

# Anatomical & Reconstructive Considerations of The Eyelids

By

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ESPRS 47<sup>th</sup> Annual Conference 2017



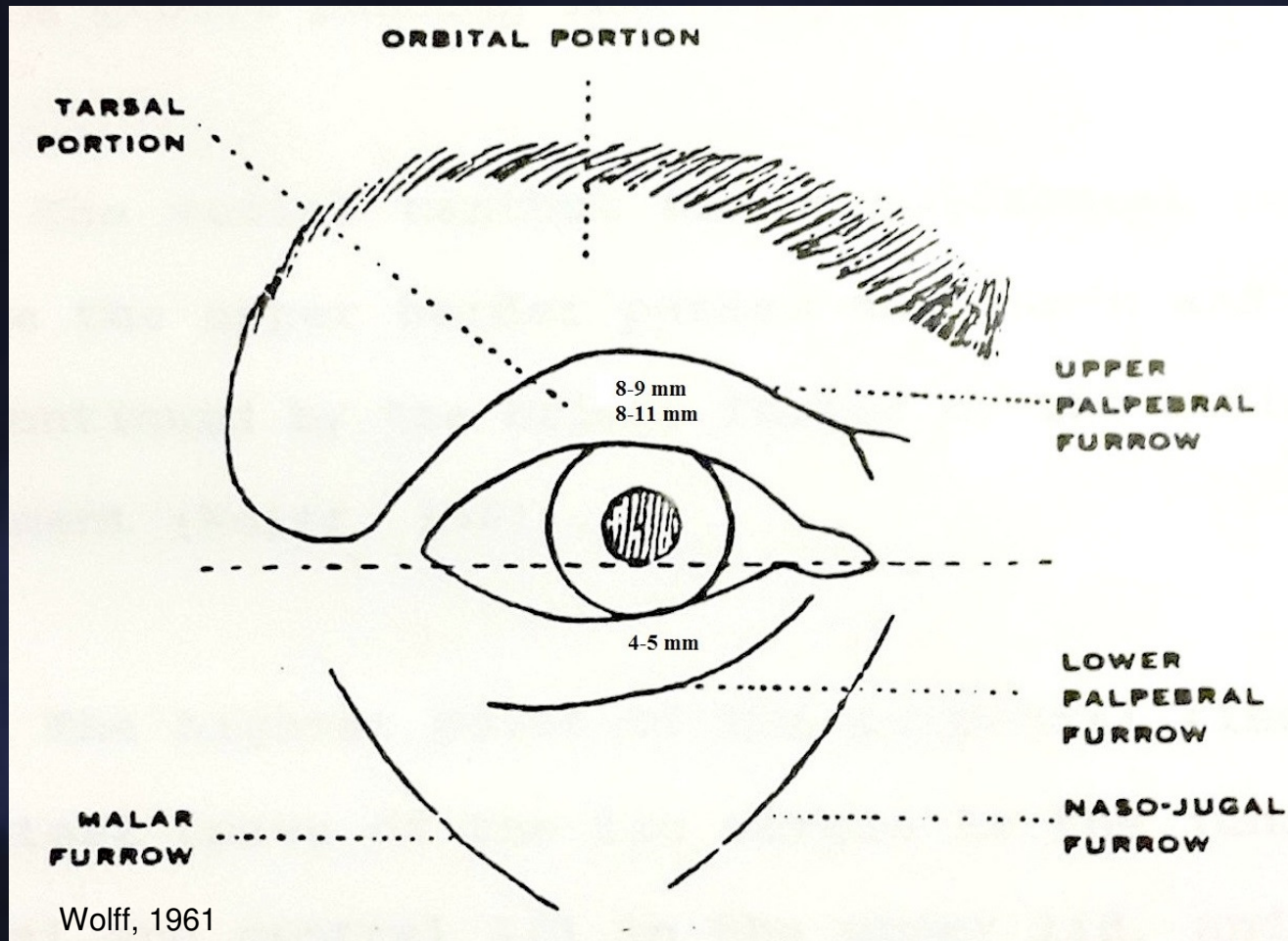
# Anatomy

## 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

# The eyelid is composed of 6 Layers

## Anterior Lamella

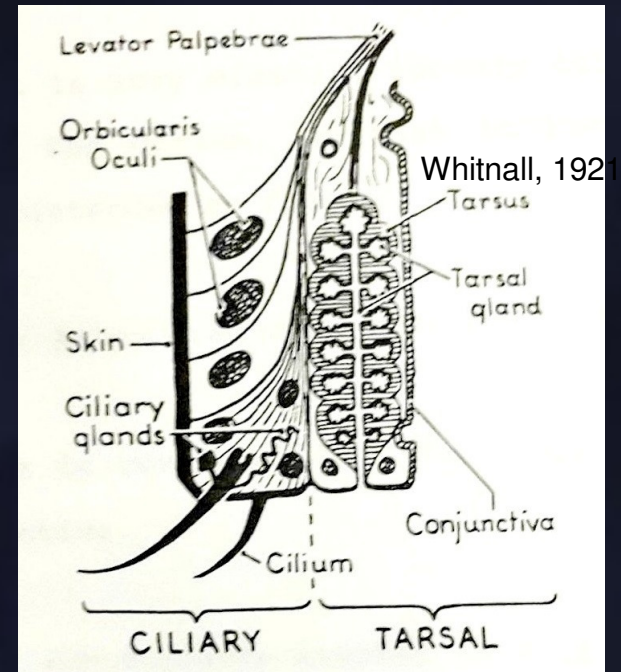
- 1 Skin
- 2 Subcutaneous Areolar Tissue
- 3 Orbicularis Oculi
- 4 Submuscular Areolar Tissue

## Posterior Lamella

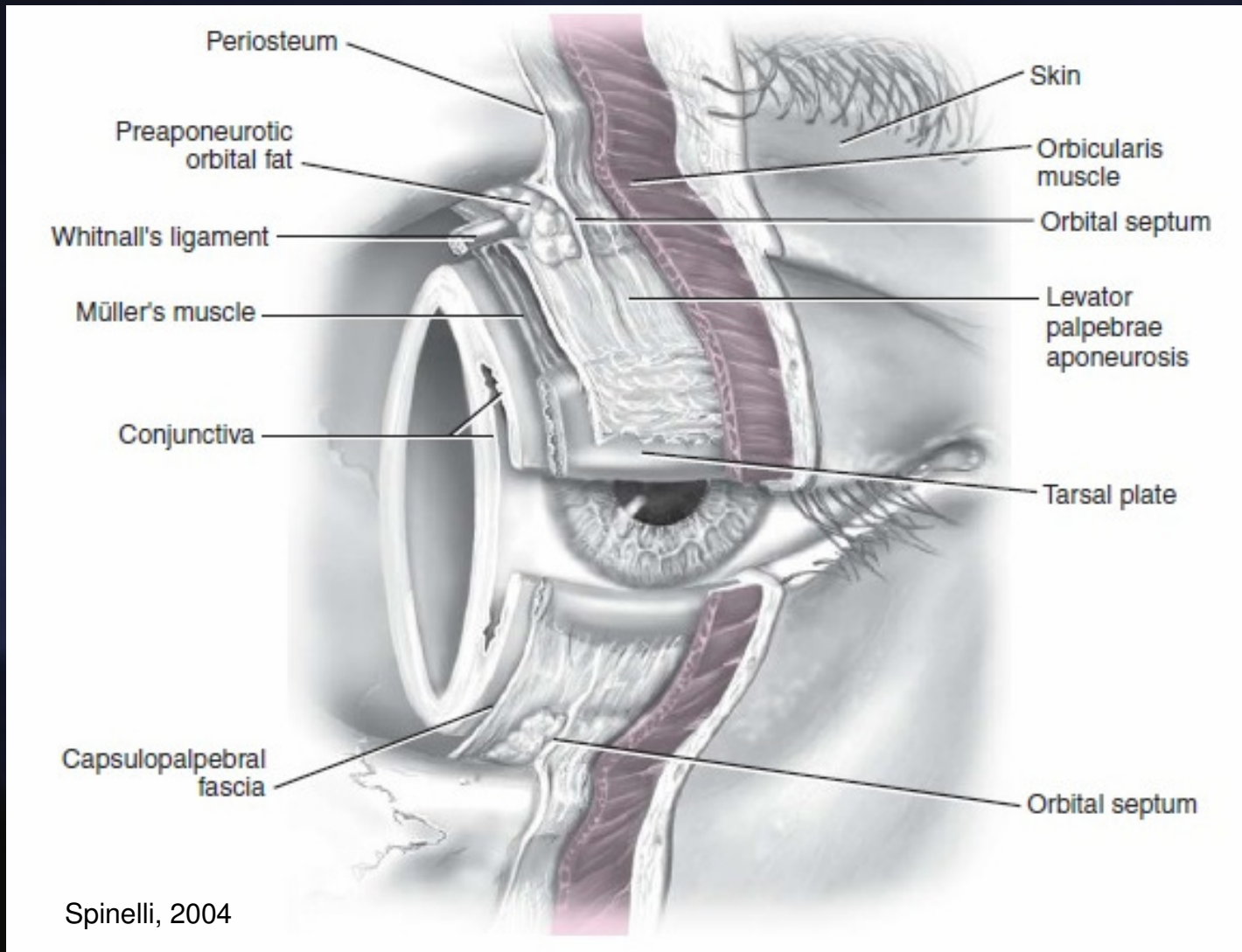
- 5 Fibrous Layer (Tarsal Plate & Orbital Septum) & Lid Retractors\*
- 6 Conjunctiva

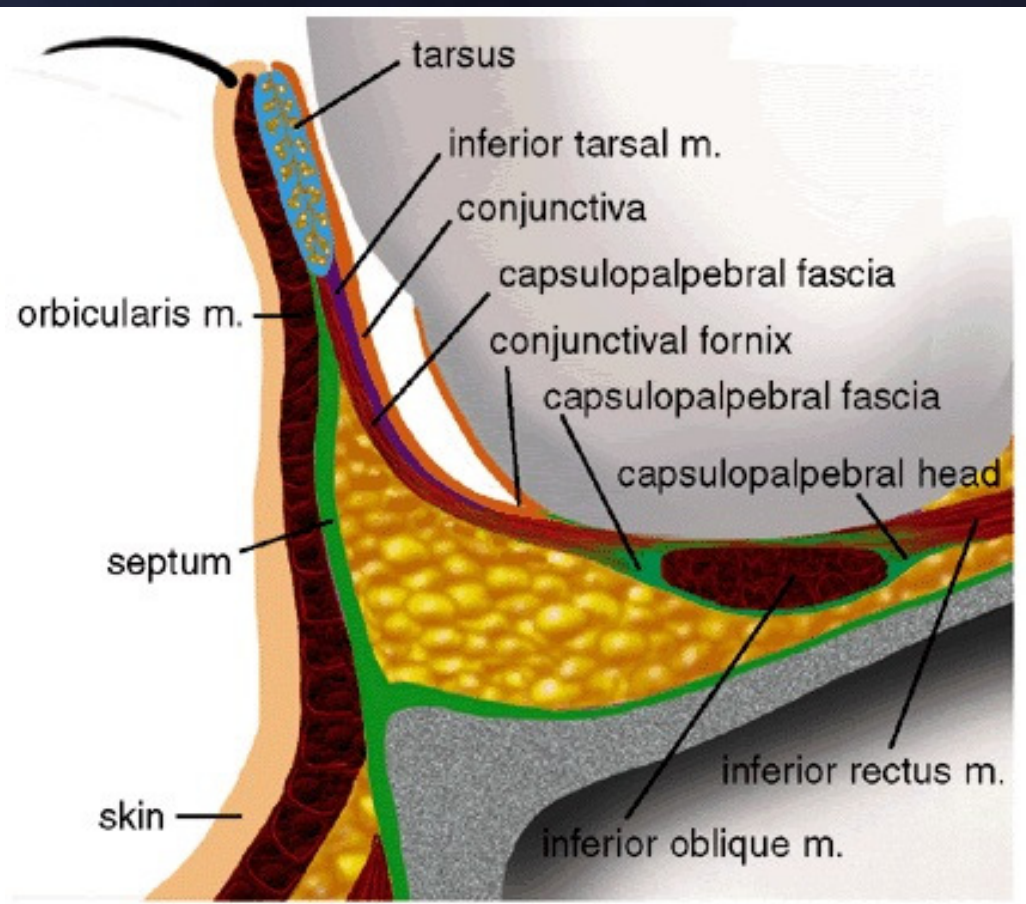
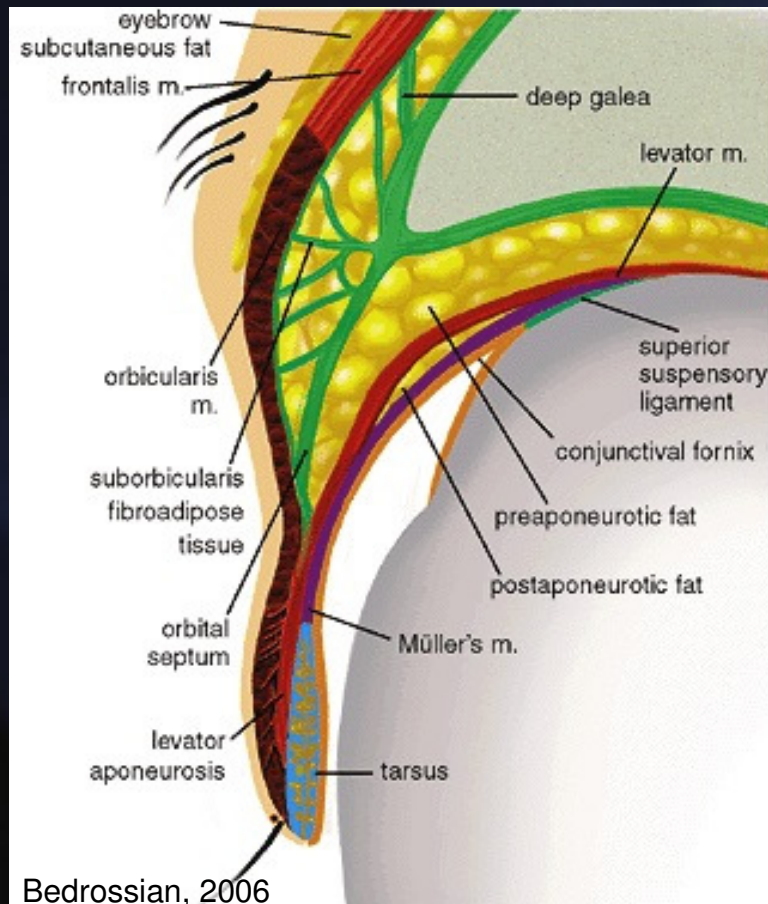
\*UL: Levator palpebrae superioris & Muller's muscle

\*LL: Capsulopalpebral fascia & inferior tarsal muscle, [Ant continuations of inferior rectus & inferior oblique sheath]

