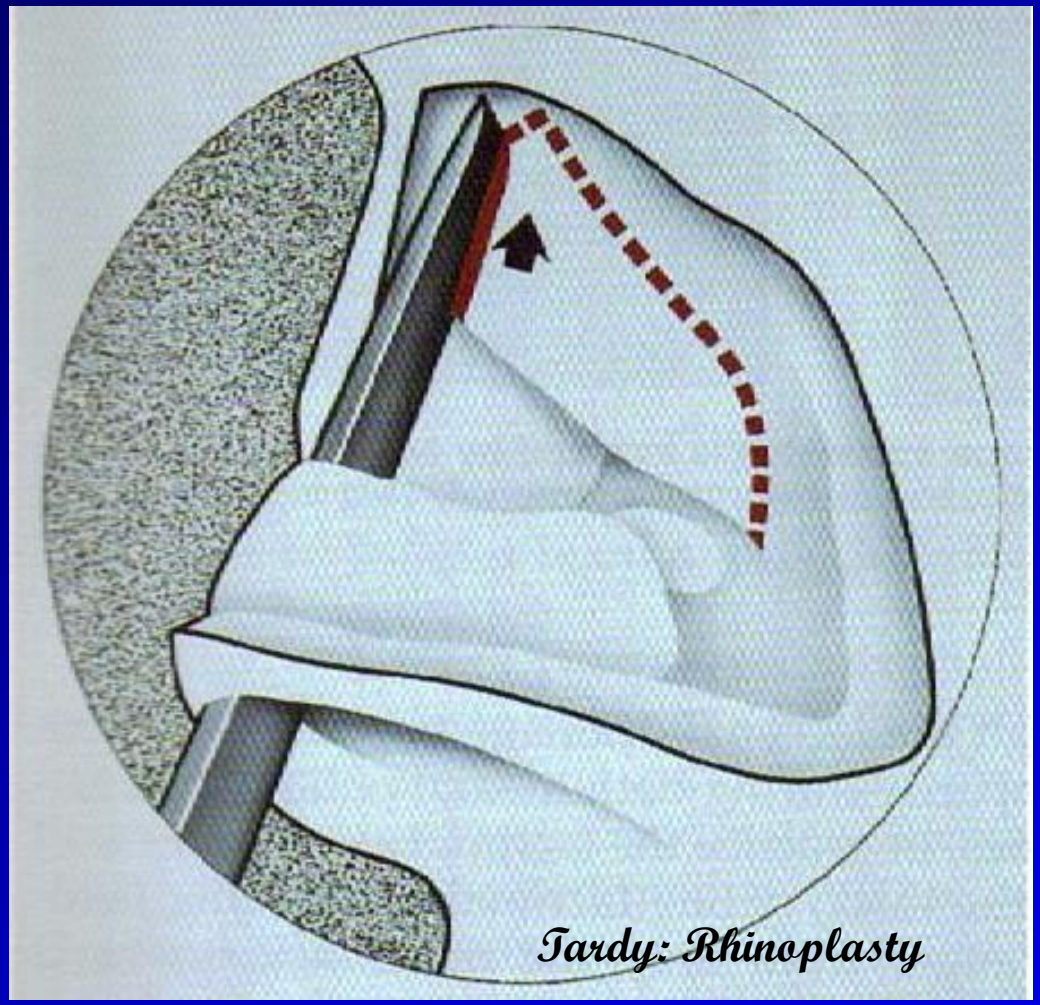
Lateral & intermediate osteotomies



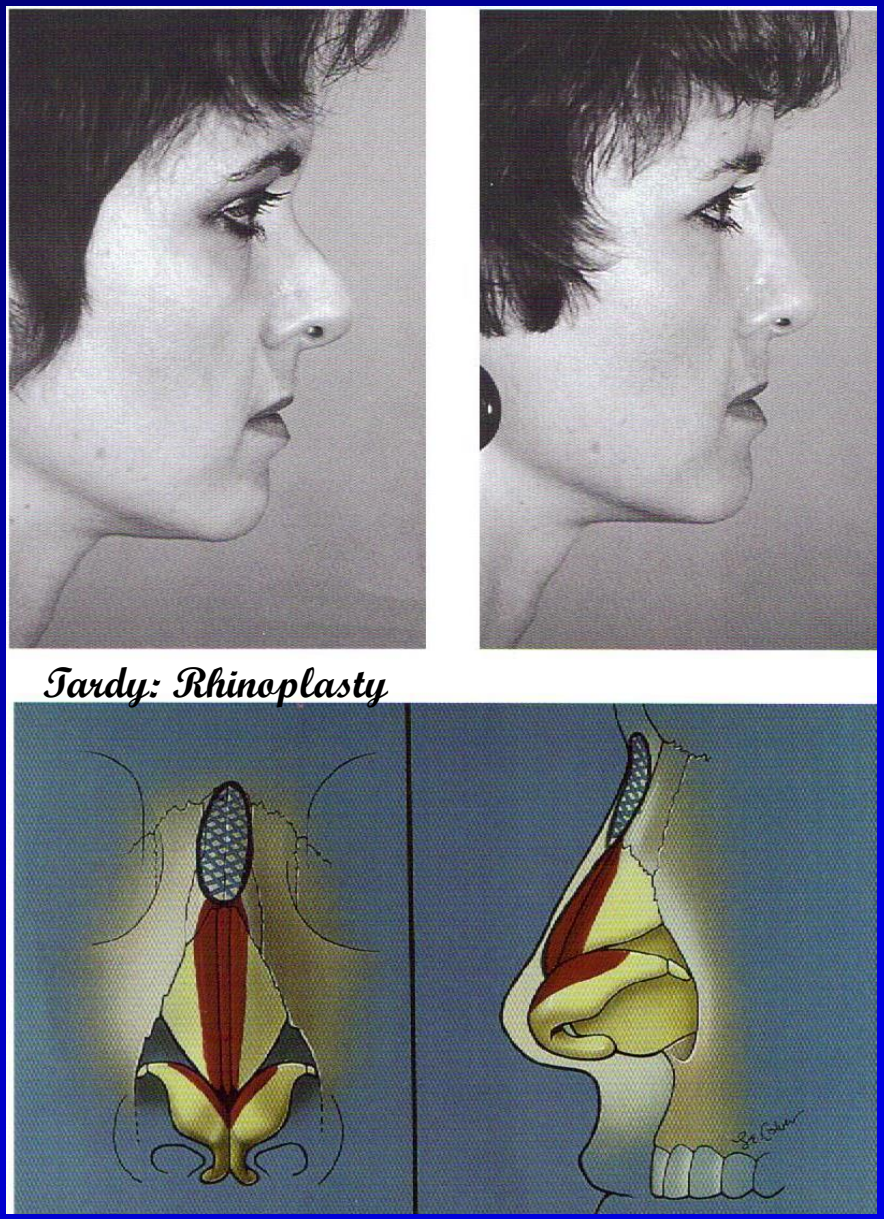
Lateral & completion medial osteotomy



