

Head and Neck Reconstructive Surgery

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October 2, 2021



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Outline

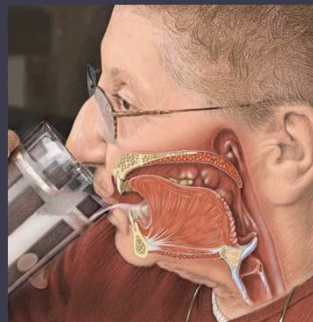
- Basic goals of reconstruction
- Common head and neck reconstruction defects
- Reconstructive “ladder”
- Reconstructive cases
 - Glossectomy
 - Salvage laryngectomy
 - Lateral temporal bone/cheek
 - Scalp



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Head and Neck Reconstruction

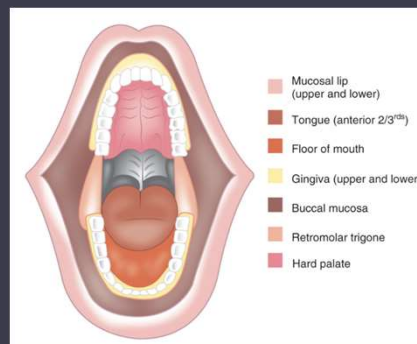
- Basic goals of reconstruction
 - Restore form
 - Replace with “like” tissue
 - Replace adequate volume
 - Restore function
 - Breathing
 - Speech
 - Swallow
 - Prevent fistula, cover important structures
 - Sometimes overshadows form and function
 - Consider aesthetics



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Head and Neck Reconstruction

- Very complex! Consider oral cavity reconstruction....
- Subsites:
 - Subsites all contain multiple tissue types
 - Tumors frequently involve more than one subsites
- Tissue types:
 - Epithelium
 - Minor salivary glands
 - Muscle
 - Bone
 - Connective tissue
 - Nerves
 - Blood vessels



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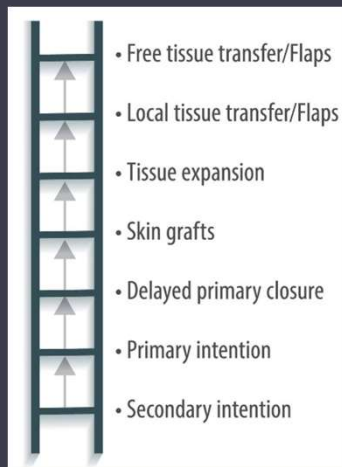
Common Reconstruction Defects

- Oral cavity
- Midface/craniofacial
- Larynx/pharynx
- Oropharynx
- Neck
- Lateral temporal bone
- Salivary
- Face
- Scalp



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Reconstructive “Ladder”

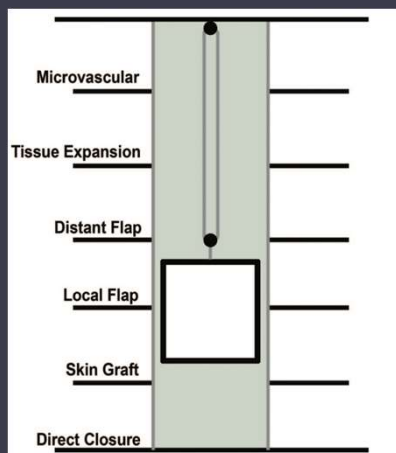


- Principal initially described by plastic surgery
- Simplest solution does not always mean starting at the lowest rung
- Balance what you “need” with what you “want”
 - Form
 - Function
 - Fistula/coverage

Image source: azisks.com

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Reconstructive “Elevator”



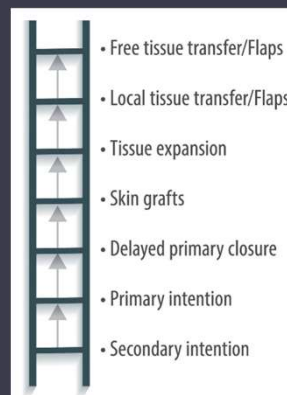
- Highlights importance of form and function
- Consider bypassing simpler reconstructive options
- Focuses on the “optimum” reconstruction for the defect and for the individual patient
- Can combine multiple levels
- This is what we do in head and neck reconstruction!