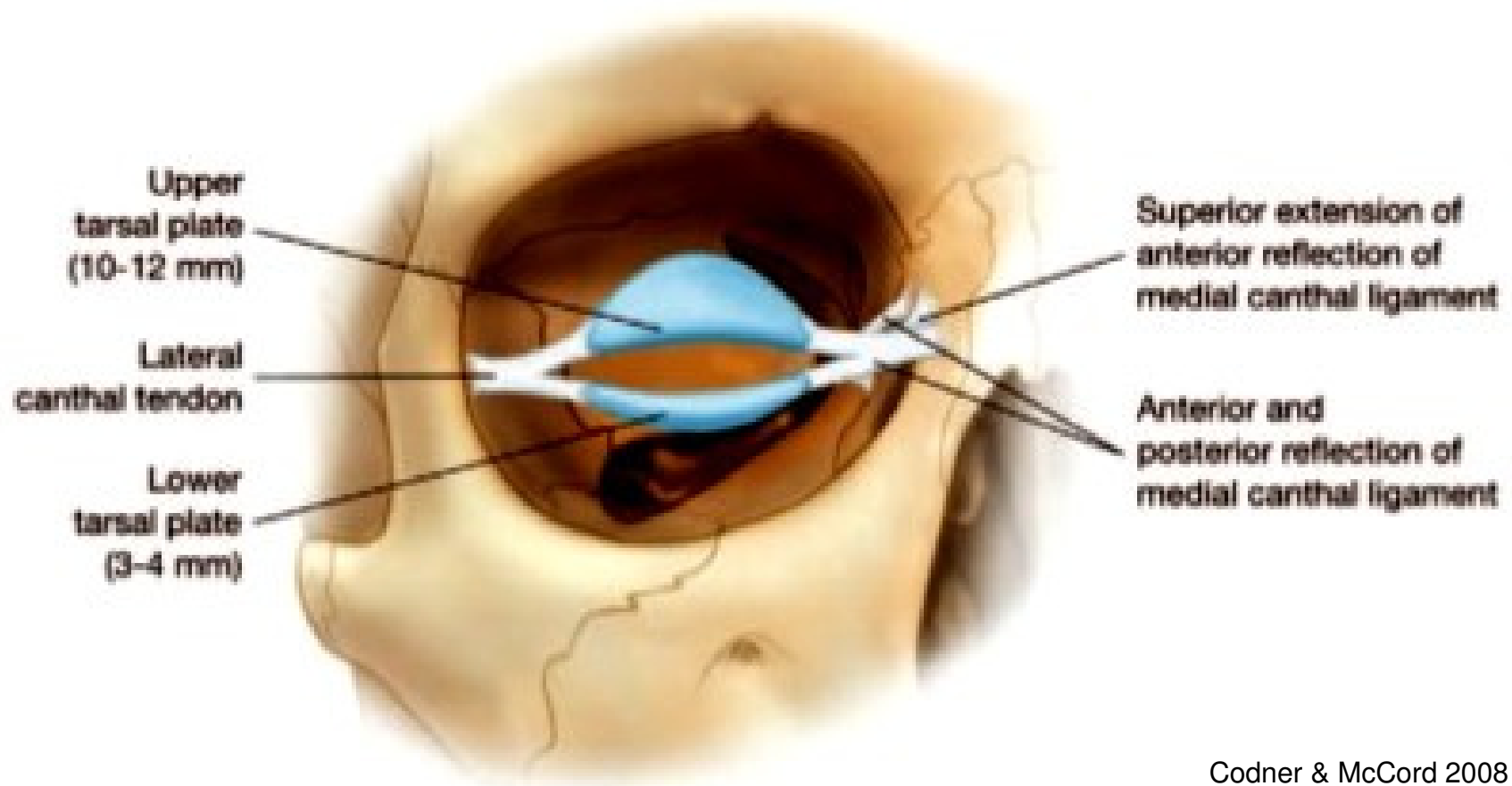




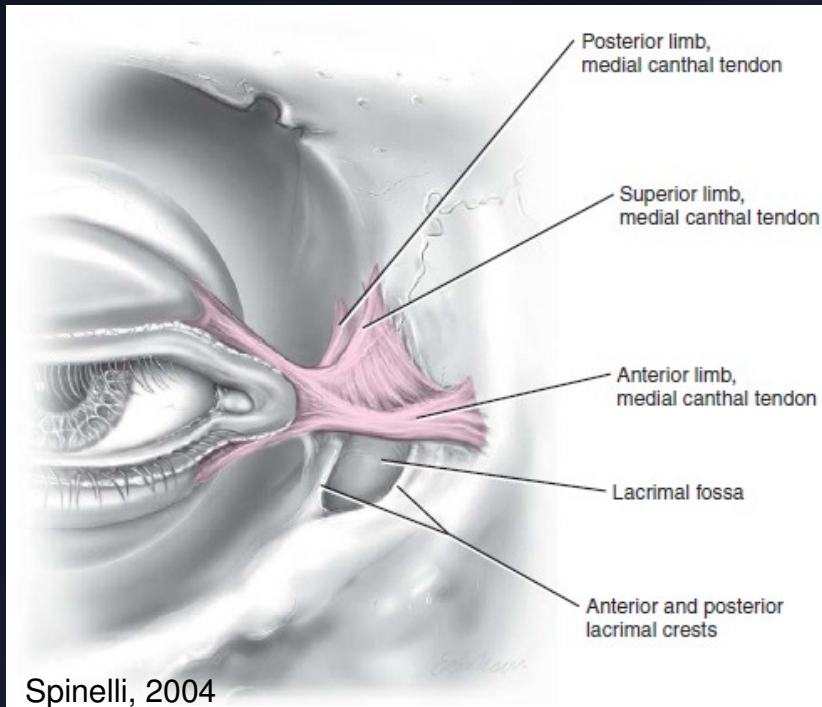




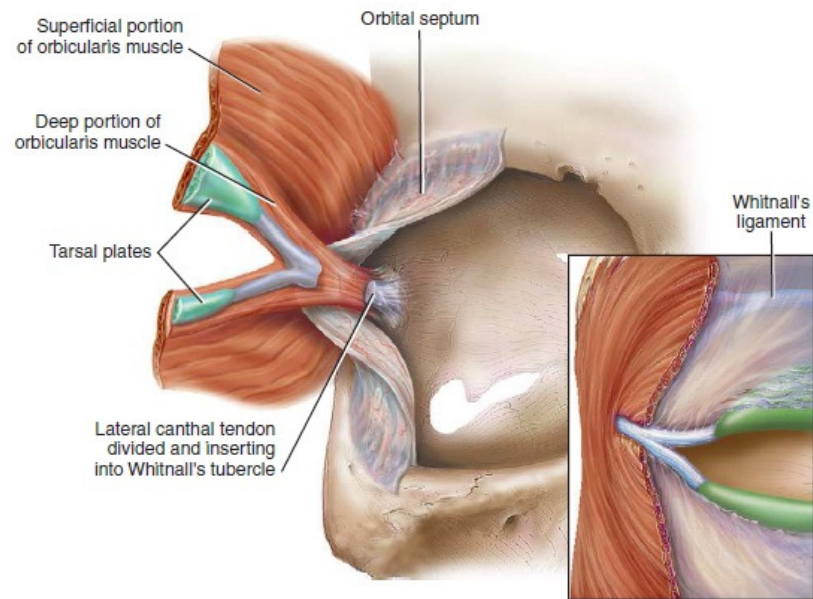
Bedrossian, 2006



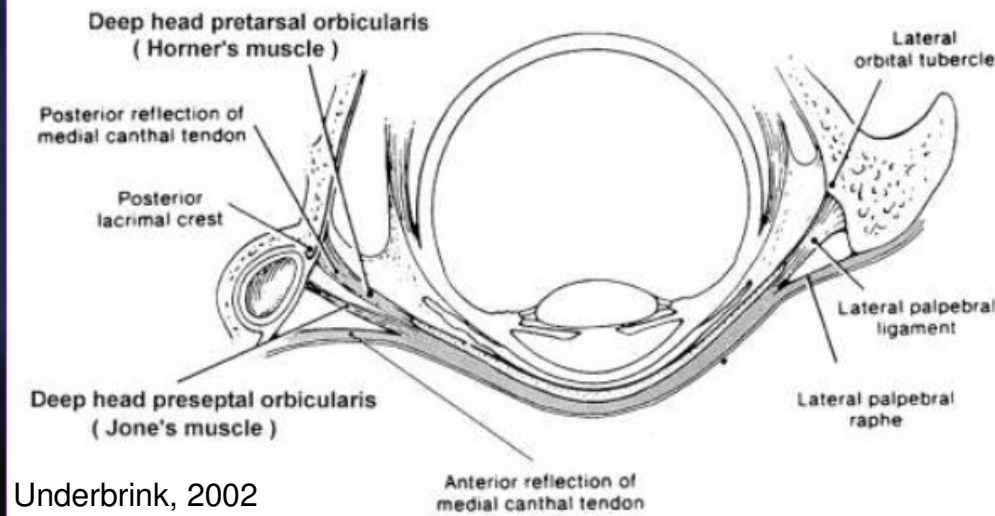




Spinelli, 2004



Orbicularis muscle (superficial portion) and orbital septum contributing to the lateral retinaculum



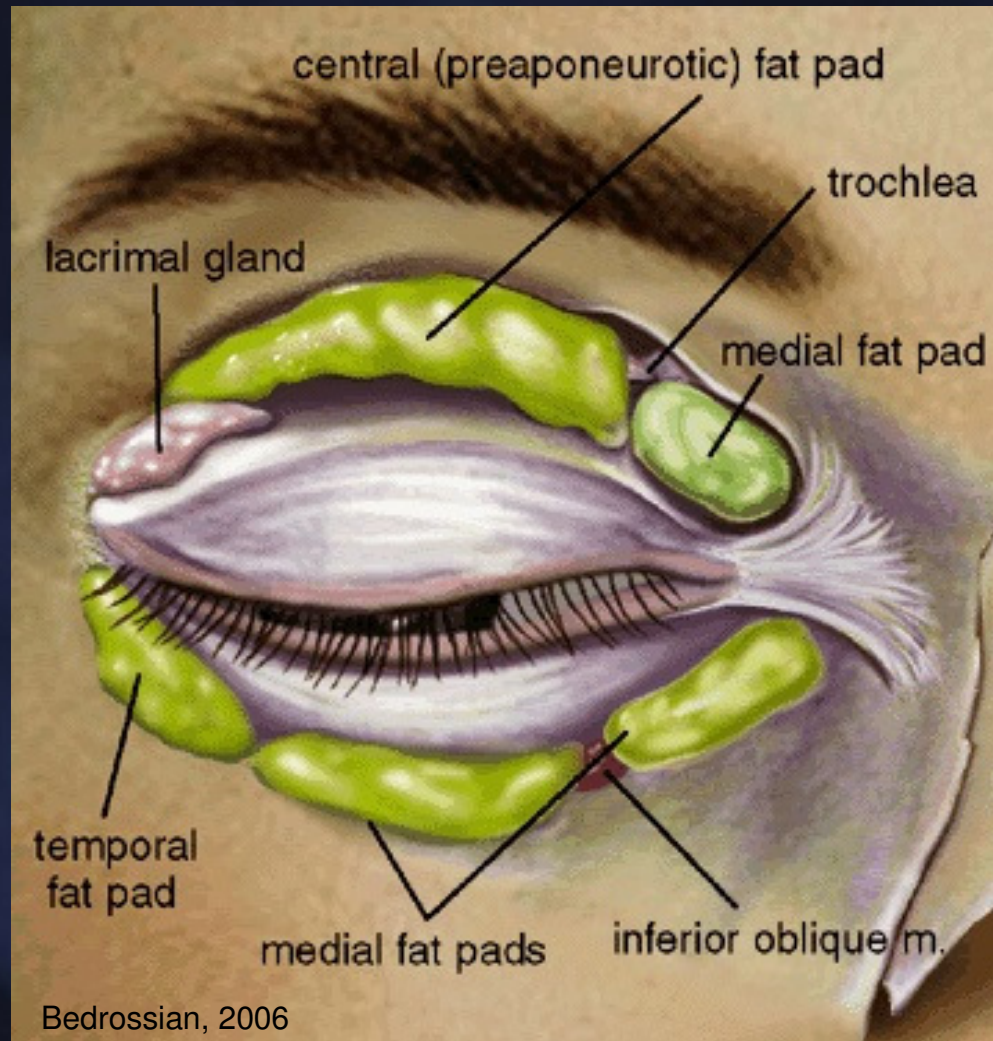
Underbrink, 2002

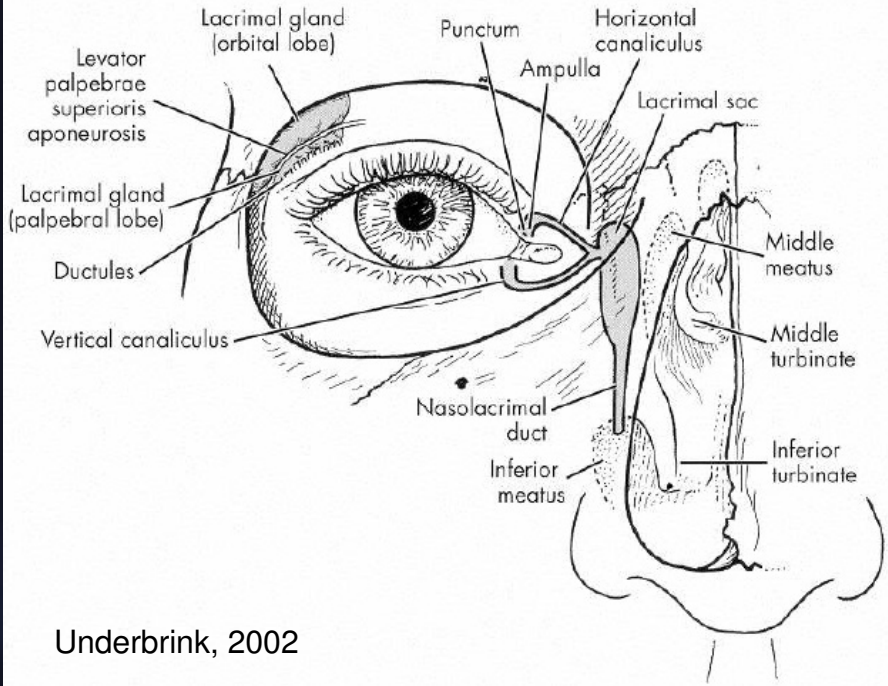




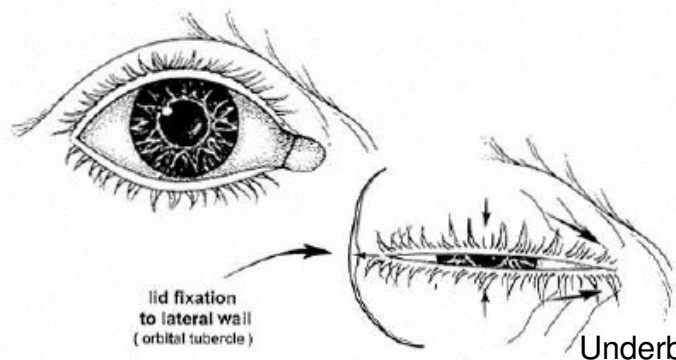
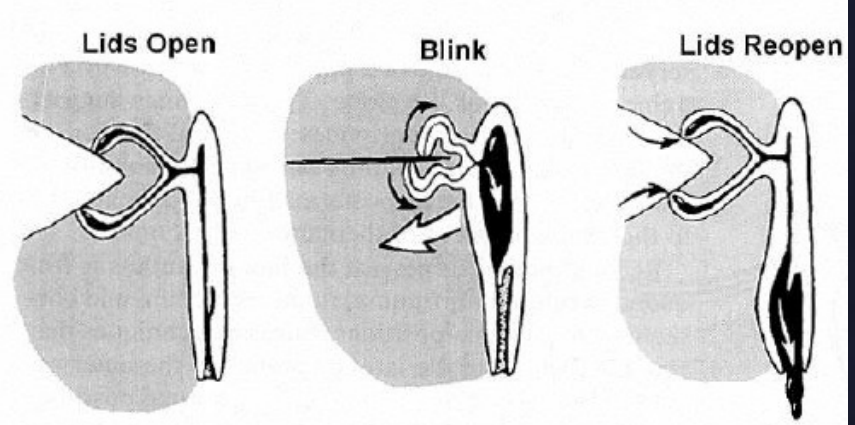
Underbrink, 2002

The orbital septum.