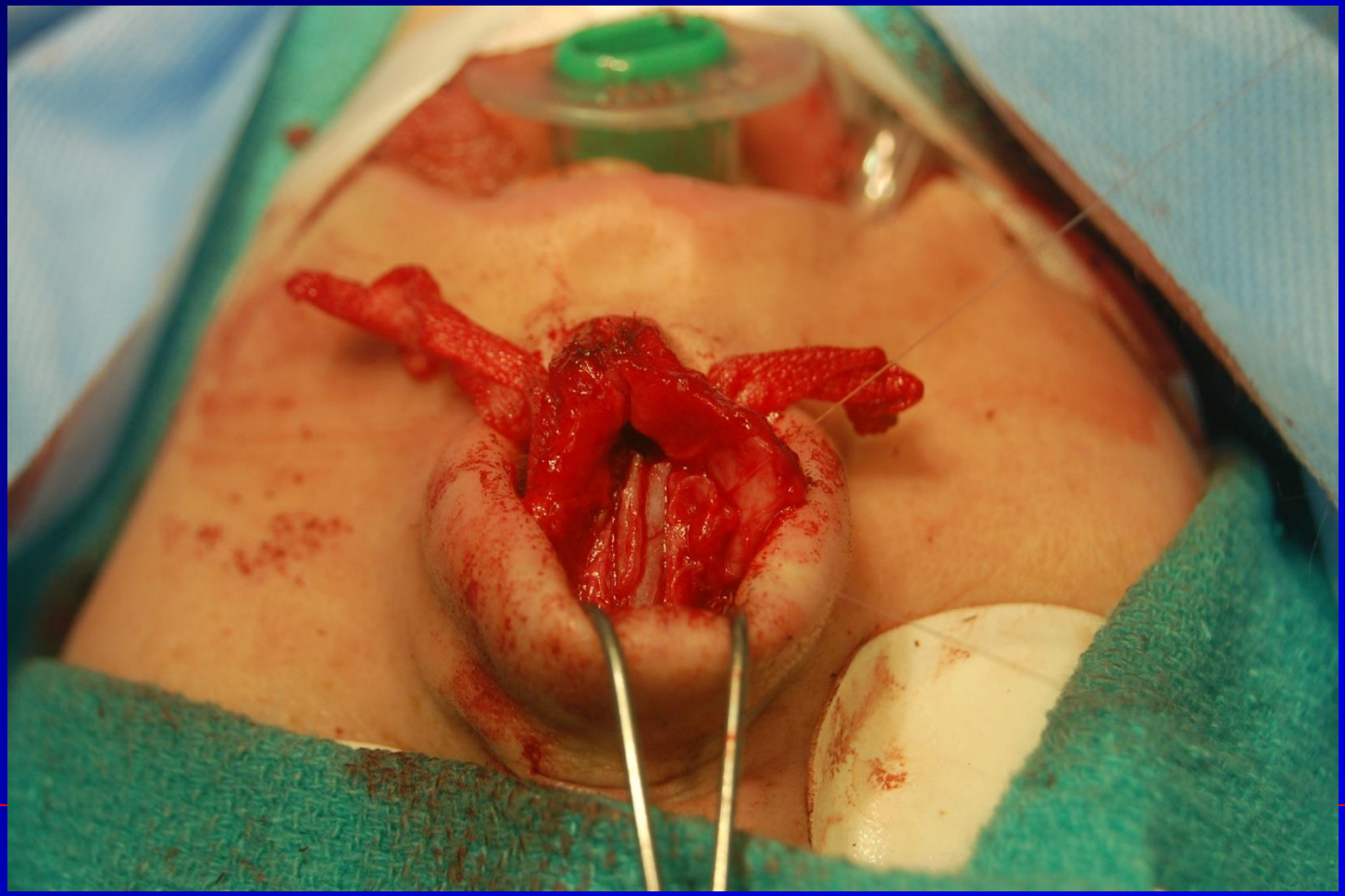
Completion medial osteotomy



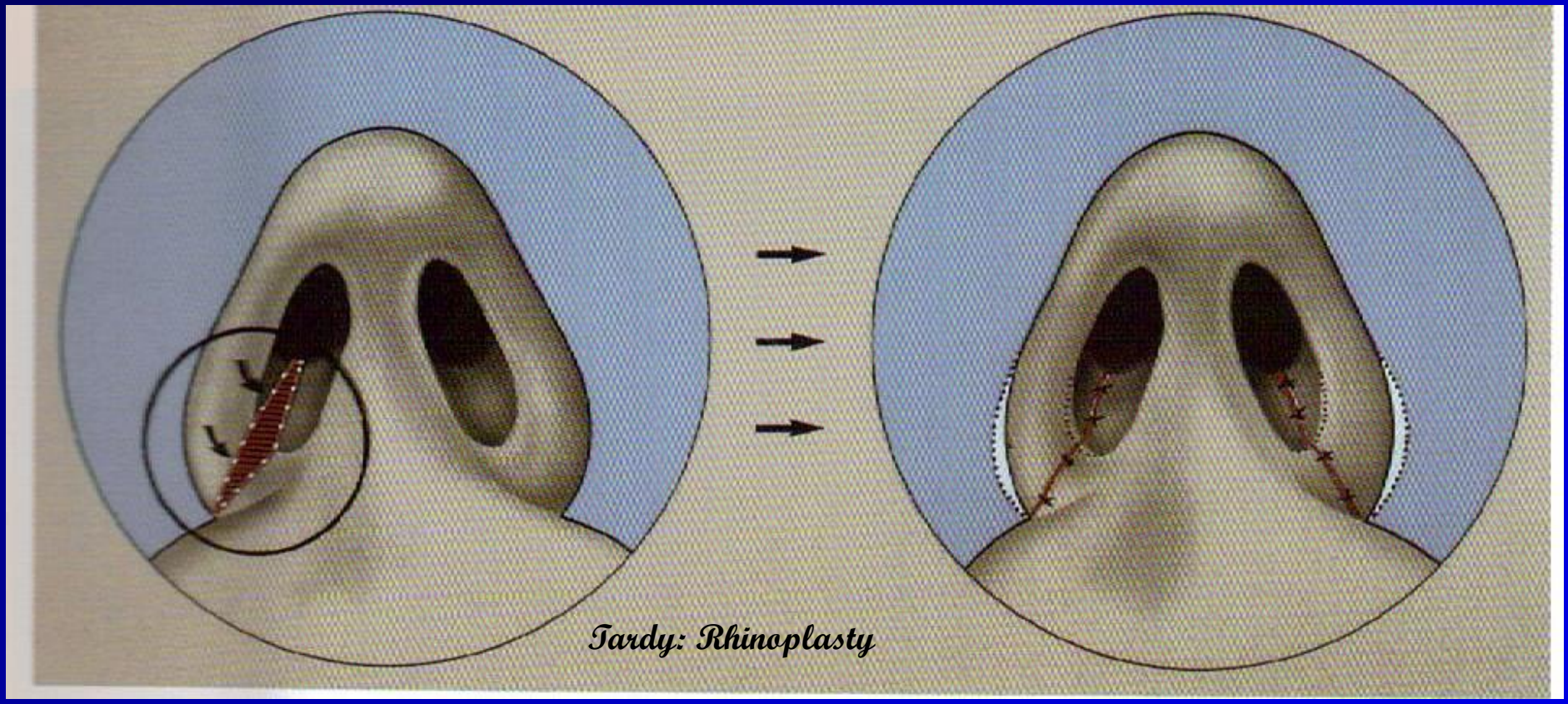
