Anatomical & Reconstructive Considerations of The Eyelids

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Anatomy

Eyelid is a functional unit

1 Coverage & protection of eye globe
2 Tears

- Resting Position

- Range of Movement (maximum opening to complete closure [protection / vision / tear propelling])

- Opposition to the globe (horizontal tension / vertical forces)

- Specialized anatomical features [Meibomian oil glands / Lashes]
• Upper lid 34 mm
• Lower Lid 32 mm
• Fissure Height 9-12 mm
• Fissure Width 28-30 mm

Wolff, 1961
The eyelid is composed of 6 Layers

**Anterior Lamella**
1. Skin
2. Subcutaneous Areolar Tissue
3. Orbicularis Oculi
4. Submuscular Areolar Tissue

**Posterior Lamella**
5. Fibrous Layer (Tarsal Plate & Orbital Septum) & Lid Retractors*
6. Conjunctiva

*UL: Levator palpebrae superioris & Muller's muscle
*LL: Capsulopalpebral fascia & inferior tarsal muscle, [Ant continuations of inferior rectus & inferior oblique sheath]
The orbital septum.

Underbrink, 2002
Reconstruction

1 Reestablish function

2 Adequate protection of eye globe

3 Reasonable cosmesis
Reconstruction

1. Size
2. Location
3. Thickness
4. Lid Margin
5. Elasticity of Local Tissues
6. Integrity of other periocular structures

6. Other Considerations (Staged / Lid Share ??)
Reconstruction

General Principles

**TWO Lamellae**
[Inner lining / skeleton / skin]

At least **one** should have continuous blood supply

**COMBINATION = better results**
Hughes Procedure + Mustarde Flap
Flap + Graft

Mucosal grafts better avoided in upper lid
Reconstruction

General Principles

Flaps better than grafts (Horizontal pull, contracture)
Follow RSTL
Tightening of lower lid margin
Flap anchoring
Reconstruction

Nothing (Laissez Faire) [Fox Beard]
Direct Closure (+/- Cantholysis)
Grafts (Skin / Tarsus)
Flaps
Lid Share
Free Flaps
Reconstruction

Marginal / Non-marginal

Anterior Lamella / Full Thickness

Canthal Region Reconstruction
Non Marginal Defects

**Small**
Convert to ellipse and Close horizontally

**Large**
Flaps (Tripier’s Flap)
Grafts
Tripier’s Flap

McGregor, 1989
Closure with Local Flap
Anchored Advancement Flap
Marginal Defects

Underbrink, 2002
Direct Closure

Underbrink, 2002
Direct Closure (Margin)

Location of margin sutures

Tarsus

7-0 silk
Direct Closure with cantholysis

Kohn, 1988
Split Tarsoconjunctival Flap

Kohn, 1988
Composite Graft

Georgiade, 1987
Sliding Lateral Temporal Flap

Fox, 1972
Tenzel Semicircular Flap

Kohn, 1988
Fricke’s Lateral Temporal Forehead Flap
Mustarde Cheek (anchored) Flap

Georgiade, 1987
Imre Cheek Nasal Rotation Flap

Codner & McCord 2016
Lateral Tarsal strip Procedure

A

B

C

D

Harris, 2009
Small defects ---- Laissez faire
Better use flaps of adjacent aesthetic components anchored to tendon
Preserve concavity
Glabellar Flap

McGregor, 1989
Nasolabial Flap

Georgiade, 1987
LID SHARE
Hughes Flap

Dutton, 1992
Cutler Beard Flap

Dutton, 1992
Mustarde Lid Switch
Upper Lid Bridge Flap

Fox, 1972
Combination

Total upper lid reconstruction

Contralateral Tarso-conjunctival Graft & Ipsilateral Bipedicle flap

Patrinely et al, 1999
Combination
Upper and lower lid reconstruction

Alghoul et al, 2013
Case Examples
THANK YOU