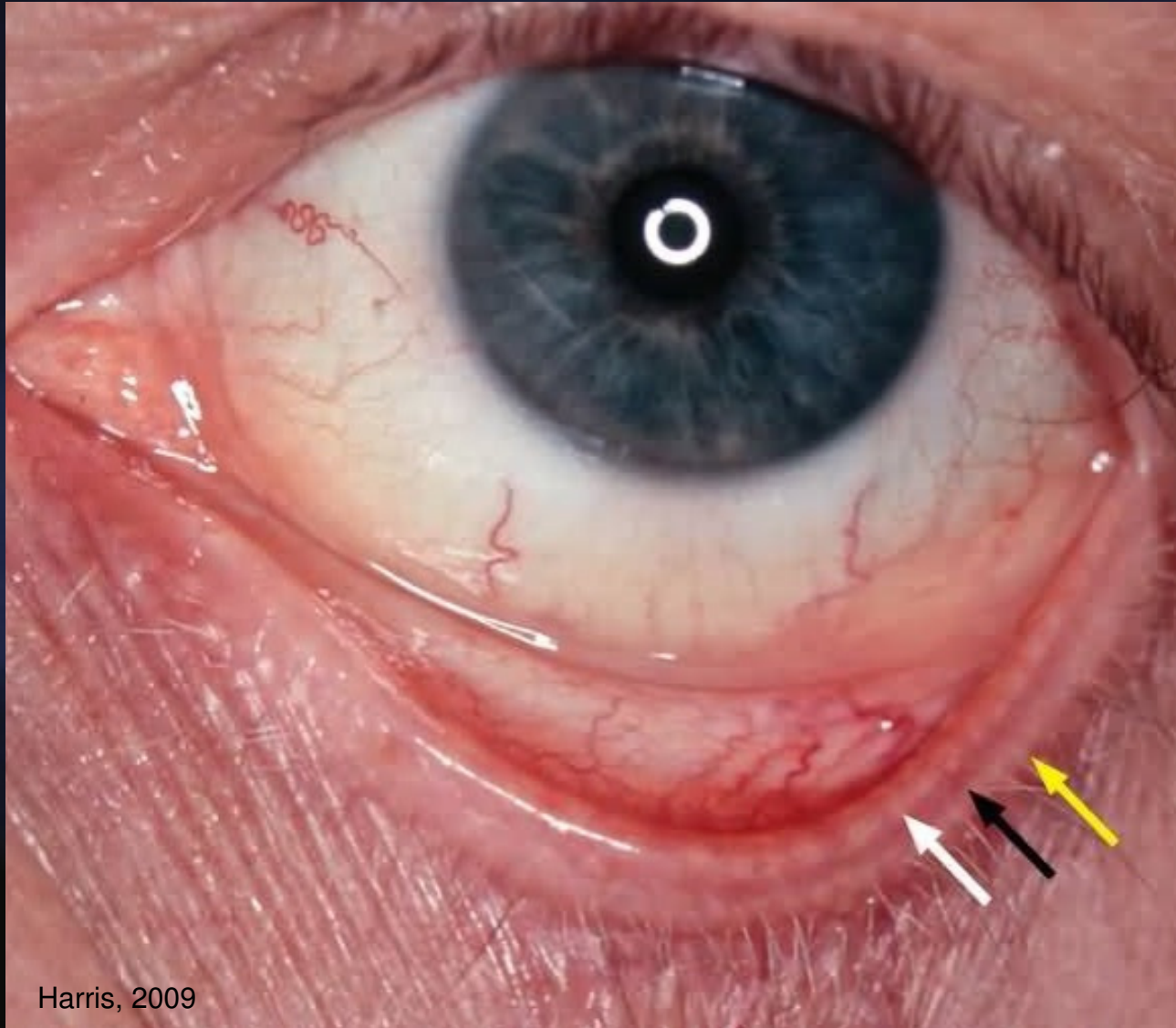
Underbrink, 2002



Underbrink, 2002







Harris, 2009



# 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

5 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**

# Reconstruction

## Defect

### Non Marginal

### Marginal

### Canthal Region

< 30%

30-50-%

50-80%

≥80%

Direct Closure  
Convert to Pentagon

Cantholysis  
+  
Direct Closure  
Flaps

Cantholysis  
+  
Anterior Lamella  
Flaps  
Tenzel  
Temporal Adv  
Cheek  
Tripier's  
Graft  
Posterior Lamella  
Sliding Tarso-Conjunct.  
Hughes Lid Share  
Grafts  
Lid Share  
Hughes  
Upper lid bridge  
Cutler Beard  
Mustarde Lid Switch

COMBINATION  
No lid share

#### Small

Direct Closure  
Convert to Ellipse  
Close Horizontally

#### Large

Flaps  
Tripier's  
Graft

#### Medial

**Local**  
Glabellar  
Median Forehead  
Nasolabial  
Periosteal Flap

#### Lateral

**Local**  
Fricke's  
Lateral Forehead  
Cheek  
Periosteal Flap



# Non Marginal Defects

## Small

Convert to ellipse and Close horizontally

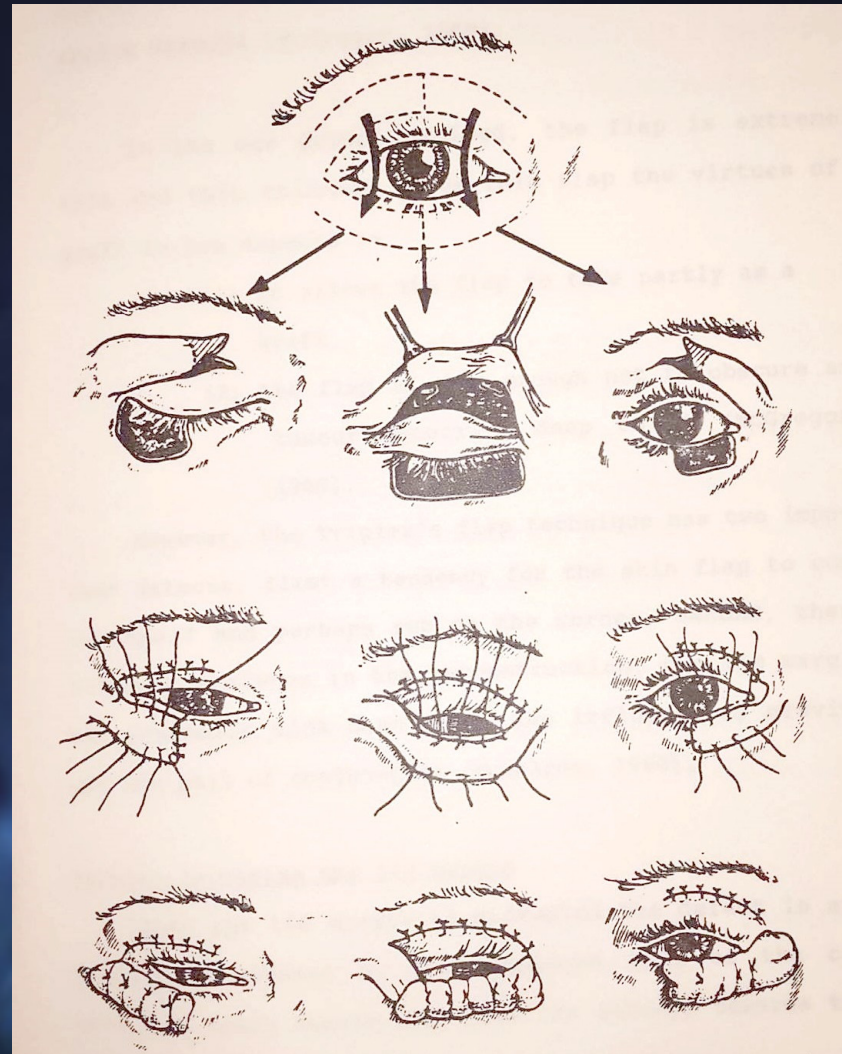
## Large

Flaps (Tripiet's Flap)