Radix augmentation graft



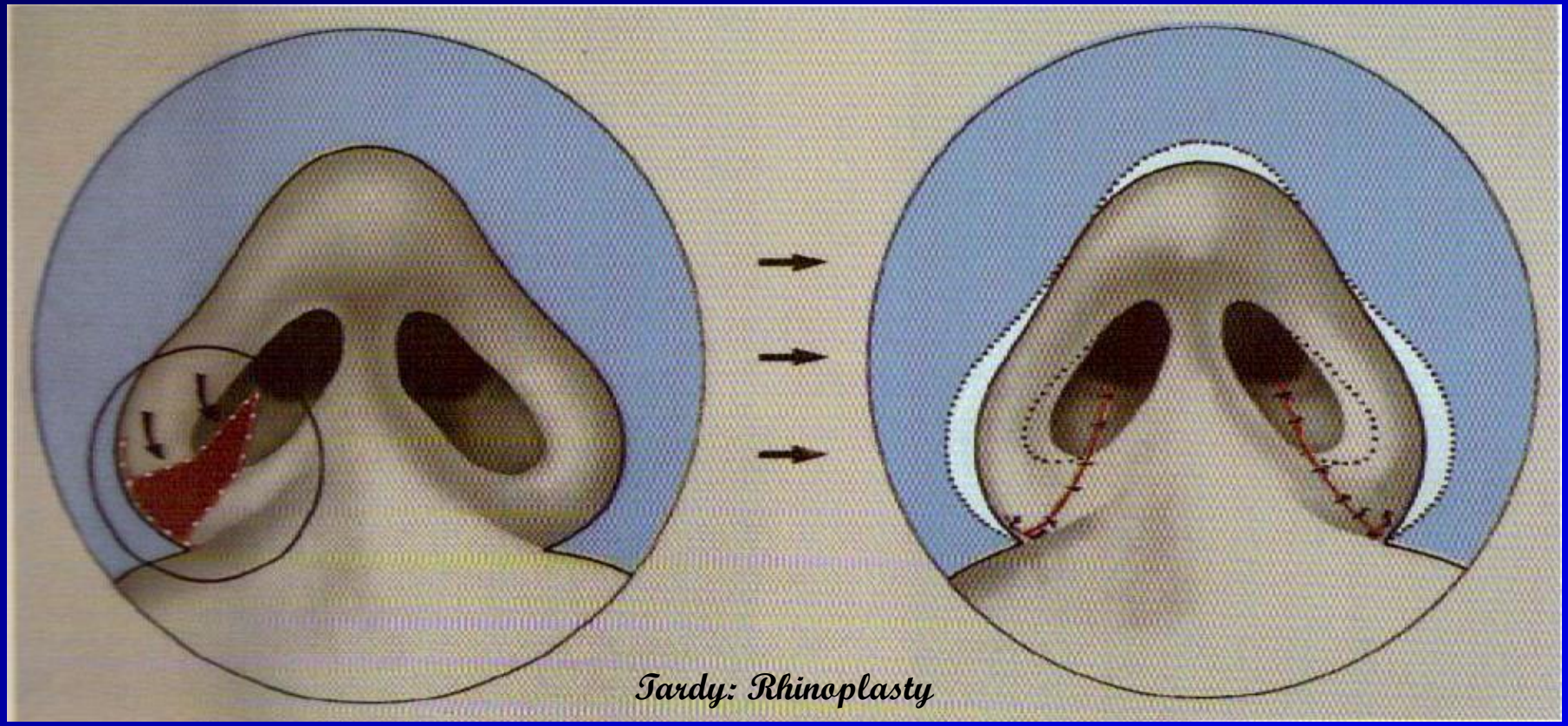
Anterior advancement of upper lateral cartilage of the mid-vault with suture closure



