Disclosures

• Financial- None

• These are my opinions based on my experience- there are a number of different ways to deal with scalp defects that may differ from my experience, i.e. EBM = level 5 or > !
Scalp!
3 Dimensional Anatomy

- Darwinian tubercle (tubercle of helix)
- Scaphoid fossa
- Antihelix
- Helix
- Concha
- Meatus
- Tragus
- Antitragus
- Lobule

Scalp defects can be challenging!
Reconstruction of Scalp Defects

A challenge due to poor mobility

Some scalps more mobile than others!!
Galeal attachments

Muscles of the Head—Facial Expression

- Galea aponeurotica
- Frontal belly
- Occipital belly
- Epicranius
- Orbicularis oculi
- Levator labii superioris
- Zygomaticus muscles (minor and major)
- Buccinator
- Risorius
- Orbicularis oris
- Mentalis
- Depressor labii inferioris
- Depressor anguli oris
- Platysma
- Masseter
- Sternocleidomastoid
- Trapezius
- Splenius capitis
Scalp Anatomy

- Vascular supply lies just superficial to Galea
- Galea is relatively inelastic
Scalp Reconstruction - Small to Moderate

- Primary Closure
- Second Intention
- Skin Graft
- Local Flaps
Scalp Reconstruction- Large

- Free Tissue Transfer (FTT)
- Integra™ + STSG
- Tissue Expansion
- Negative Pressure Wound Care (Wound Vac)
Scalp Reconstruction

- Partial thickness can heal by second intention
- Excellent for bald scalp
- Can be slow process
Primary Closure

- Primary Closure - typically less than 3 cm Diameter
- Undermine superficial to Galea
- No buried sutures - just 3-0 Prolene vertical mattress sutures or staples (only if minimal tension)
Scalp Reconstruction - Flaps

- Rotation Flaps
Rotation Flaps
Scalp Reconstruction - Flaps

- Ying-Yang or O to Z
- Best for midline vertex defects not larger than 5 cm
O to Z

- Excellent for hair bearing scalp
Scalp Transposition Flaps

- Calvarial defects
- Reliable
- Leave Pericranium at donor site
- STSG donor site
Orticochea Banana Peel Flap

- Large scalp defects
- 3-5 flaps
- Undermine and release lateral attachments to periosteum
Scalp Reconstruction- FTT

Courtesy of Dr Issam Eid
Scalp Reconstruction

- Free Tissue Transfer - Rotation Flap Combo
Scalp Reconstruction

- Tissue Expansion
- Lengthy course
- Relatively high complication rate
Scalp Reconstruction

- Wound Vacuum Devices
- Secure dressing
- Still takes a long time!
- Fairly expensive
Scalp Reconstruction with Integra™

Full thickness scalp defects can be reconstructive challenges.
Skin grafts do not take well on bare bone.
Integra™ Bilayer Matrix Wound Dressing

- Off the shelf product
- Can be placed over bare bone
- Allows for skin grafting at 21 days over full thickness defects
Integra™ Bilayer Matrix Wound Dressing

- Collagen Matrix with Glycosaminoglycans
- Silicone outer sheet provides moisture barrier
- Dermal regeneration?
Technique - Integra™

Integra™ trimmed to fit wound
After 3 weeks

Healthy bed at 3 weeks  Silicon layer removed
Scalp Reconstruction with Integra™

Large MAC

Resection margins
Technique - Allevyn™ dressing

Allevyn™ trimmed slightly smaller than wound

2nd layer stapled over first
Dressing

- Allevyn™ is a semipermeable dressing by Smith – Nephew
- Variety of shapes and thicknesses
- I soak in Gentamicin irrigation for this use
Scalp Reconstruction

At end of first stage

3 weeks; prior to STSG
Scalp Reconstruction

1 week postop

5 months postop
Indications and Contraindications

**Indications**
- Full thickness scalp defects not amenable to local tissue transfer or free flaps

**Contraindications**
- Smokers?
- Radiation Therapy?
- Known sensitivity to bovine collagen
Pros and Cons

**Pro**
- Allows relatively simple option for reconstruction of difficult defects
- Shortens operative time (and hospital stay compared to FTT)
- Can be done under MAC

**Con**
- Expensive product
- Requires 2\textsuperscript{nd} trip to OR at 3 weeks for STSG
- Aesthetic appearance?
Scalp Reconstruction

- Primary closure- less than 2 cm, mobile scalp
- Second Intention- bald scalp, < 4 cm, partial thickness, older, sedentary
- Skin graft- partial thickness, bald scalp, > 4 cm
Scalp Reconstruction

- Local Flaps - > 2 cm, hair bearing, aesthetic
- Integra + STSG - full thickness, bald, > 2 cm
- FTT - Calvarial defect, large, RT Hx or planned postop
- Special situations - consider tissue expansion, Wound Vac
Thanks!

• Any Questions??
Reconstruction of Scalp Defects

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