Grafts



# Tripier's Flap



McGregor, 1989

# Closure with Local Flap



# Anchored Advancement Flap



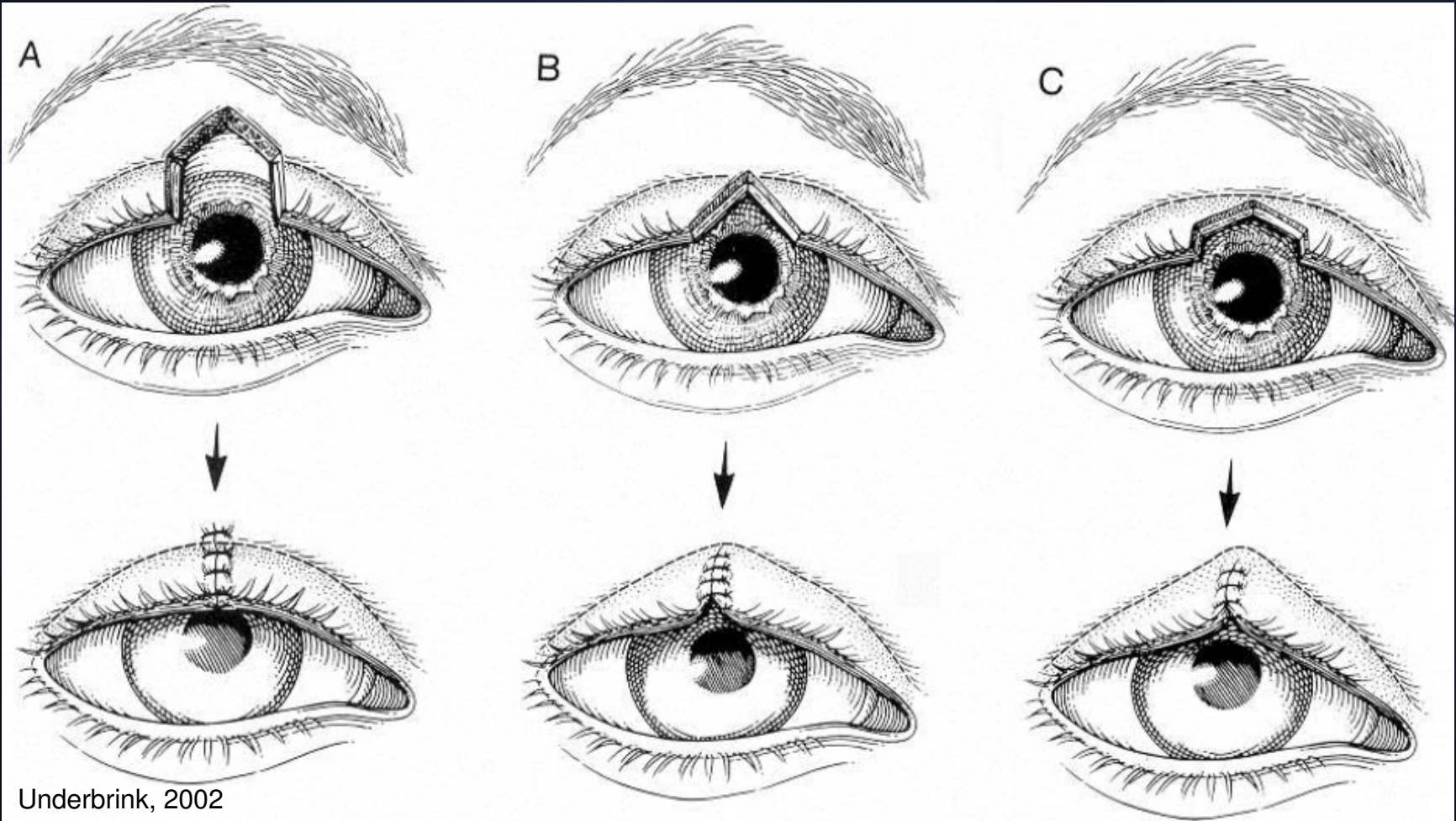
# Marginal Defects

Underbrink, 2002



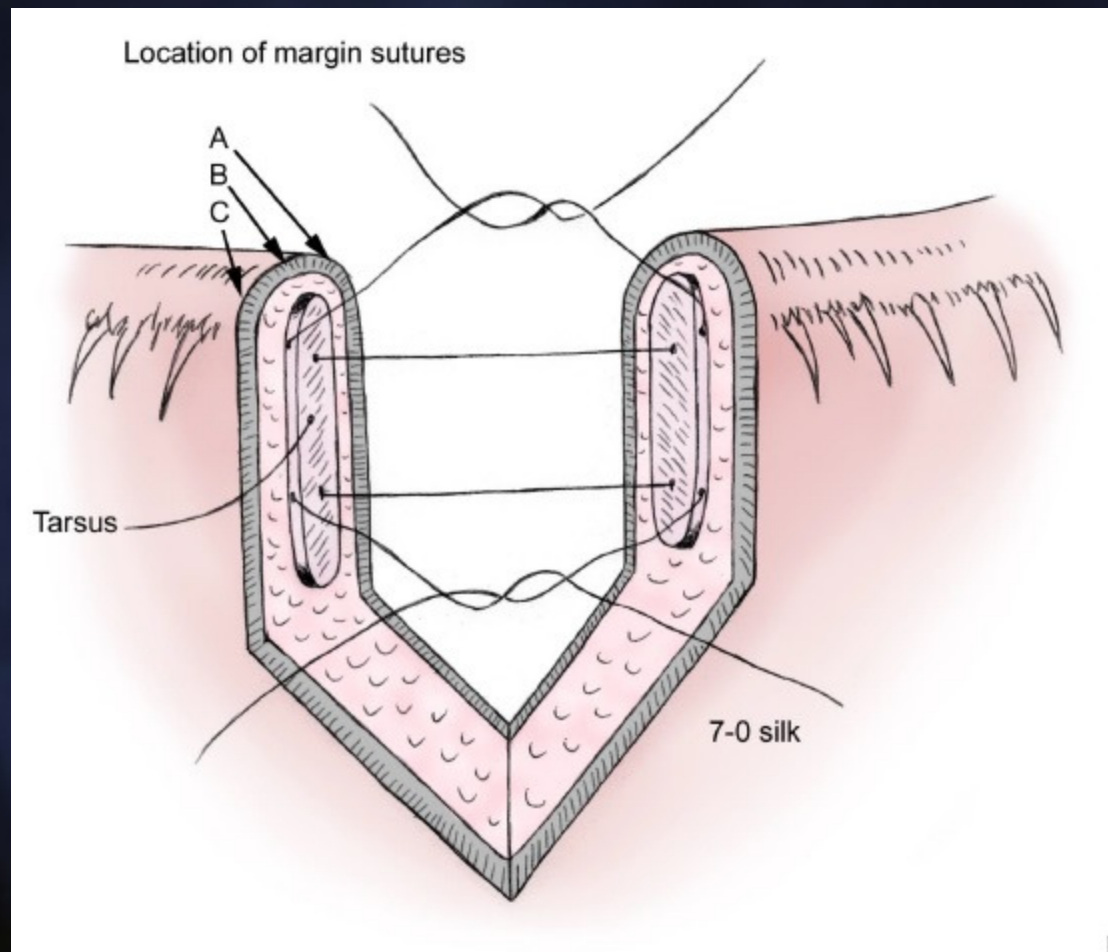


# Direct Closure



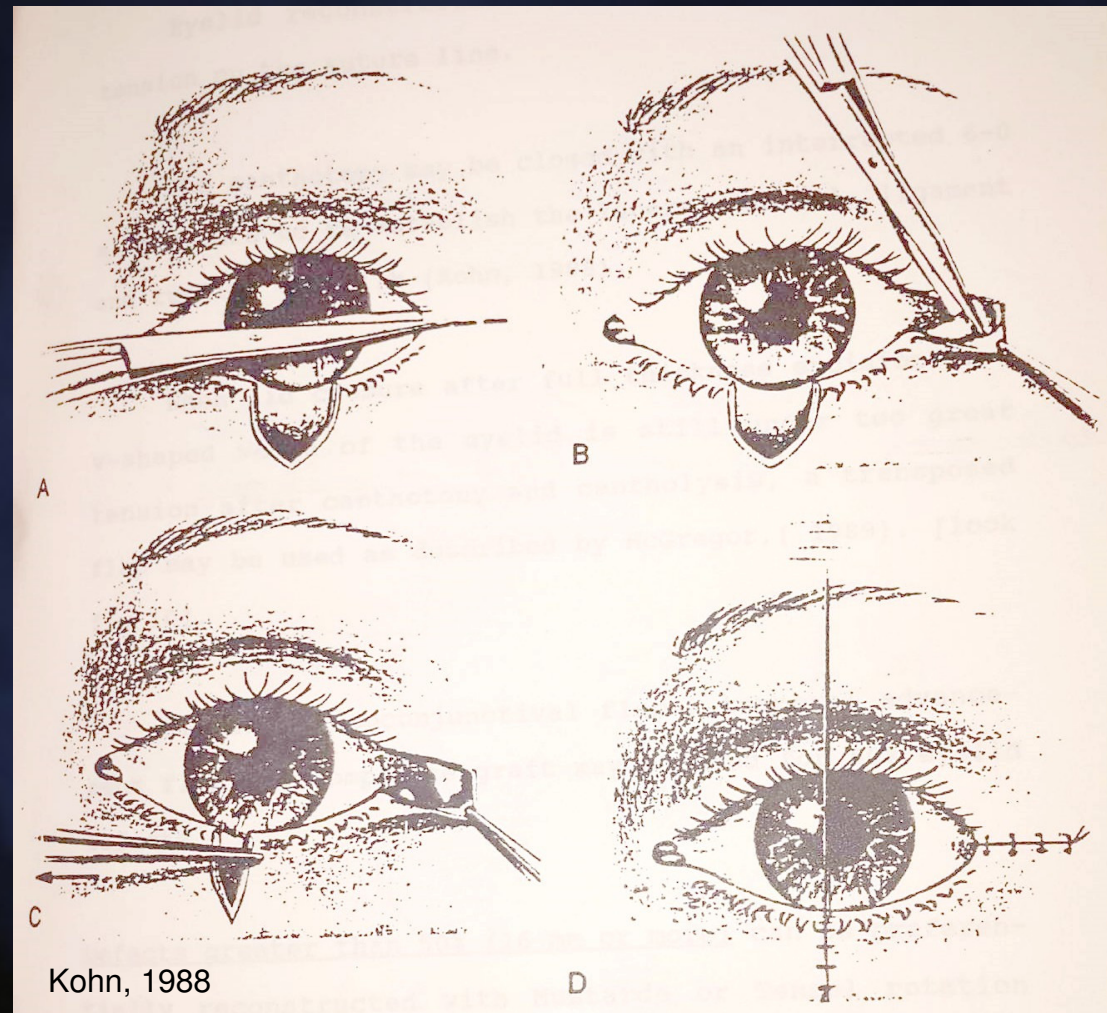
Underbrink, 2002

# Direct Closure (Margin)

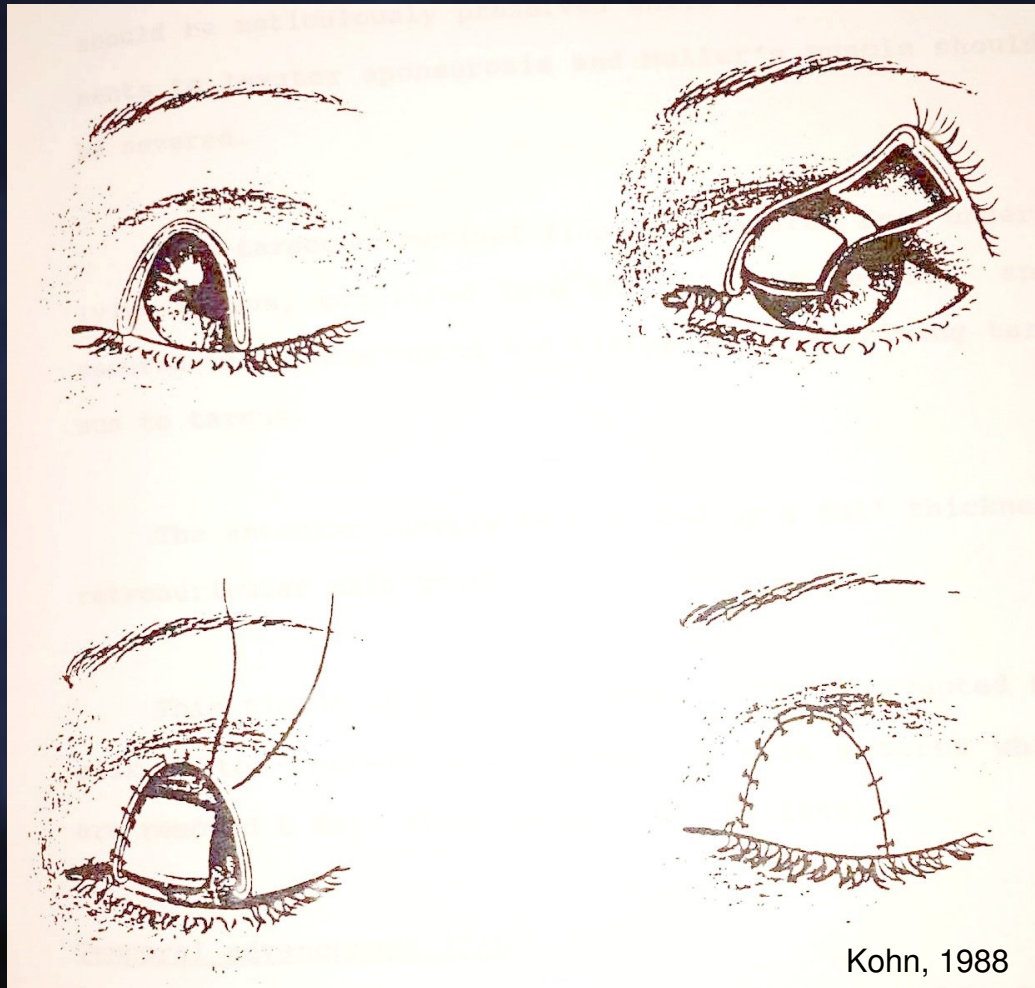




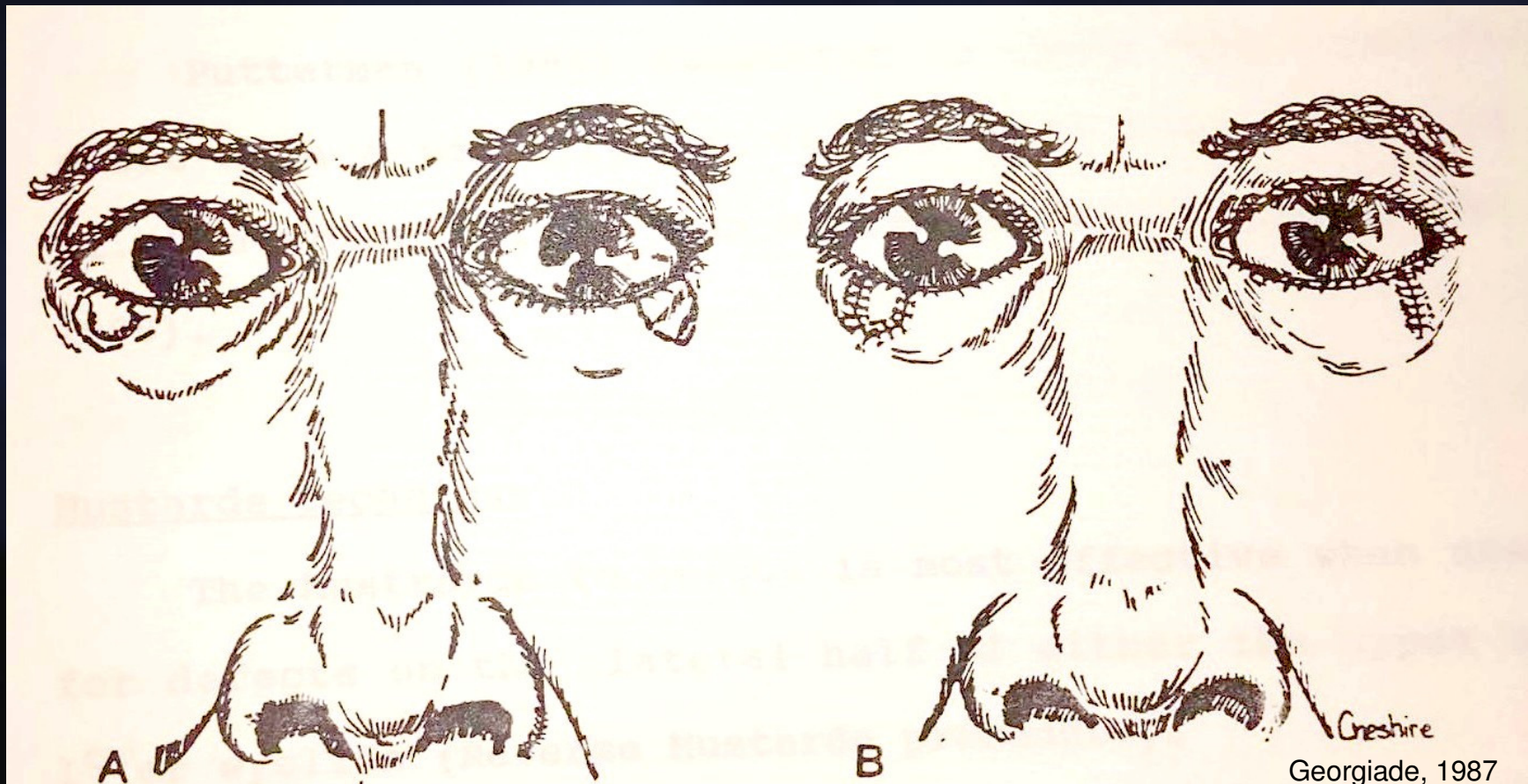
# Direct Closure with cantholysis



# Split Tarsconjunctival Flap

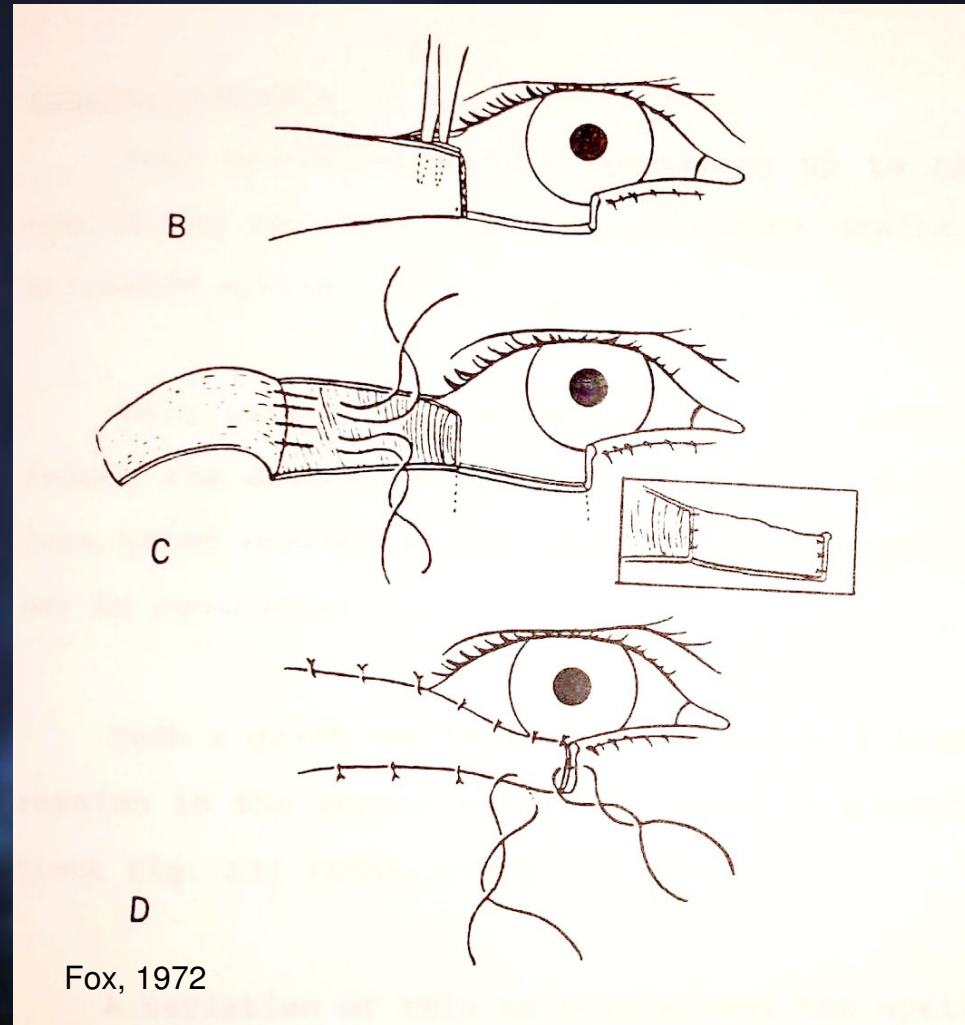


# Composite Graft

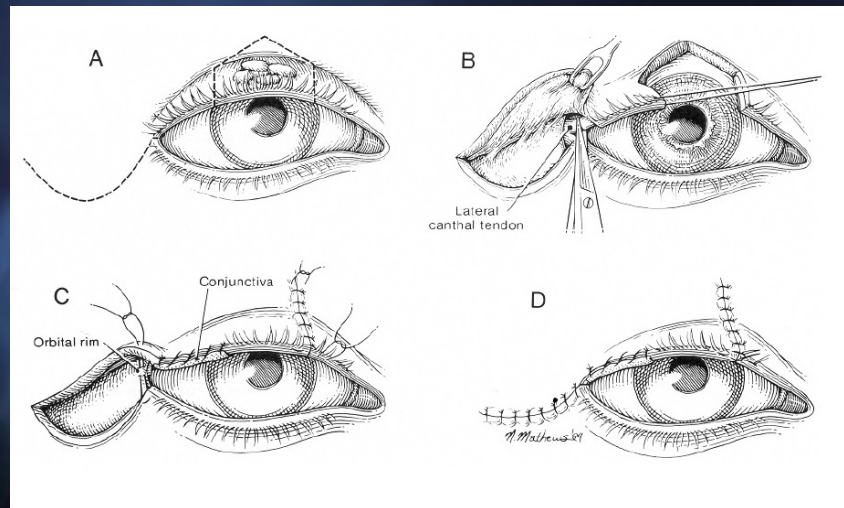
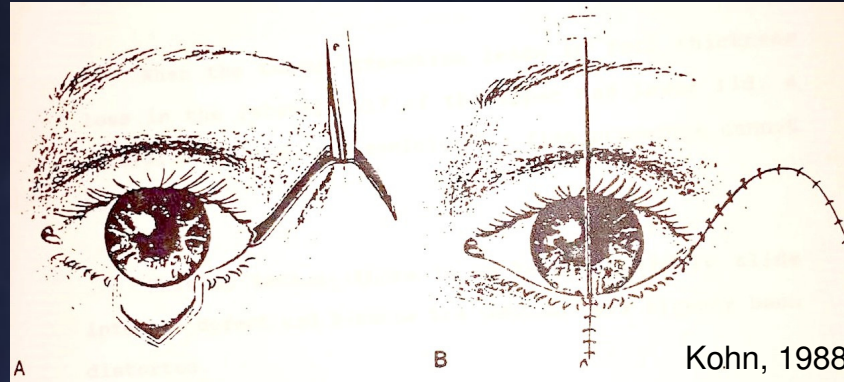