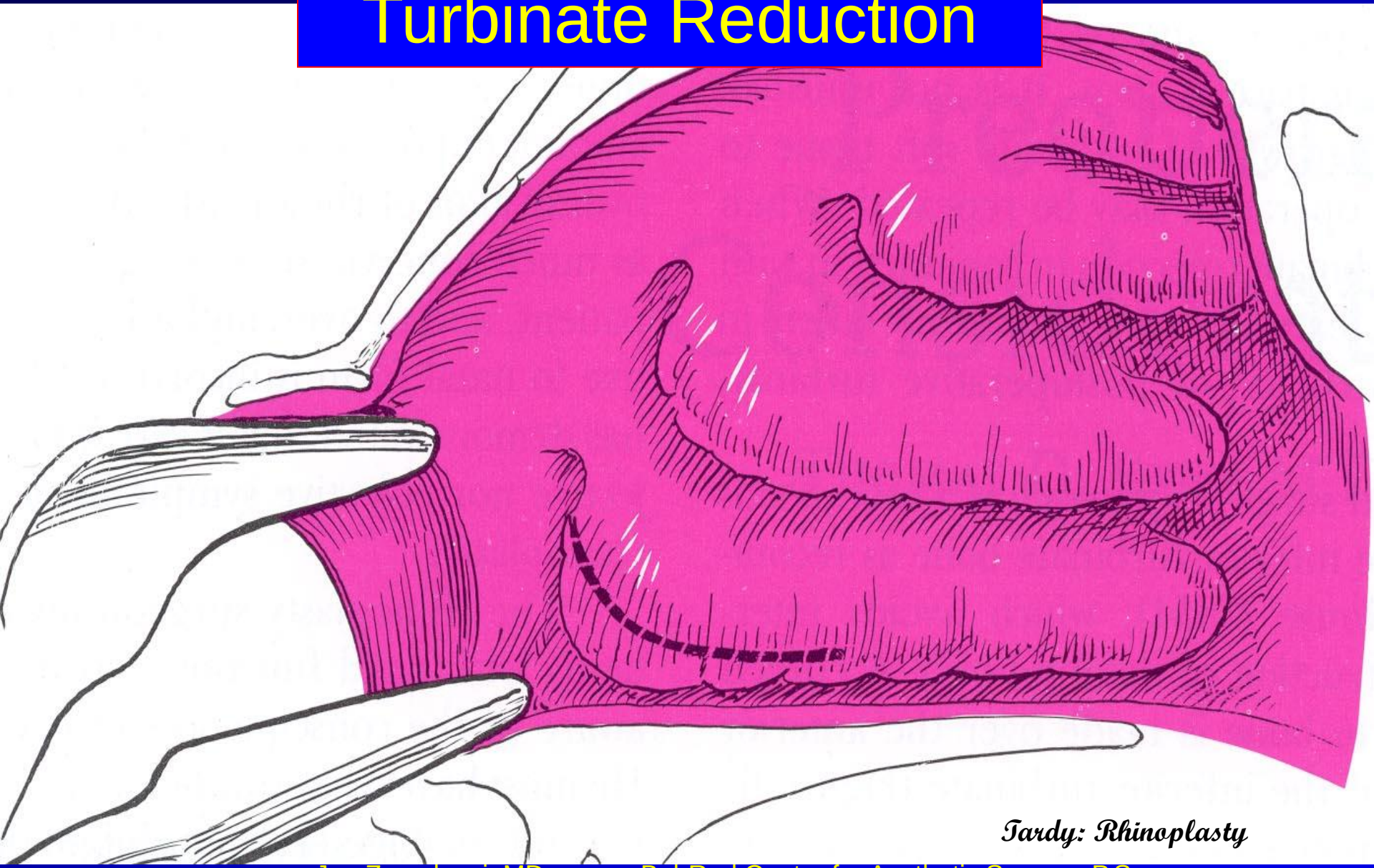
Alar reduction



Alar reduction-sliding alar flap

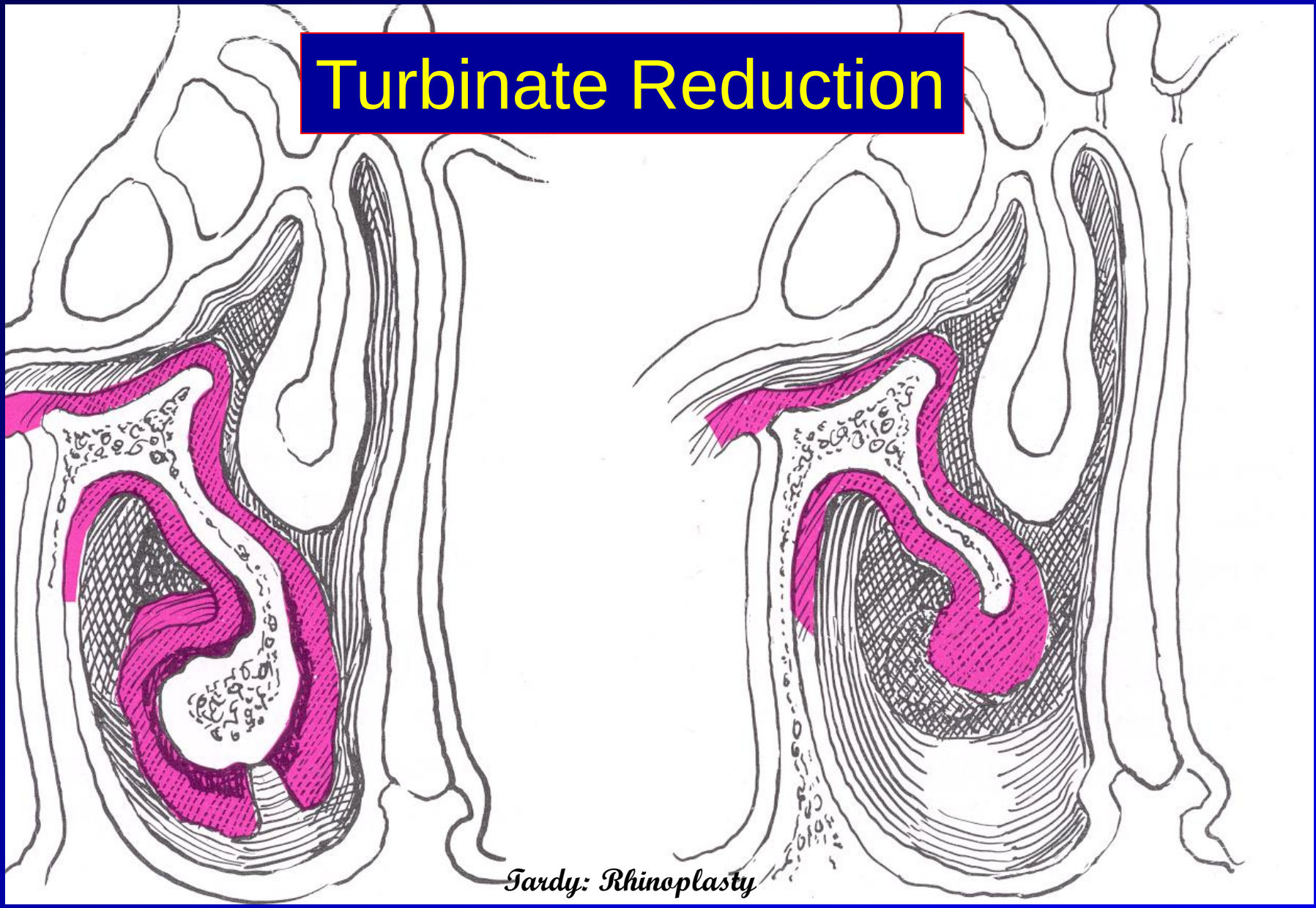


Turbinate Reduction



Tardy: Rhinoplasty

Turbinate Reduction



Nasal Grafting

- **Septal cartilage** – is preferred, may used crushed
- Septal bone – often too rigid, may be used for columella
- **Ear conchal cartilage** (posterior approach preferred)
- Temporalis fascia or Alloderm for dorsal augmentation
- **Costal cartilage –** used for its stiffness & volume as in septal extension and dorsal on-lay grafs, for diced cartilage grafts & for major nasal reconstructions of the dorsum and for support in trauma and skin cancer defects
- Can use irradiated, cadaveric costal cartilage
- Gortex 1mm sheeting for the dorsum, may need > one ply
- Silastic L-shaped implants - common in Asia
- **Injectable materials** (esp. hyalorunic acid fillers) -useful for correction and augmentation of minor contour defects (as performed in “non-surgical rhinoplasty”)