Image source: Janis JE. The New Reconstructive Ladder: Modifications of the Traditional Model.

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Head and Neck Cases

- Reconstructive considerations:
 - Location
 - Size
 - Tissue types
 - Priorities
 - Reconstructive options
 - Consider the reconstructive “ladder”



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Case #1: Glossectomy

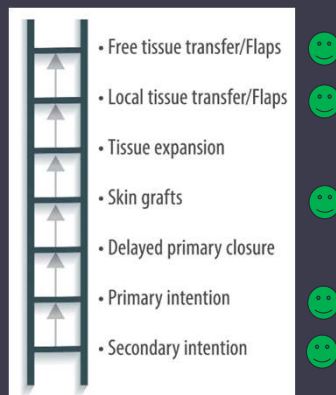


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Case #1: Glossectomy



- **Reconstructive considerations:**
 - Location: lateral tongue
 - Size: ~1/3 defect
 - Tissue types: mucosa, muscle
 - Priorities: tongue bulk and shape, fistula
 - Reconstructive options



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Case #1: Glossectomy

Secondary intention



Skin grafting/AlloDerm®



Pros: Simple procedure, shortened OR time

Cons: Open wound, increased healing time, loss of control over scarring

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Case #1: Glossectomy

Primary closure

Vertical



Horizontal



Pros: Simple procedure, shortened OR time, closed wound, more control over scarring

Cons: Volume deficit, likely will have contracture, some dysarthria

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Case #2: Glossectomy

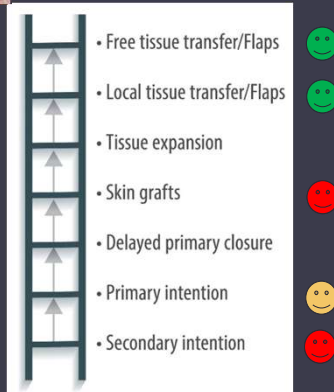


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Case #2: Glossectomy



- **Reconstructive considerations:**
 - Location: lateral tongue
 - Size: ~1/2 defect
 - Tissue types: mucosa, muscle
 - Priorities: tongue bulk and shape, fistula
 - Reconstructive options



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Case #2: Glossectomy

Submental island flap



- **Pros:** reliable, good volume match, can include extra muscle to improve bulk
- **Cons:** may be prone to venous congestion, need to carefully dissect out level IA nodes

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Case #2: Glossectomy

Radial forearm free flap

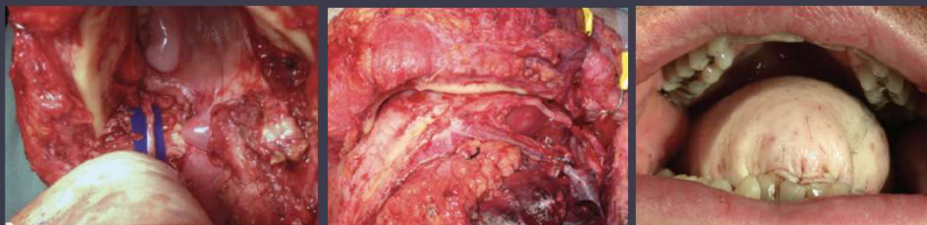


- **Pros:** Pliable tissue, usually adequate volume, may be sensate, may cover multiple subunits
- **Cons:** Bulk may be insufficient in some individuals

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Case #2: Glossectomy

Anterolateral thigh flap



- **Pros:** Pliable tissue, usually adequate volume, may include portion of vastus to support the floor of mouth and help prevent fistula
- **Cons:** Bulk is very dependent on body habitus, perforator can be unpredictable

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Case #3: Salvage Laryngectomy

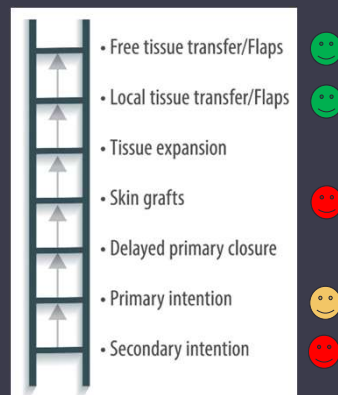


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Case #3: Salvage Laryngectomy