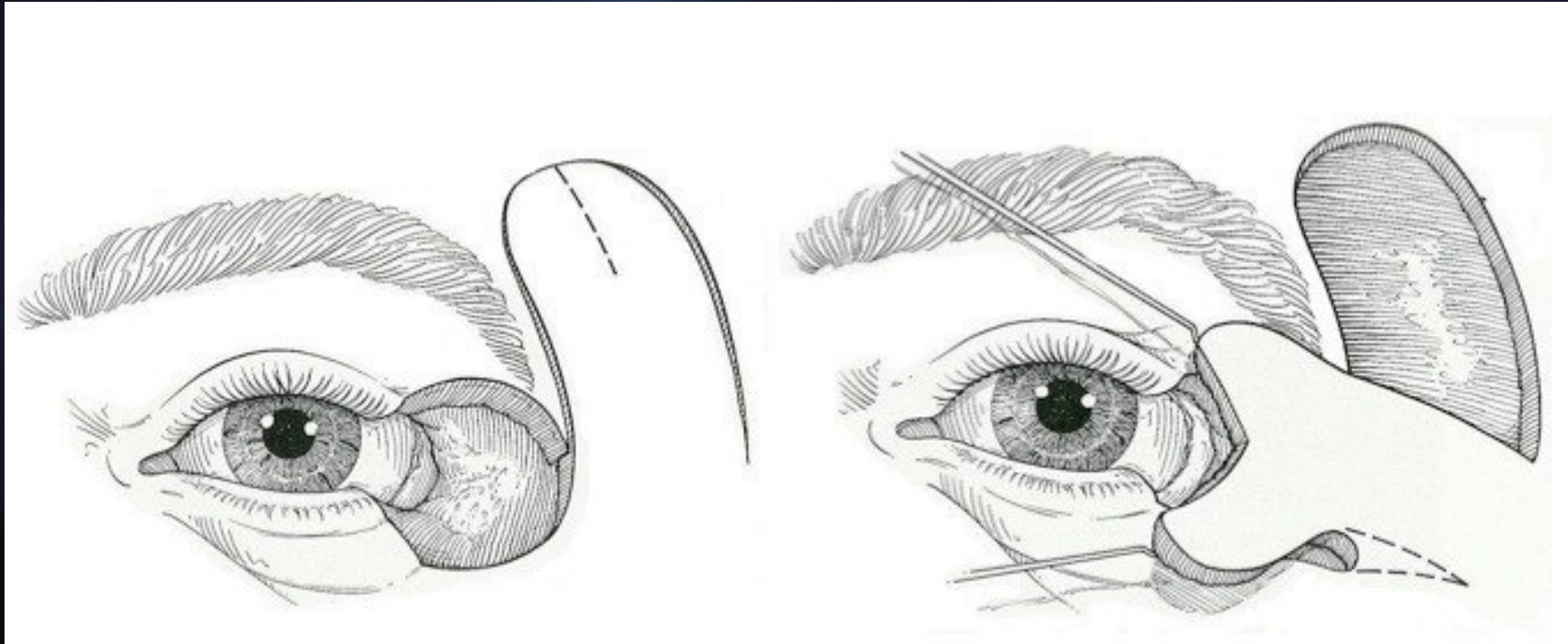
# Sliding Lateral Temporal Flap



# Tenzel Semicircular Flap

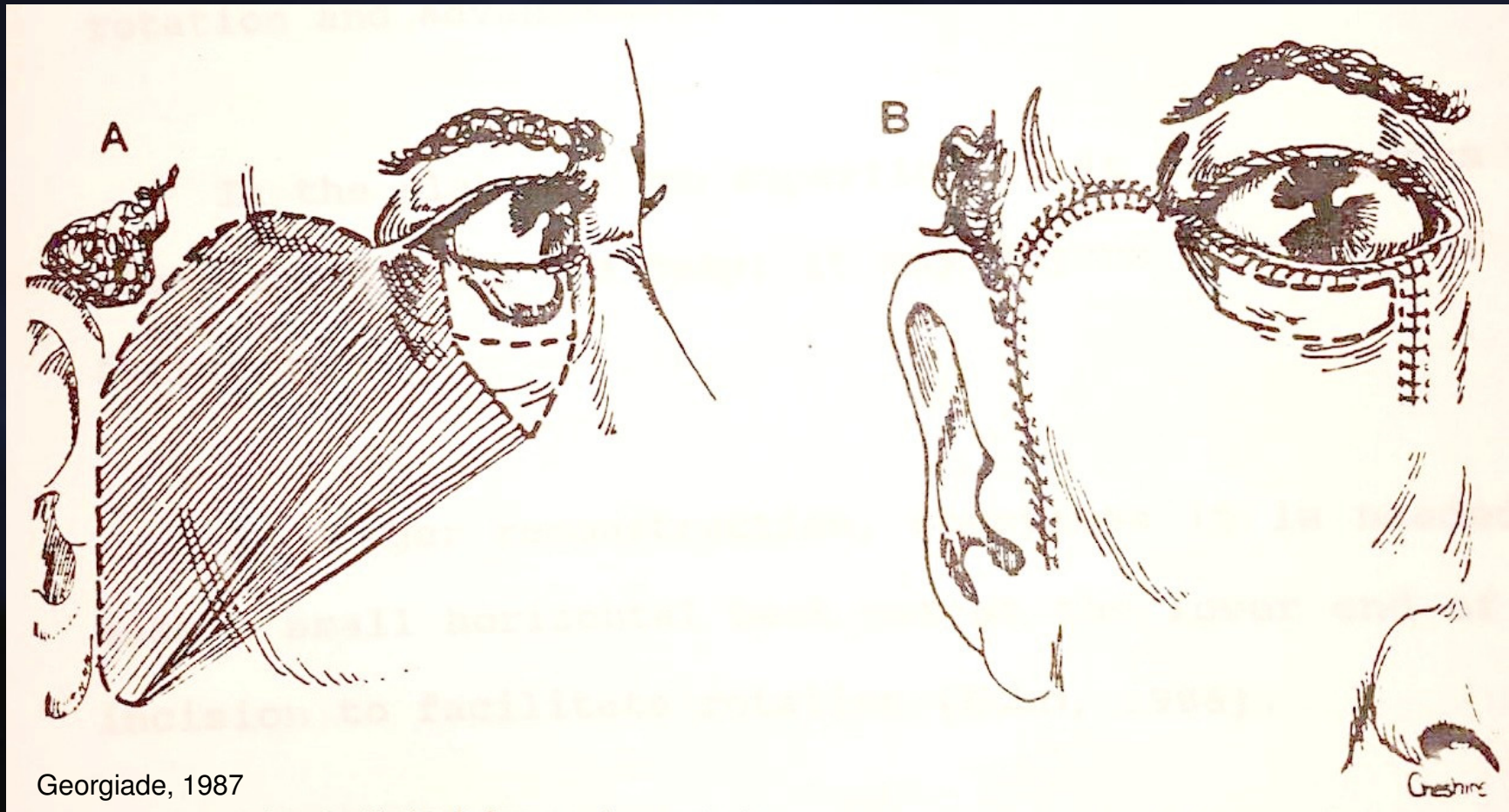


# Fricke's Lateral Temporal Forehead Flap

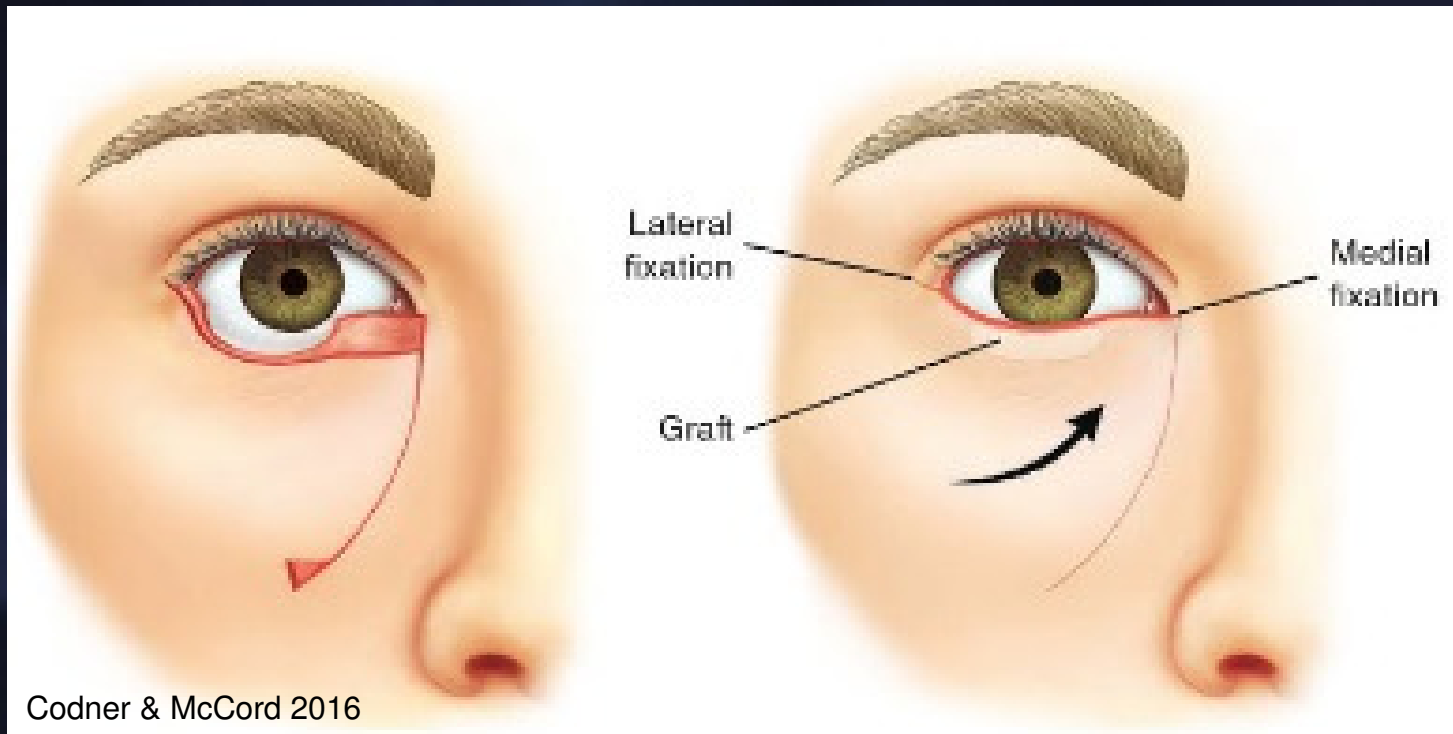


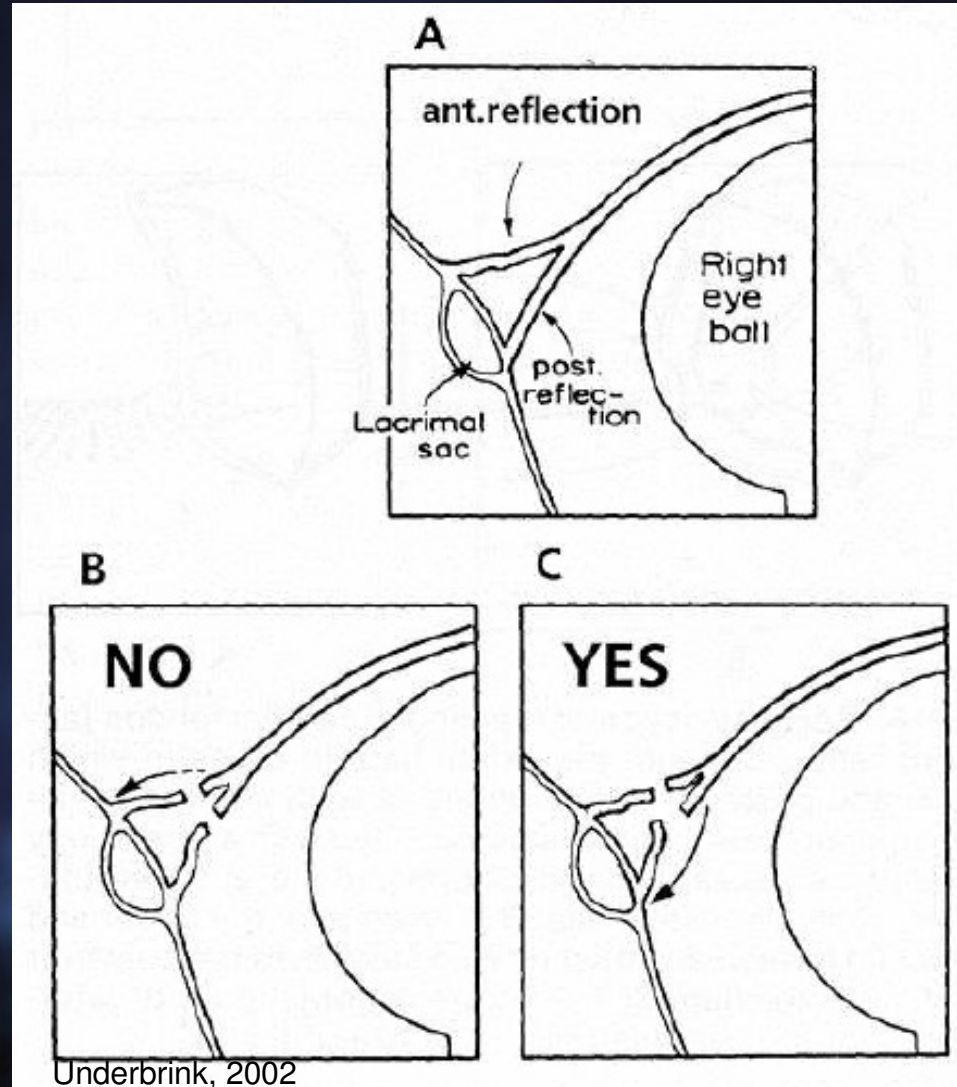


# Mustarde Cheek (*anchored*) Flap



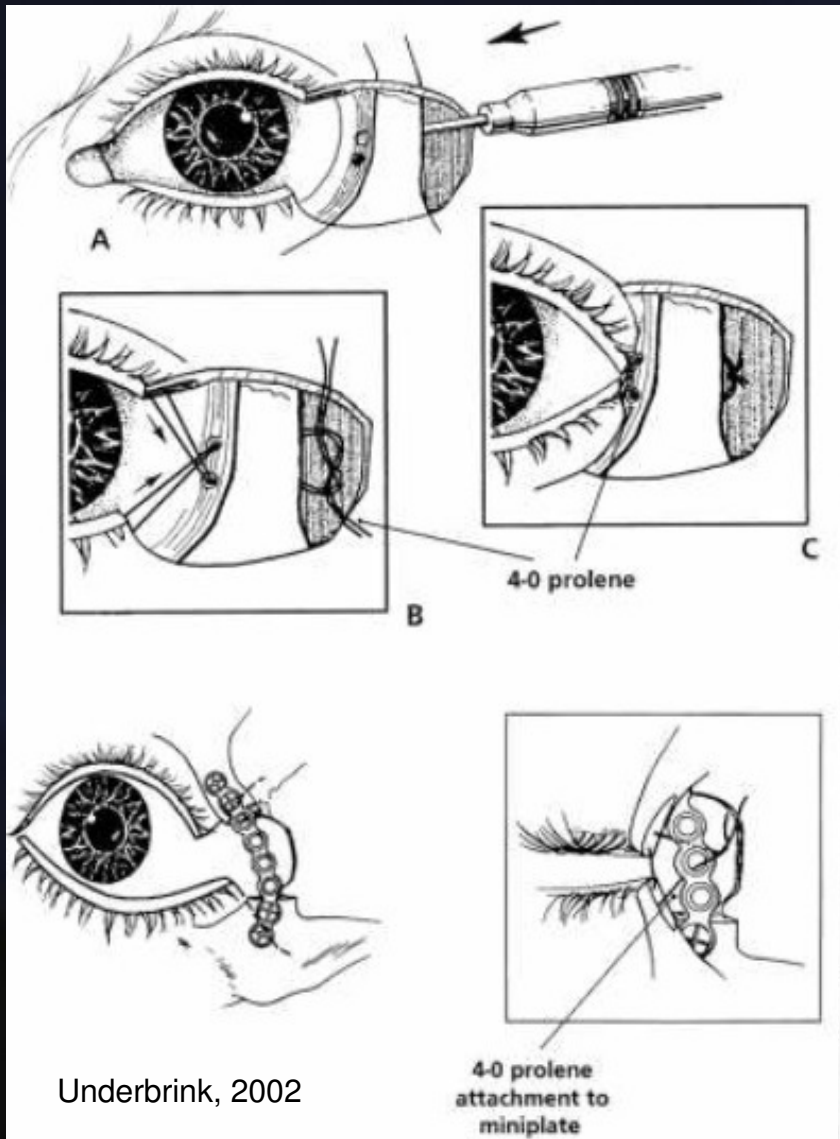
# Imre Cheek Nasal Rotation Flap



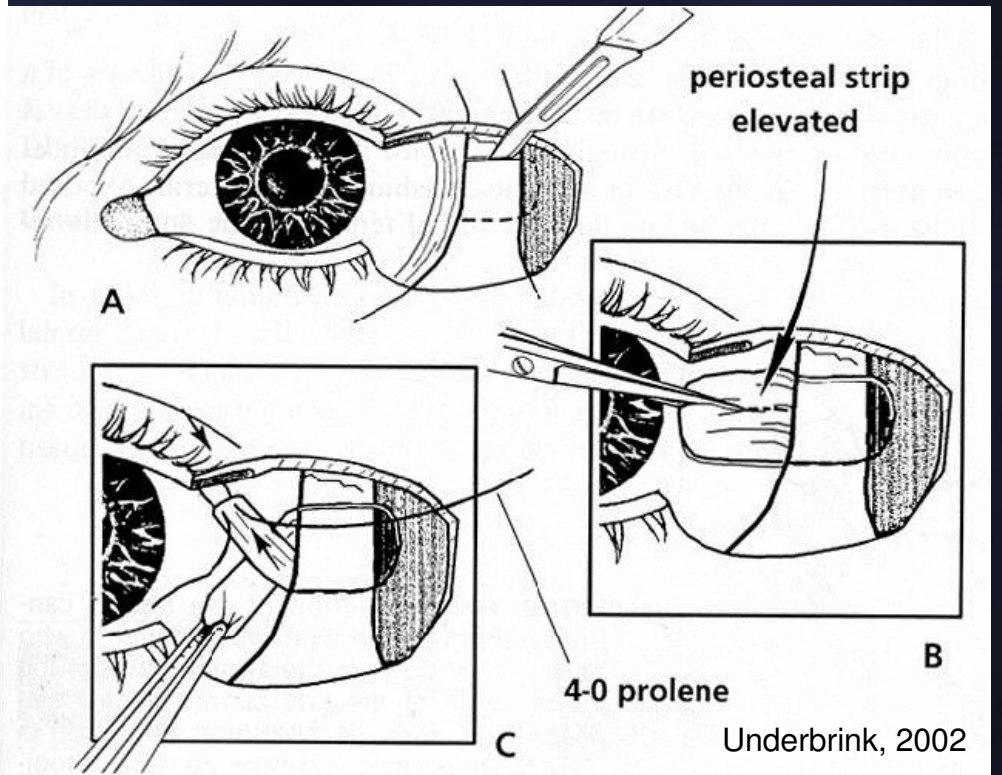