Conchal Cartilage Graft, medial approach

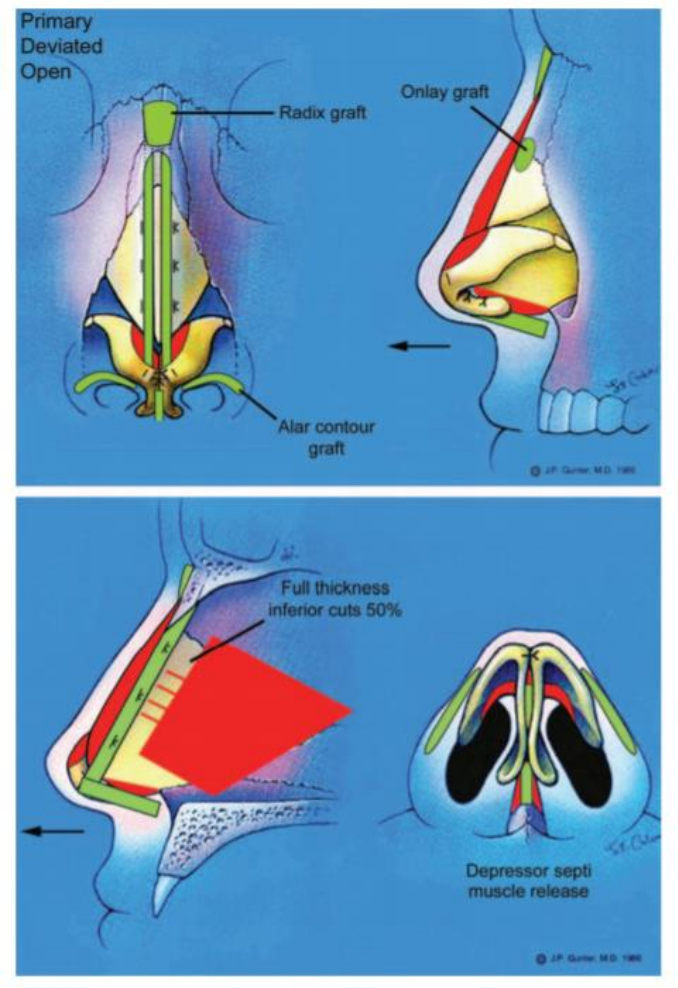
Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Harvested Conchal Cartilage Graft

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

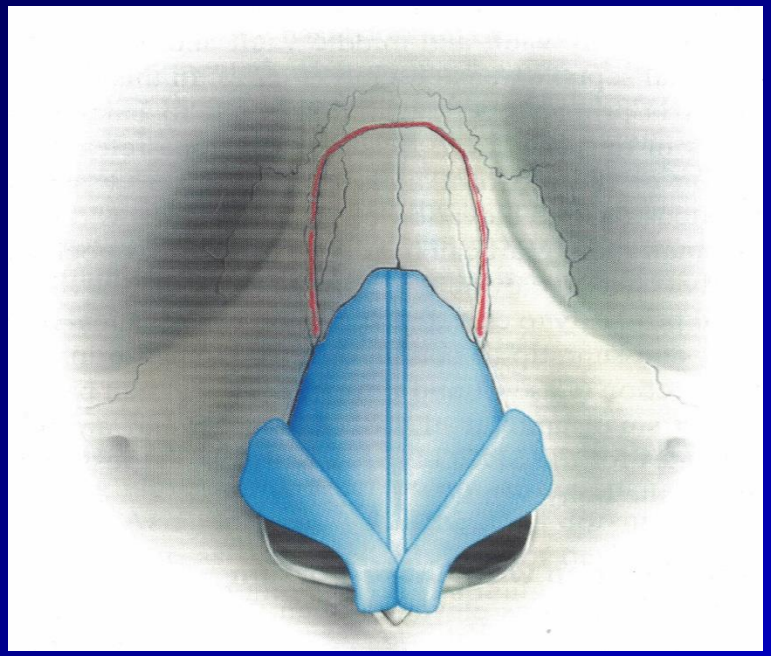
Shield tip graft from concha cavum

Schematic Documentation of the Rhinoplasty technique

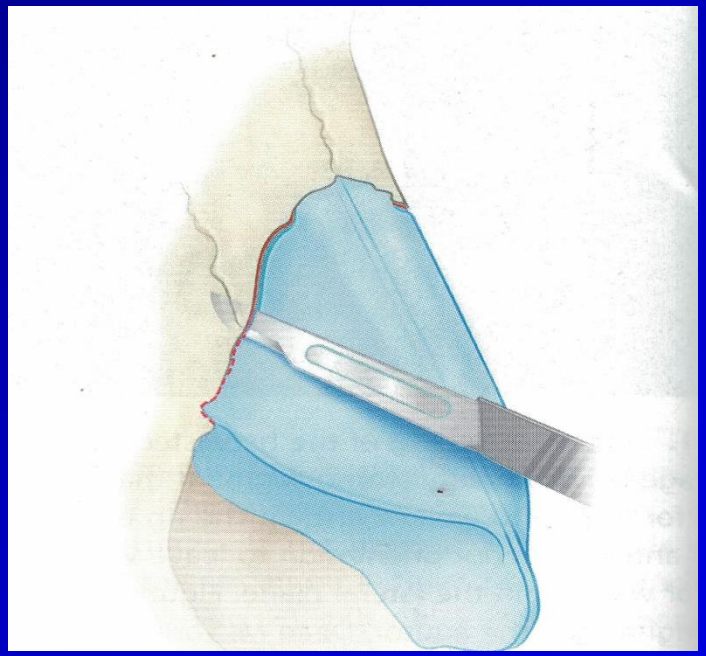


Gunter diagram

Dorsal Preservation Rhinoplasty



Lateral,
transverse & radix
osteotomies



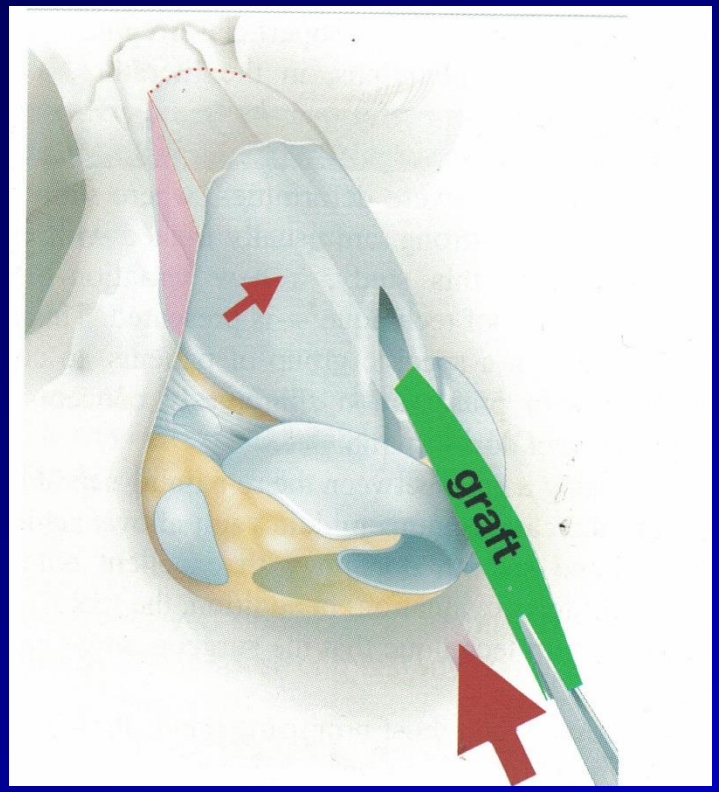
Lateral keystone release

Toriumi :J. Facial Plastic Surgery 2022

Dorsal preservation rhinoplasty

- Popularized in 2018 by dr. Rollin Daniel.
- Modification of a mostly forgotten concept of push down/let down of the nasal pyramid originally published by Goodale (1899), Lothrop (1914) and Cottle (1946).
- The walls of the nasal pyramid are mobilized and moved anteriorly or posteriorly.
- May be used to reduce a nasal bony hump (push down) or to underlay a stiff graft to augment the nasal dorsum (push-up) while keeping the bony and cartilageneous structures intact

