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Nasal Reconstruction – Autologous and Prosthetic Options.

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The aims of this talk are to:
Present you with a balanced view on nasal reconstruction.
Show you my approach, aims and techniques.



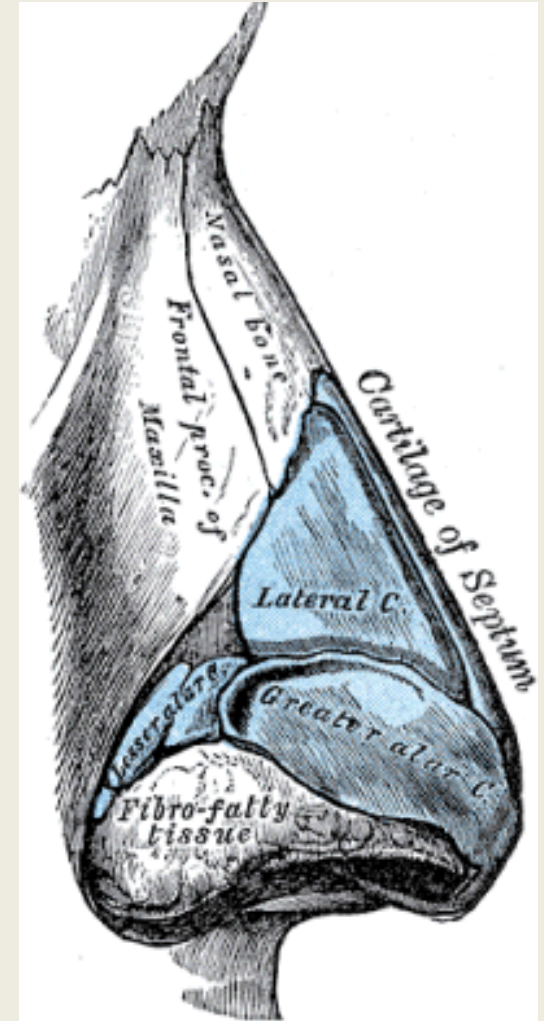
Nasal Defects

- Trauma - uncommon
- Cancer excision – usual cause
 - BCC
 - SCC
 - Melanoma
 - other
- Infection – very uncommon

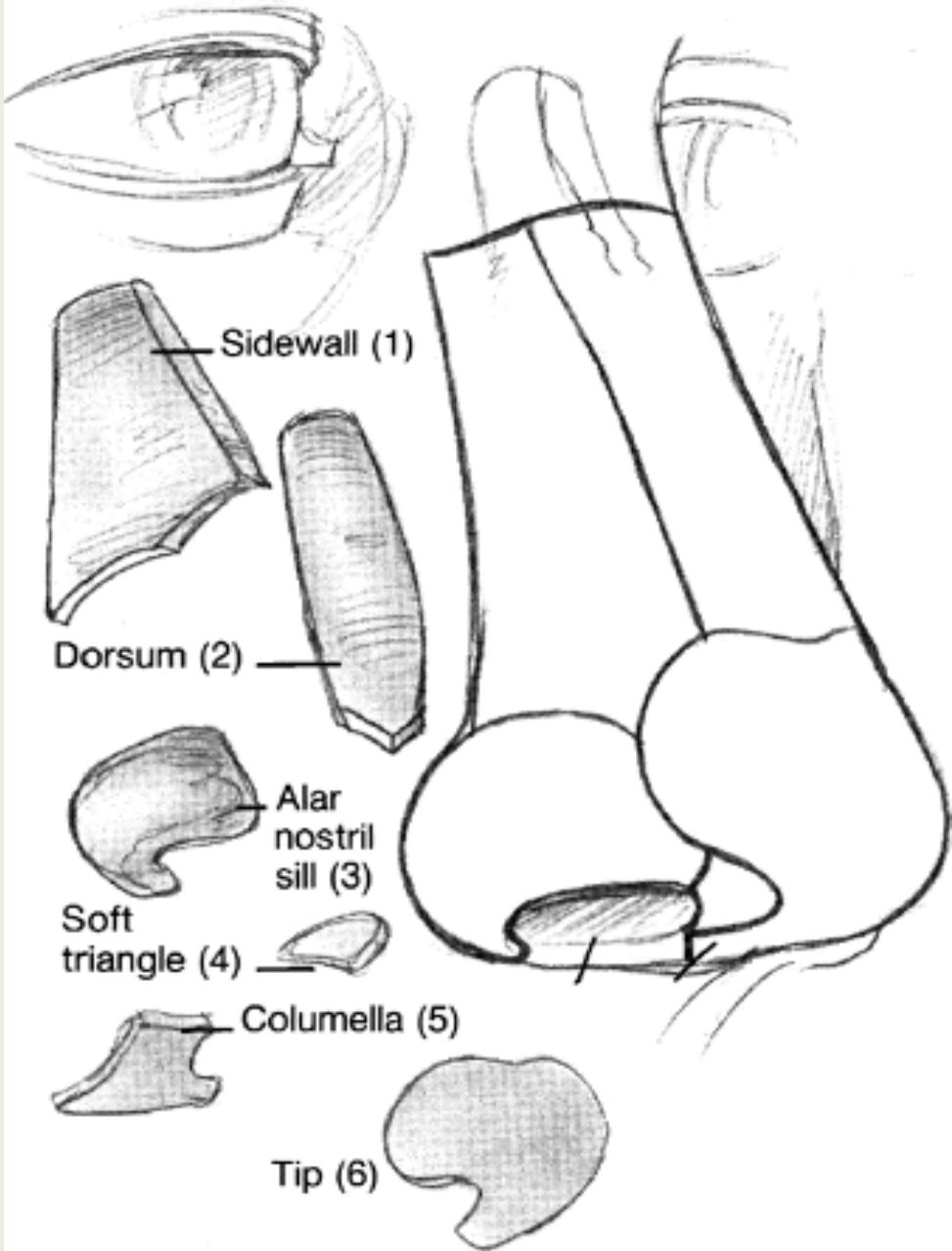
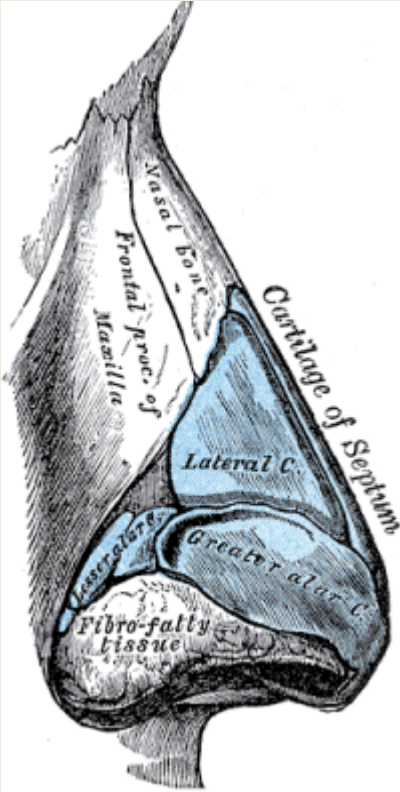