Underbrink, 2002





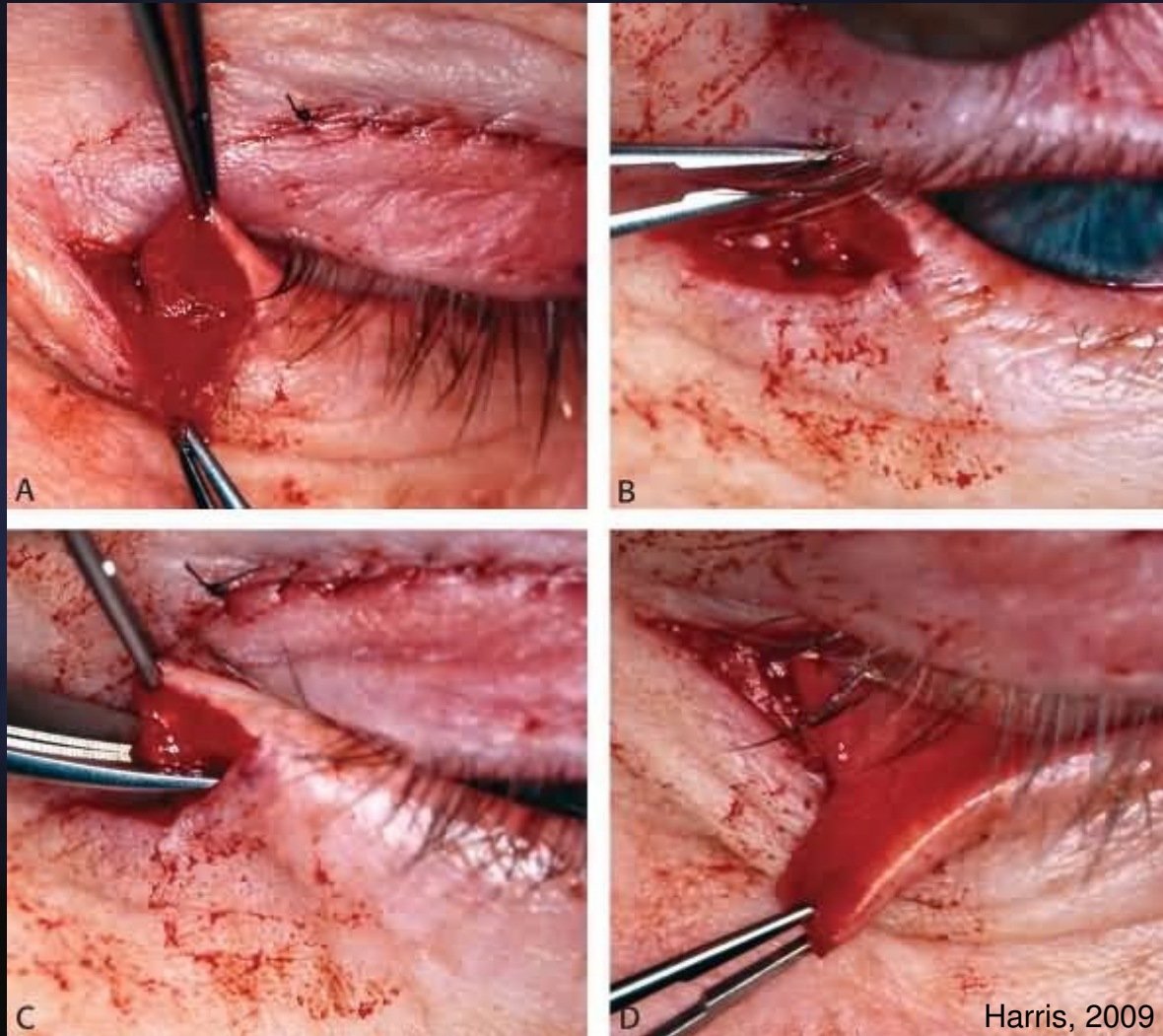
Underbrink, 2002



Underbrink, 2002

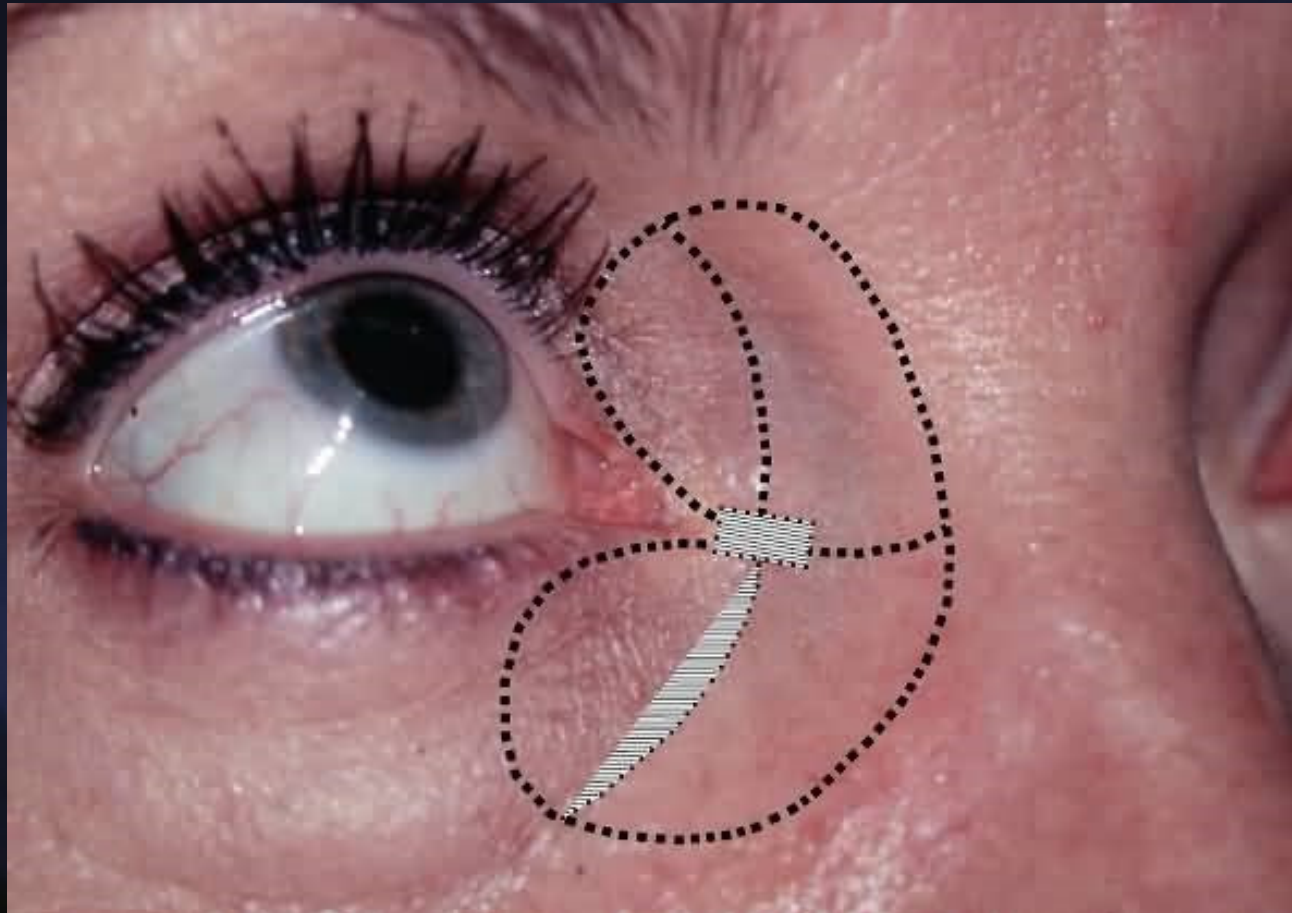


# Lateral Tarsal strip Procedure



Harris, 2009

# Medial Canthal Region

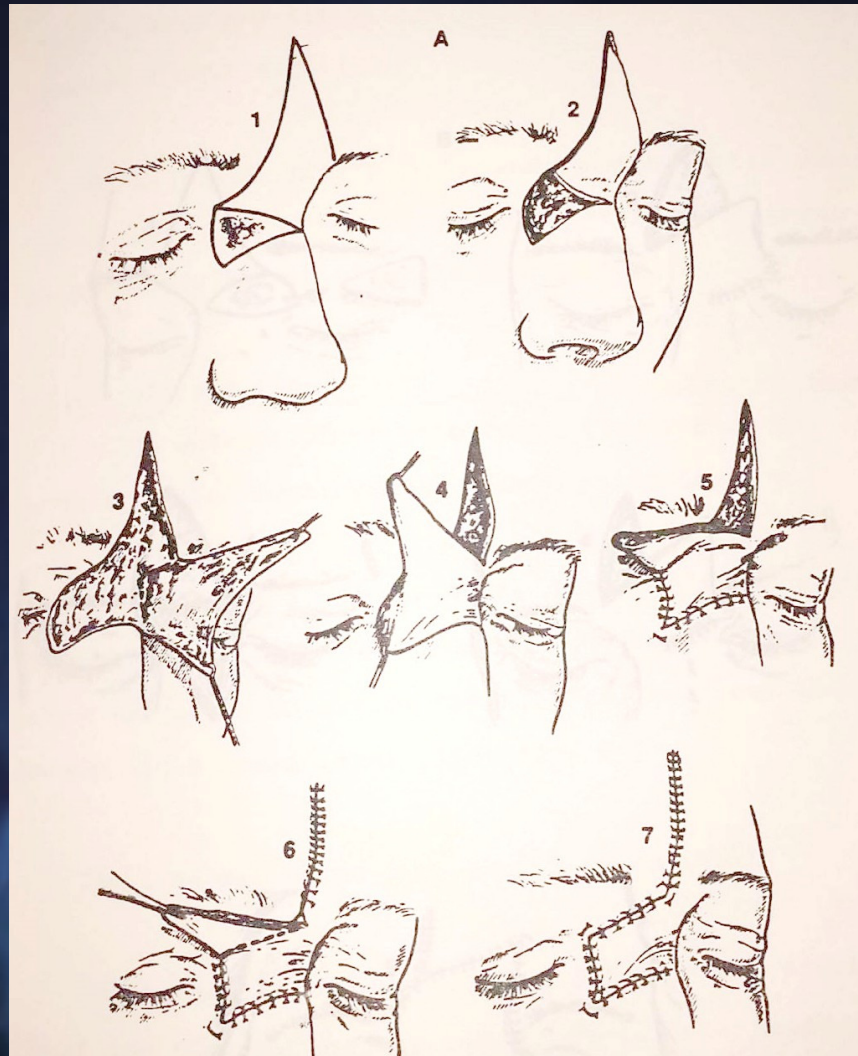


**Small defects ---- Laissez faire**

**Better use flaps of adjacent aesthetic components anchored to tendon**

**Preserve concavity**

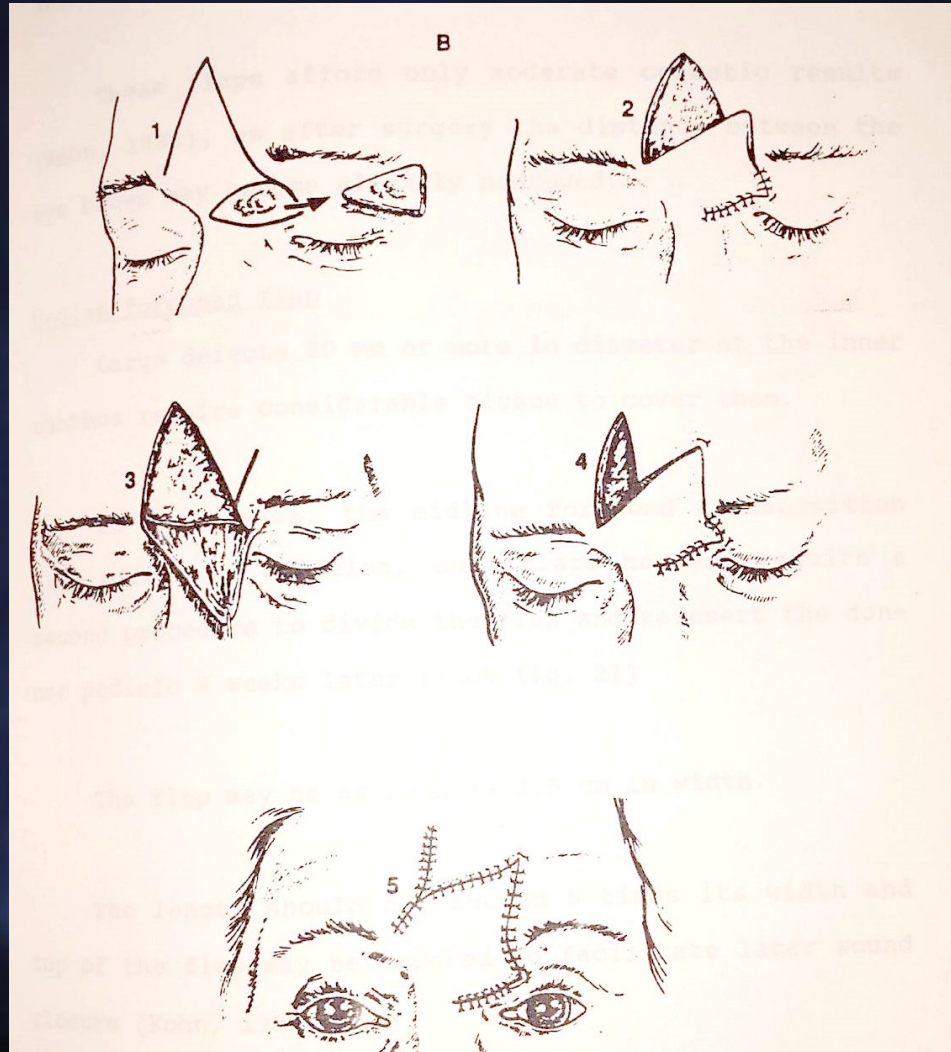