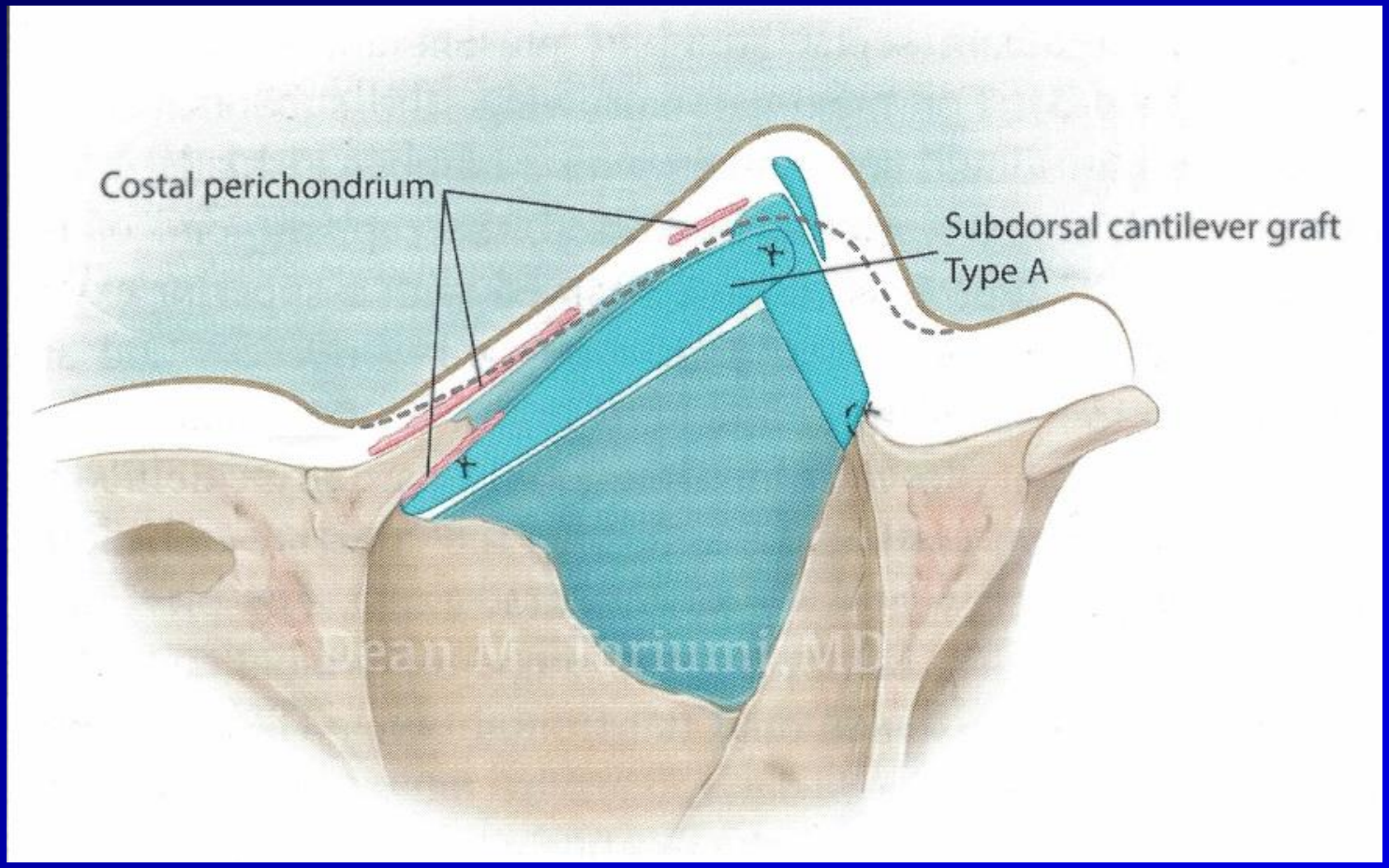
Dorsal Preservation Rhinoplasty



Cartilage graft between dorsal septum and cartilaginous middle vault

Ferreira: J. Facial Plastic Surgery 2022

Subdorsal Cantilever Graft



Toriumi :J. Facial Plastic Surgery 2022

Complications of Rhinoplasty & Treatment

- Bleeding/epistaxis – (control with packing)
- Infection- (post-op antibiotics for about 1 week)
- Sinus infections- Staph endotoxin—(toxic shock from packing has been described)
- Minor residual irregularities-(may correct with fillers)
- New onset of airway obstruction - (needs a revision)
- Skin color changes (telangiectasias- may need a laser)
- Septal perforation - (avoid bilateral over-lapping tears)
- Focal skin necrosis - (avoid tight nasal splint)
- CSF leak and anosmia- (rare)
- **Patient general dissatisfaction (need to manage expectations pre-op, be more careful with males)**
- Overall revision rate: **10 to 15%**

Epistaxis Treatment

Treatment of epistaxis

- Control blood pressure
- Pack the nose with cotton/Oxymetazoline (Afrin) or a tight Vaseline gauze packing
- Attempt to cauterize with silver nitrate following topical anesthetic, only if able to observe the exact bleeding site – need good illumination and suction
- Avoid ASA and blood thinners
- Teach patient nasal lubrication and epistaxis control with cotton balls rolled into “a torpedo shape” and wetted with oxymetazoline

Cerebrospinal fluid leak

- Prevention is by avoidance of rocking of the bony perpendicular plate of the ethmoid may cause a fracture of the cribriform plate
- Need a high-index of suspicion if clear fluid rhinorrhea persists post septo-rhinopasty
- Obtain an ENT consult, preferably from a colleague
- Collect fluid (0.5 mL) for β-2 transferrin
- Elevate HOB, avoid strain, may need lumbar drain
- Obtain a thin-slice coronal CT scan of sinuses
- May need an intra-thecal fluorescein study with nasal pledget testing – if small, may be difficult to prove
- Fortunately, most leaks close spontaneously