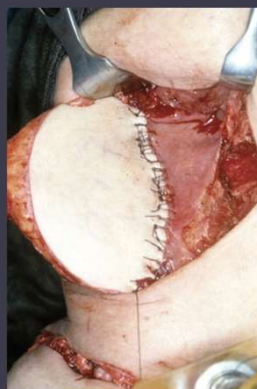


- **Reconstructive considerations:**
 - Location: larynx/pharynx
 - Size: anterior pharyngeal wall
 - Tissue types: mucosa, muscle, ?skin
 - Priorities: continuity of swallow, fistula
 - Reconstructive options



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Case #3: Salvage Laryngectomy

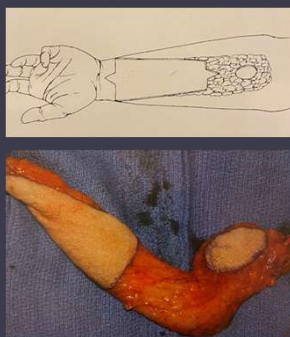


- Pros:** Reliable, single-surgeon approach, extra vascularized muscle
Cons: May be bulky, donor site morbidity, loss of salvage option

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Case #3: Salvage Laryngectomy

Radial forearm free flap

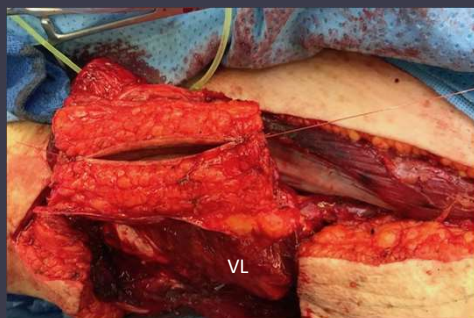


Pros: Pliable tissue, can harvest external monitor paddle, will usually be able to close neck skin
Cons: Might not have sufficient bulk, not as useful if neck resurfacing is needed

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Case #3: Salvage Laryngectomy

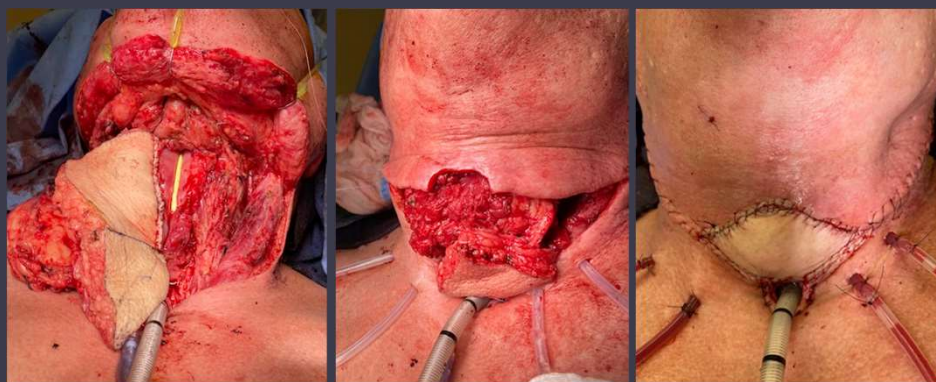
Anterolateral thigh free flap



Pros: Can harvest extra fascia to enforce suture line; can harvest vastus lateralis for overlay
Cons: Might be too thick depending on body habitus; likely will not be able to close neck skin

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Case #3: Salvage Laryngectomy



Proximal paddle pharyngeal inset

Distal paddle inset (posterior tracheal wall, neck skin)

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Case #4: Lateral Temporal Bone

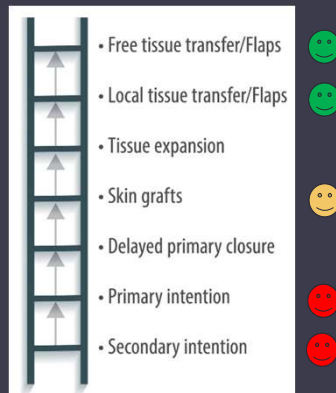


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Case #4: Lateral Temporal Bone