Nasal Anatomy

- Skin
 - Skin type and thickness
- Support
- Lining



Nasal Subunits



Reconstructive Aims

- A normal looking nose, that the observer has difficult determining that a previous operation has occurred.
 - Similar skin appearance
 - Texture
 - Colour
 - Similar contour and shape
 - A Similar functioning nose
 - Breathing without nasal collapse

Reconstructive Aims

BUT must try to match the patients

Medical Situation

with the Reconstructive Aims

and try to match the patients expectation with the reality of nasal reconstruction (both in terms of possible outcomes and the time taken)

Reconstructive Principles

- Best result in the shortest time frame
- Simpler is usually better, but need to weigh up the patient expectations vs medical, social and economic factors
- Understand our limitations
-
- understand the limitation of the tissue to heal.

Reconstructive Principles

- Replace Like with Like
- Respect Aesthetic Subunits
- Minimize distortion to shape and function
- Re-tension the skin of the nose – replace what is removed
not the resultant defect. – VERY IMPORTANT

Reconstructive Approach

- Immediate reconstruction or Delayed Reconstruction
 - Is the cancer all removed?
 - Will there be radiotherapy



Reconstructive Approach

- Analyse defect components and amount of loss.
 - Skin – area, thickness
 - Support – cartilage, bone
 - Lining



Reconstruction

- Direct Closure vs. Flap vs. Graft vs.
Combination of flap and grafts vs.
prosthetic reconstruction.
 - Which is best?
 - Oncologic, medical, social, economic.

Reconstructive Alternatives for skin repair

- Flaps vs Grafts
 - Flaps
 - More distortion
 - Better colour match
 - Same or similar skin type
 - Generally more predictable outcome
 - Donor defect
 - Grafts
 - Less distortion
 - Potentially poorer colour match
 - Skin type differences
 - Result depends on graft revascularization
 - Donor defect usually less obvious