Tip plasty for tip support

Rhinoplasty

Before After

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before After

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

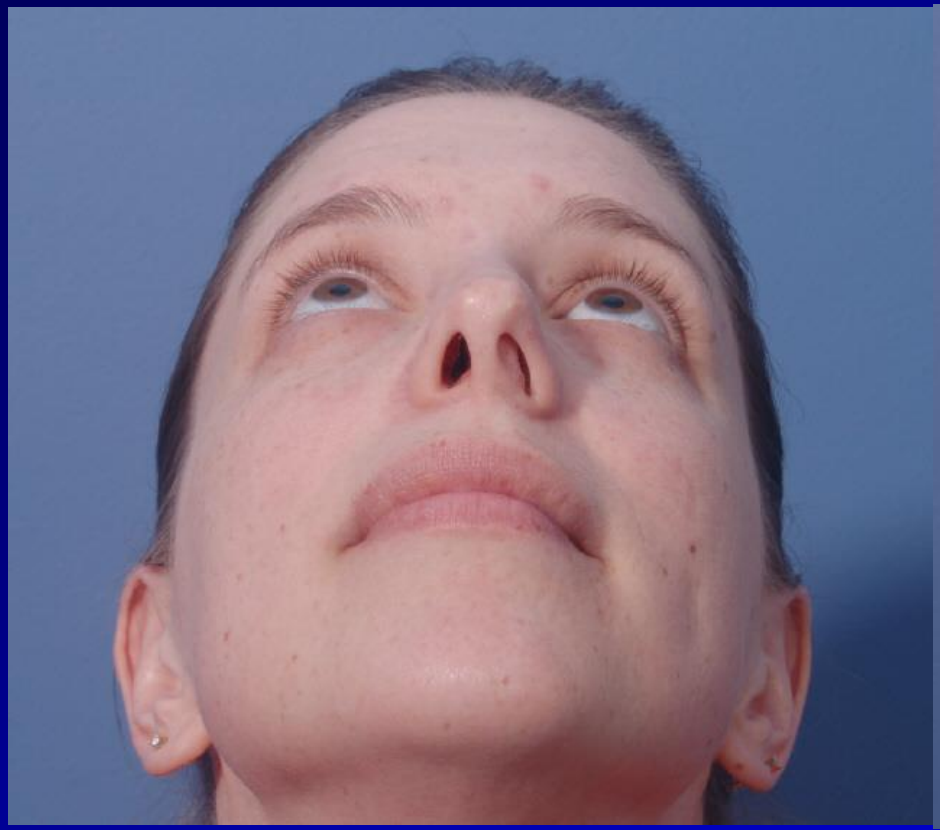
Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Septorhinoplasty



Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Septo-rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

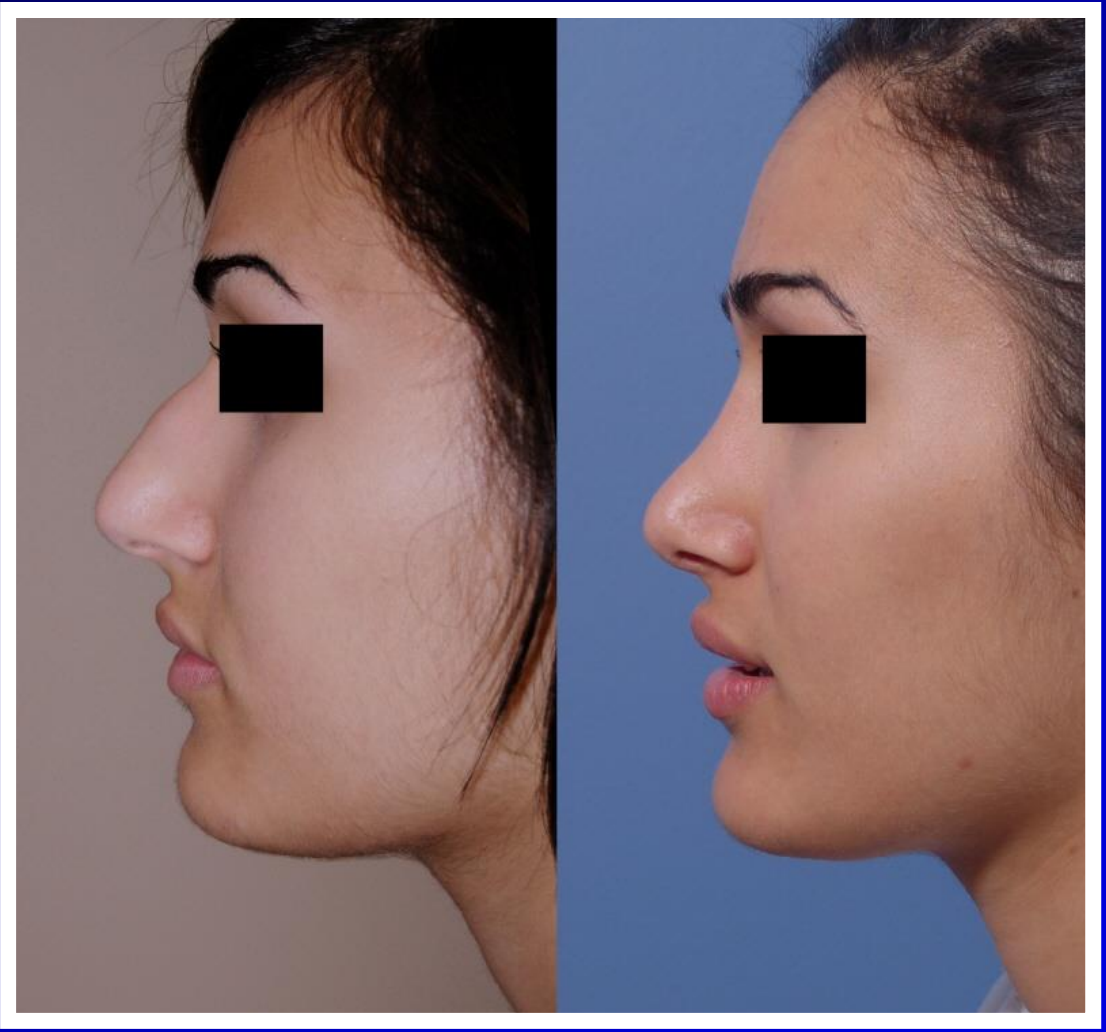
Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty



Before After

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before After

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Rhinoplasty

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Before

After

Jan Zemplenyi, MD

Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Rhinoplasty

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

Free on-line Rhinoplasty textbook including procedure videos

http://www.rhinoplastyarchive.com

Case Presentation

Jan Zemplenyi, MD Bel-Red Center for Aesthetic Surgery, P.S.

23-year-old woman presents for consideration of a rhinoplasty

What information do you need know from her HPI?