# Glabellar Flap



McGregor, 1989



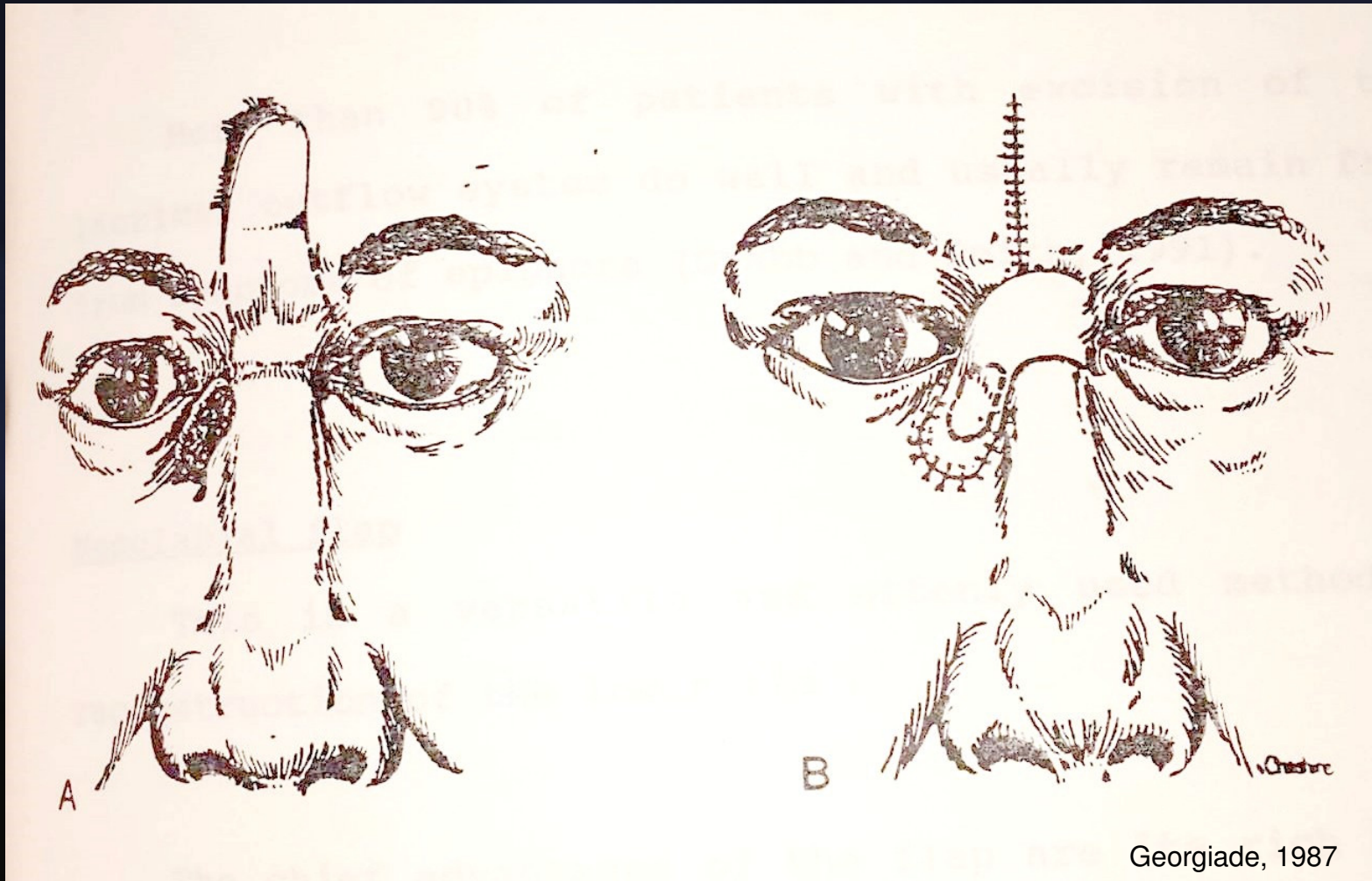
# Glabellar Flap



McGregor, 1989

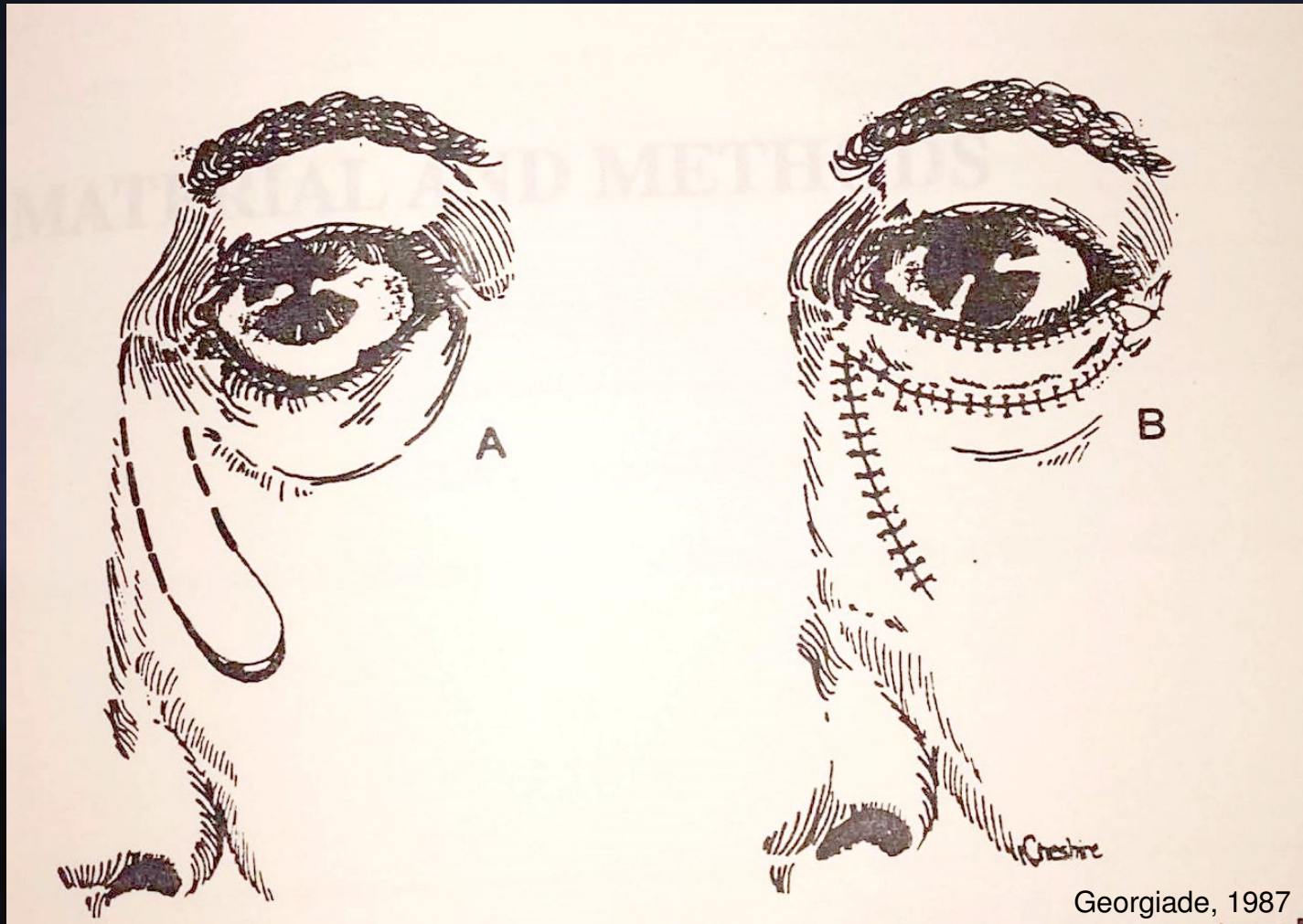


# Median Forehead Flap



Georgiade, 1987

# Nasolabial Flap

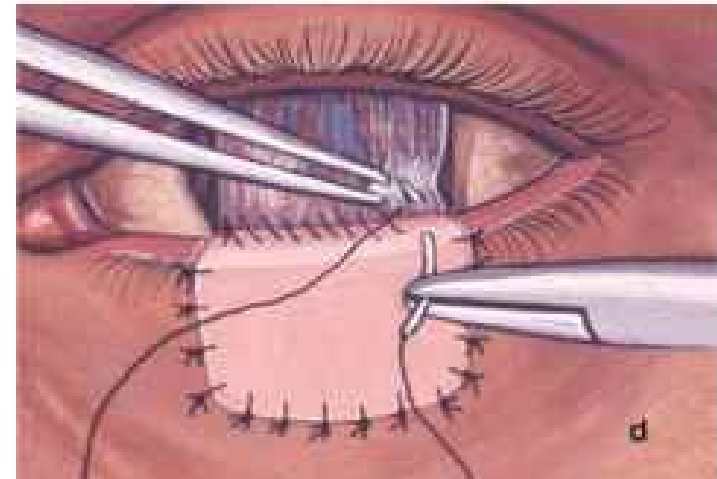
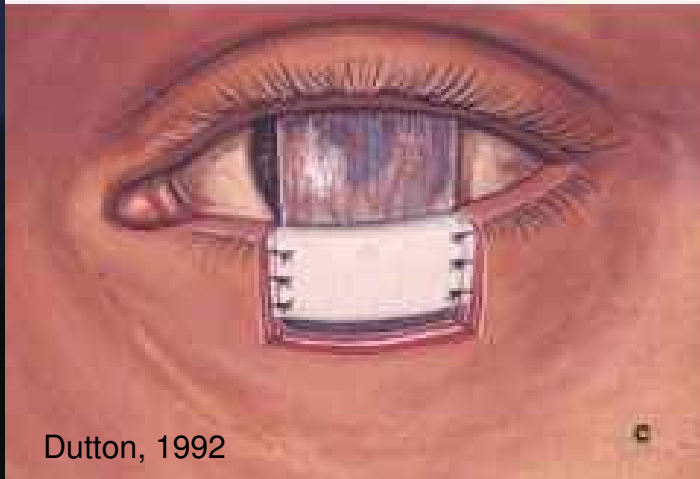
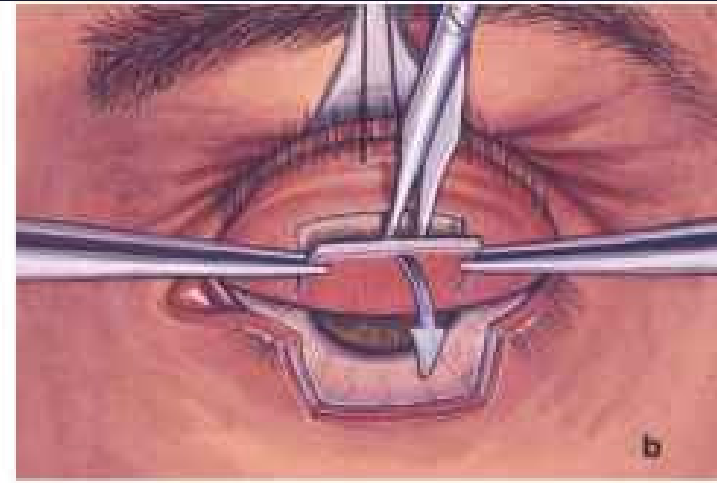
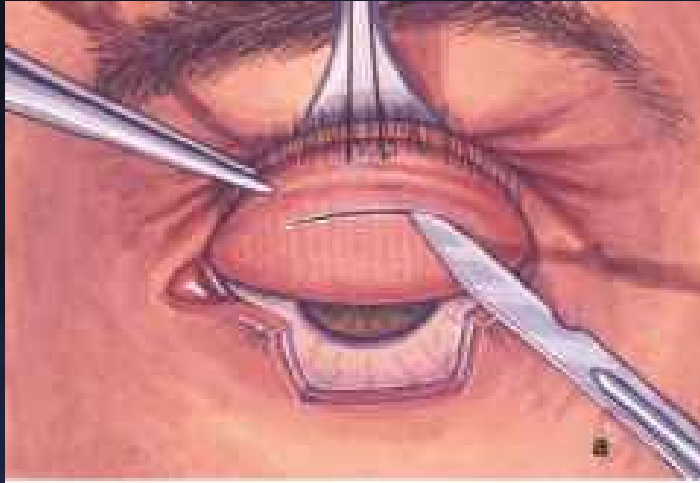