The choice depends

location and size of the defect

the shape of nose

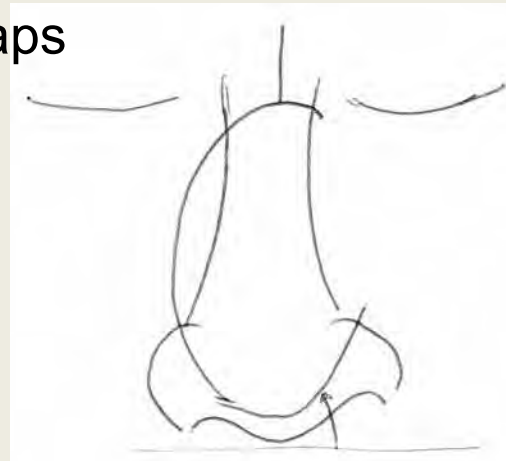
skin laxity

available donor areas that match the defect

skin thickness and texture

Tip Unit Reconstruction

- Skin loss only – most common.
 - Flap or graft depending on defect size and location
 - Flaps
 - Bilobed Flaps
 - Transposition flaps (banner)
 - V-Y Island side (Nasalis) or dorsal (horn)
 - Dorsal Nasal Rotation Advancement type flaps
 - Two stage flaps – forehead and cheek



Tip Unit Reconstruction

- Grafts
 - Match skin thickness and include fat where needed to match contour – GRAFT CONTOUR SHOULD MATCH CONTOUR PRIOR TO EXCISION.
 - Donor site – forehead, preauricular, mastoid, lower neck





Graft to tip nose – donor site glabellar

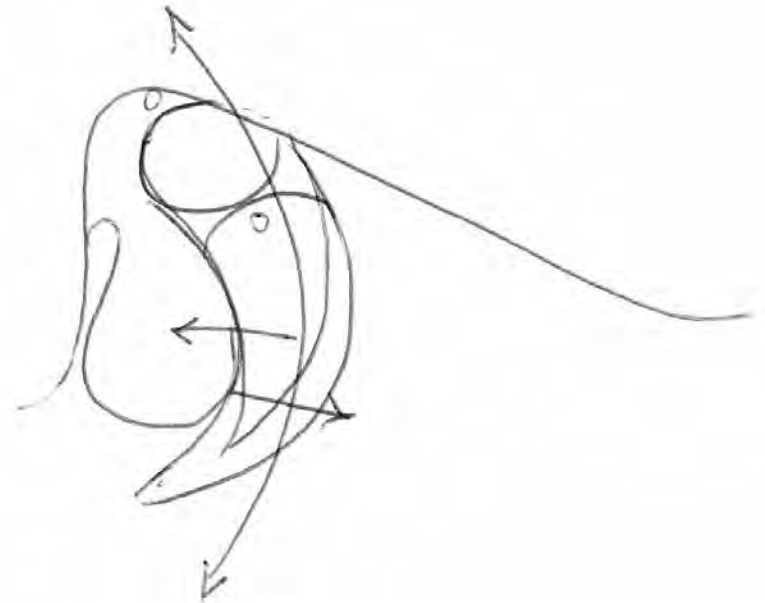


Tip Graft with glabellar donor



Tip Reconstruction

- V-Y Island Flaps
 - Will cover a hemi-tip and occasionally more.
 - Based on Nasalis muscle
 - Flap size will depend on degree of skin laxity
 - Thin flap distally
 - Mobilize sufficiently to minimize distortion



V-Y island for tip nose



V-Y island tip nose



Vertical V-Y island flap (Horn flap)



Composite graft lining, dorsal v-y island to cover



Tip Unit Reconstruction

- Support loss –
 - Loss of part or all of the alar cartilages – lining remains
 - Small areas of loss – ignore
 - Larger areas of loss – reconstruct with either
 - Forehead flap only (leave thicker)
 - Forehead flap and cartilage graft (note lining is present)

Remember that there is much more skin in the tip of the nose than you expect!

BCC tip nose, two stage forehead flap





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Tip Reconstruction

- Lining replacement
 - Smaller defects –
 - sew directly together
 - FTSG or composite grafts for lining
 - Turn over local flaps
 - Larger defects are rarely tip unit only defects

Tip Reconstruction - two stage



Alar Nasi

- Skin Defects
 - note the skins unique features
 - Rigidity
 - Convex shape
 - Alar groove's ligamentous attachments
- Reconstruct the alar groove
- Graft vs. composite Graft vs. flap
- Choice will depend on: lining remaining; patient expectations; social and economic factors

Alar Reconstruction

– Grafts

- Full thickness matching area and thickness to the defect (leaving fat on graft to maintain thickness)
- forehead/glabella if possible
- Otherwise preauricular, mastoid

– Composite grafts –

- root of helix and rhomboid flap to repair defect
- Defects involving the nostril rim