23-year-old woman presents for consideration of a rhinoplasty

Items to cover in the HPI:

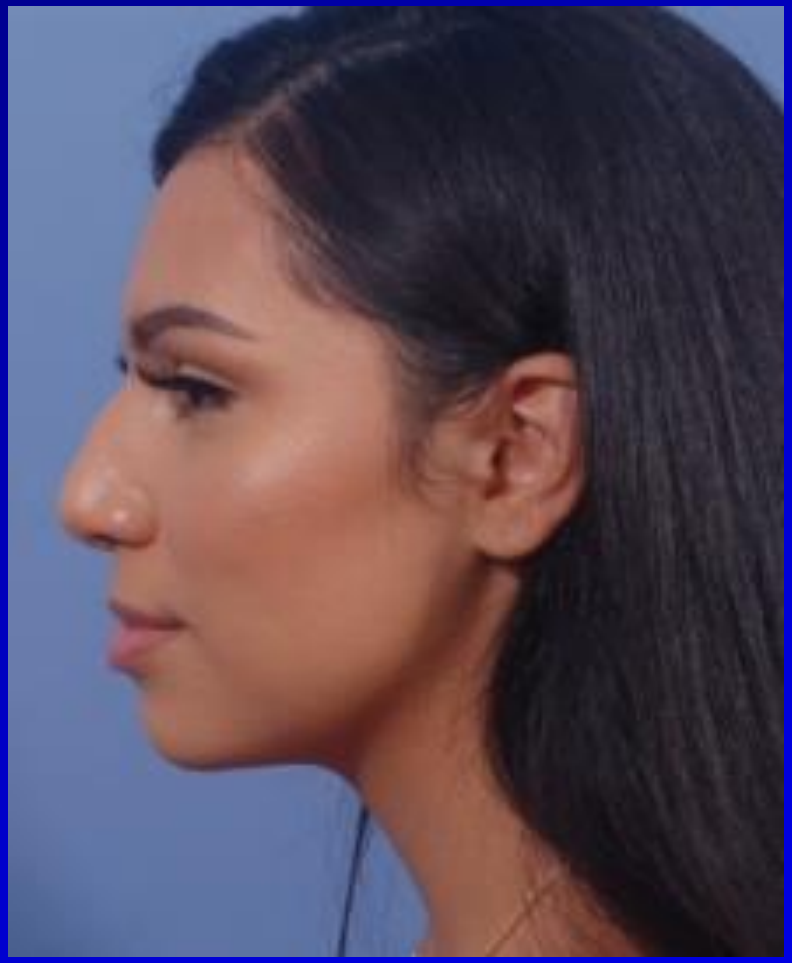
What are her concerns?
Why now?
Nasal breathing problems?
Prior surgery or trauma?
Bleeding tendencies?
Allergies?
Frontal view analysis?

ANSWERS

- She is bothered by her nasal hump and width of her nose.
- She has been saving money for a long time - now wishes to proceed.
- Nasal breathing OK.
- No prior surgery or trauma. No bleeding tendencies.
- No allergies.
- No environmental allergies.

Lateral View

- Radix
- Dorsum
- Nasal tip projection
- Nasal tip rotation
- Nasal droop when smiling?



ANSWERS

Frontal view:

Moderately wide nasal pyramid.

Smooth, symmetrical

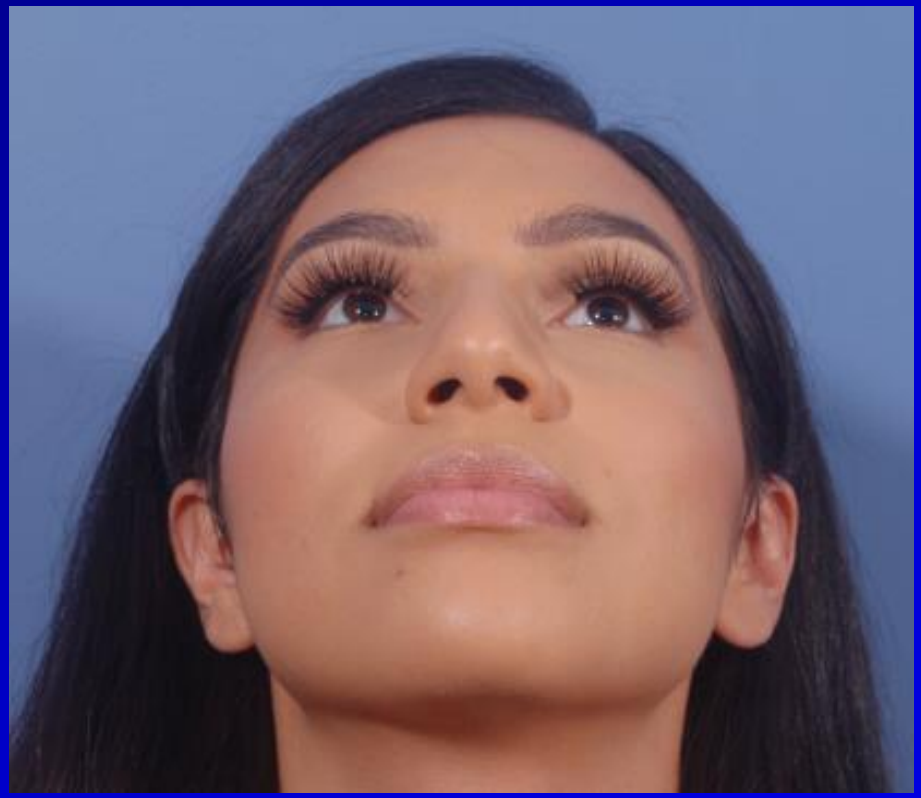
Brow-tip dorsal lines

Alar width – mildly wide, discuss possible base narrowing.

- **Lateral view**:
- Radix height OK
- Prominent nasal bone and cartilaginous dorsum
- Supratip fullness
- Moderately bulbous
- Projection OK
- Nasolabial angle OK

Basal view

- Symmetry
- Projection
- Need alar base narrowing?



ANSWERS (1)

- Open rhinoplasty
- Harvest graft (s) columellar strut or septal extension graft
- Component dorsal hump reduction
- Reduction of bony pyramid and cartilagenous dorsum
- Stabilize, support the tip with a graft
- Re-align tip
- Conservative excision of cephalic LLC leaving behind 6 to 6.5mm
- Domal defining sutures (cranial tip)
- Closure and splint

Rhinoplasty

- Based on the analysis, what is your operative plan?
- Patient undergoes an uncomplicated open rhinoplasty under general anesthesia.
- On post-op day 1 she comes in with right epistaxis. What will you do?

Rhinoplasty post-op Day 2

- She is seen on POD #2 she still has bilateral nasal packing and she call the office with more cheek swelling. What do you wish to know?

ANSWERS POD #2

- Stop epistaxis
- Suction, possible cautery
- Bilateral packing
- Continue cephalosporins
- (Toxic shock syndrome)

Rhinoplasty post-op Day 3

- On POD #3 she comes in for packing removal. Her cheeks are more swollen than the day before. What do you wish to know and do?

ANSWERS POD #3

- Differential diagnosis includes infection and allergic reaction to tape.
- She does not have fever and has erythema with skin itchiness.
- Remove tape. Do not use benzoin or Mastisol.
- Administer anti-histamines and possibly pulsed oral steroids.

Splint removal on POD #7

Any concerns? Tip rotation?
Does she need intralesional steroids?
If so, when?

ANSWERS POD #7

Over-rotation appearance in the early post-op period normal.

Patient may need dilute Kenalog injection into the supra-tip region in about four weeks if needed. May repeat once or twice in 3-4 weeks.

One year post-op

Thank you!