- **Reconstructive considerations:**
 - Location: lateral head/skull base
 - Size: large; ~9x15cm
 - Tissue types: skin, muscle, cartilage, bone
 - Priorities: skull base coverage, contour
 - Reconstructive options



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Case #4: Lateral Temporal Bone

Submental island pedicled flap



- Pros:** Excellent color and volume match, ease of harvest, single surgeon approach
- Cons:** Pedicle reach, might not be a good oncologic option depending on nodal disease

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Case #4: Lateral Temporal Bone

Anterolateral thigh free flap



Pros: Excellent volume match, can take extra muscle

Cons: Can be somewhat heavy, reports of dehiscence; consider lateral arm flap as an alternative

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Case #4: Cheek/Lateral Temporal Bone

Primary closure: cervicofacial advancement flap



Pros: Fast, easy; could consider in combination with TPF rotational flap, fat graft

Cons: Poor volume match, poor cosmetic outcome, worry about wound healing/dehiscence

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Case #5: Scalp

- **Reconstructive considerations:**
 - Location: frontal/vertex scalp
 - Size: large; ~25-30cm
 - Tissue types: skin, muscle, pericranium, bone
 - Priorities: brain coverage, bone coverage
 - Reconstructive options

↑	• Free tissue transfer/Flaps	😊
↑	• Local tissue transfer/Flaps	😊
↑	• Tissue expansion	😊
↑	• Skin grafts	😞
↑	• Delayed primary closure	😞
↑	• Primary intention	😞
↑	• Secondary intention	😞

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Case #5: Scalp

Latissimus myofascial free flap, skin graft



Pros: Excellent volume match once healed, large size
Cons: Positioning, need for large skin graft, healing time

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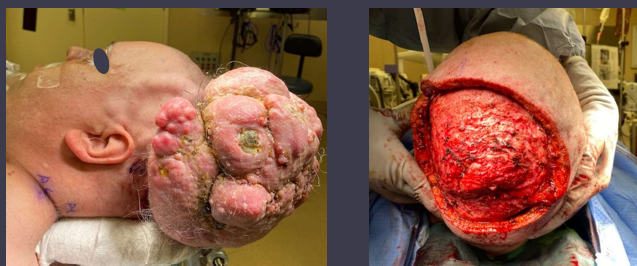
Case #5: Scalp

Latissimus myofascial free flap, skin graft



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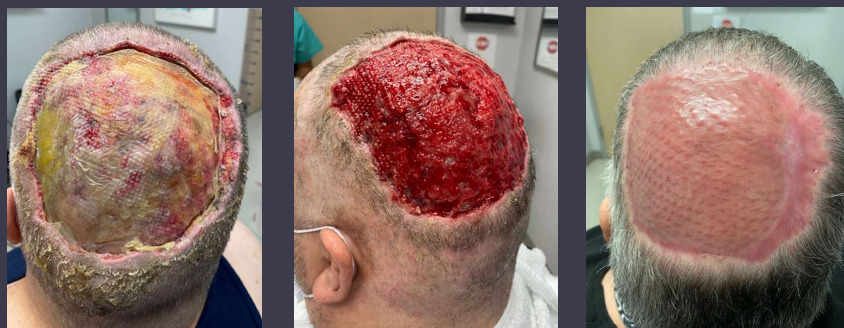
Case #5: Scalp



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Case #5: Scalp

Serial wound matrix application, skin grafting



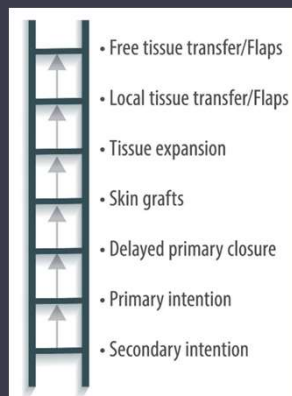
Pros: Decreased OR time, avoids donor site morbidity

Cons: Weekly wound care appointments for several weeks, need for repeat OR trip for skin graft

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Conclusions

- Consider the location, size, tissue types, and priorities of your reconstruction
- Consider all of your options! Use your reconstructive ladder
- Have a backup plan
- Don't be afraid to tailor your plan to your specific patient – can they travel for wound care? Do they need adjuvant radiation? Can they tolerate a long OR case?



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Thank you!



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