Alar Reconstruction -FTSG



Alar Reconstruction - FTSG



Alar Reconstruction - FTSG



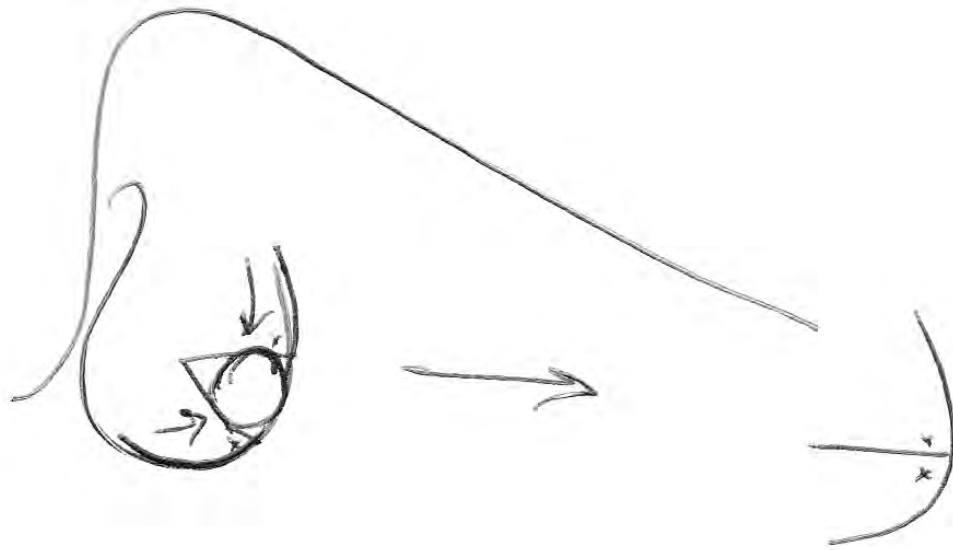
Alar Reconstruction – composite graft



Alar Reconstruction

- Flaps – I tend to avoid these for alar nasi reconstruction alone
 - Transposition – easy, best if want fast healing and not concerned by loss of alar groove.
 - Island Flaps
 - Two Stage Forehead Flaps





Small local flaps work well on the alar nasi

Respect the alar groove



Alar Reconstruction



Alar Reconstruction



Alar nasi, side and tip of nose reconstruction



Combined lip cheek and alar nasi defect



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Soft Triangle Reconstruction

- Grafts
 - Composite
 - FTSG
- Flaps
 - Dorsal V-Y Island (Horn Flaps)
 - Forehead Flaps
- Usually combined with Tip or Alar defects

Composite graft for nasal tip and nostril rim



Nasal tip and soft triangle defect



Nasal Dorsum

- Skin Defects
 - Smaller – direct closure, local flaps
 - Larger – grafts – preauricular, mastoid, neck donor
- Support loss
 - If lining remains then flap coverage only or a substantial loss then provide cartilage support
- Lining loss
 - Graft and then flap coverage
 - Flap lining and cartilage – usually part of a larger defect

Dorsum nose – Bilobed flap



Dorsum Nose – V-Y Island





Side of Nose

- Skin loss
 - Flap
 - V-Y island, cheek rotation, cheek advancement
 - Grafts
 - Donor – preauricular, postauricular, neck lower
 - Lining loss and support loss are usually part of a much larger defect



Side and tip of nose skin reconstruction





Cheek and side nose



Combined skin defect.



Columella

- Skin Defects
 - Usually involve some cartilage because of the thin skin
 - FTSG or composite graft if defect small enough
 - Flaps – two stage
 - Forehead if in combination with nasal tip defect
 - Cheek if columella alone

Composite graft to Columella



Composite graft for columella reconstruction



Nostril Sill

- Skin Defects
 - Graft - preauricular donor area – usual repair
 - Flaps used for defects including lip skin - uncommon

Larger Composite Defects

- Larger defects require either
 - Vascular lining if cartilage reconstruction primarily
 - Local nasal lining flap – transposition or bipediced
 - neither are easy
 - Turn over flap
 - Graft lining if covered with a flap ie forehead
 - Delayed support reconstruction
 - If forehead is sufficient and patient happy then further support may not be needed.

Large Composite Defect Nose



Prosthetic Reconstructions

- Autologous reconstructions of large complex nasal defects require complex surgery arranged in multiple operations.
- Prosthetic Replacements
 - Advantages
 - A good looking alternative
 - Quick
 - Cost effective
 - Usually a better shape than autologous reconstructions
 - Disadvantages
 - Colour does not change with climatic changes and blushing
 - Requires attachment –titanium implants, glue or glasses frame
 - Does not cope with trauma or knocking

Summary

- Nasal reconstruction is challenging and rewarding.
- The best reward is happy patients.
- Your practice will continue to evolve during your surgical lifetime.
- Keep trying to improve.
- Improvement is an incremental process and sometimes not always obvious.