Georgiade, 1987

# LID SHARE



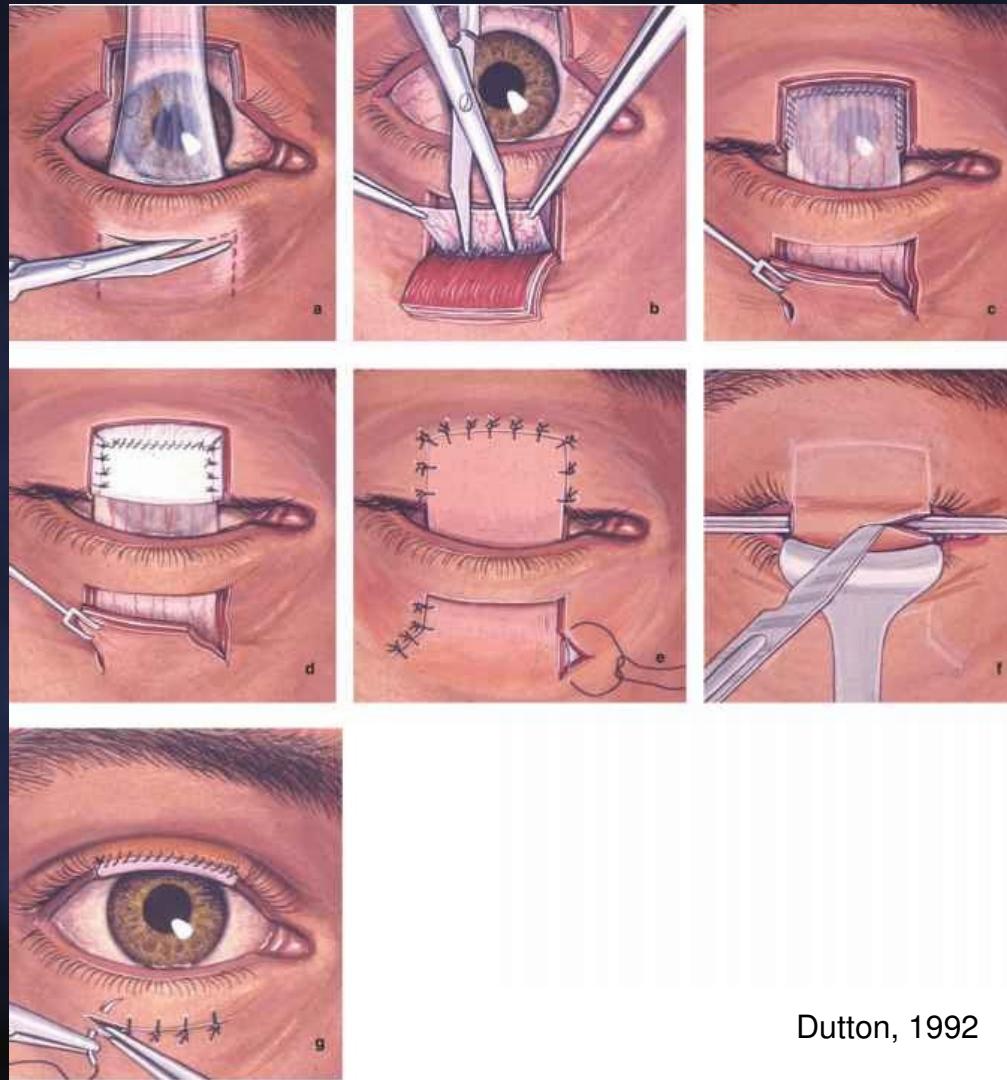
# Hughes Flap



Dutton, 1992

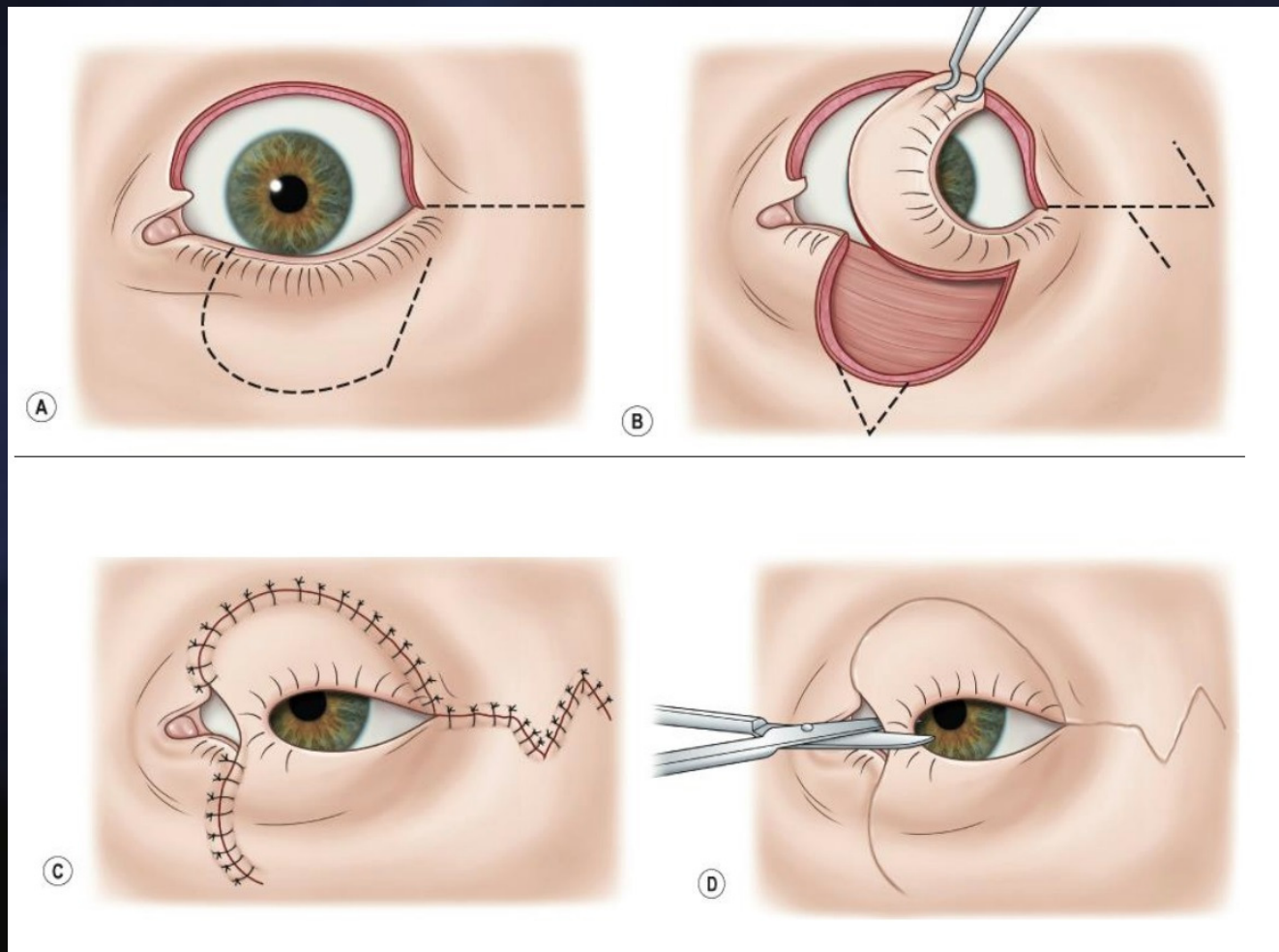


# Cutler Beard Flap

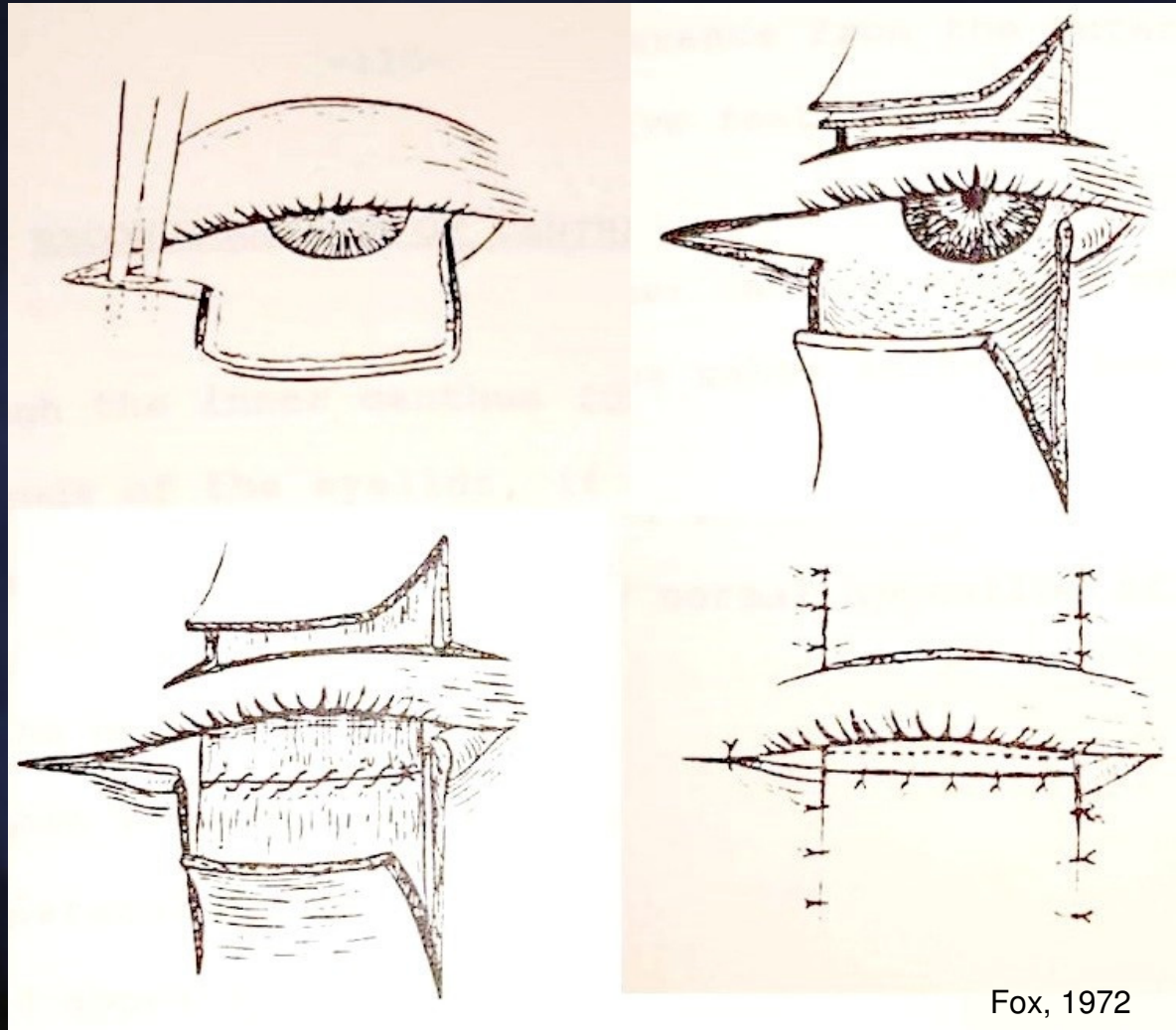


Dutton, 1992

# Mustarde Lid Switch



# Upper Lid Bridge Flap



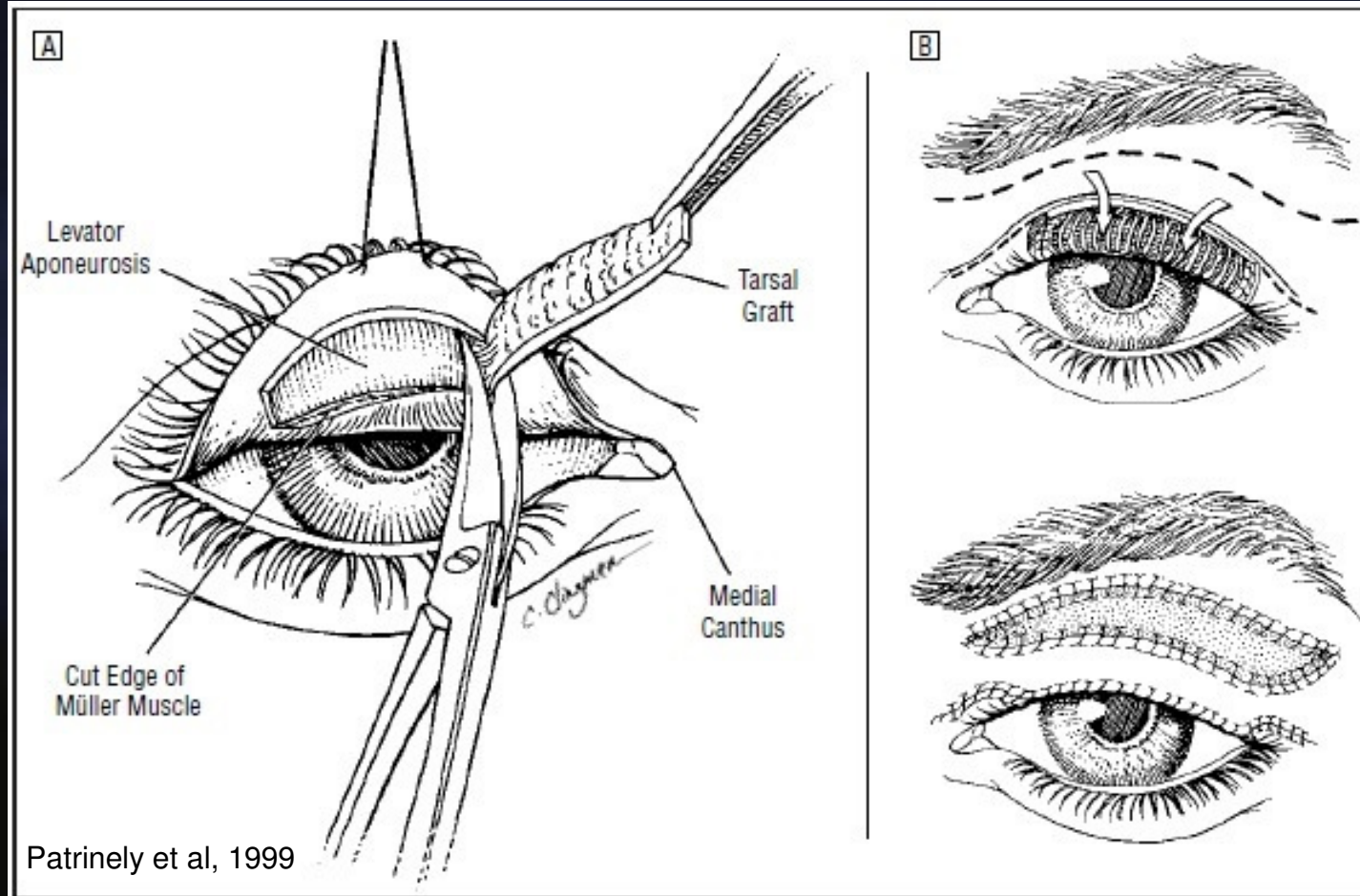
Fox, 1972



# Combination

## Total upper lid reconstruction

Contralateral Tarso-conjunctival Graft & Ipsilateral Bipedicle flap





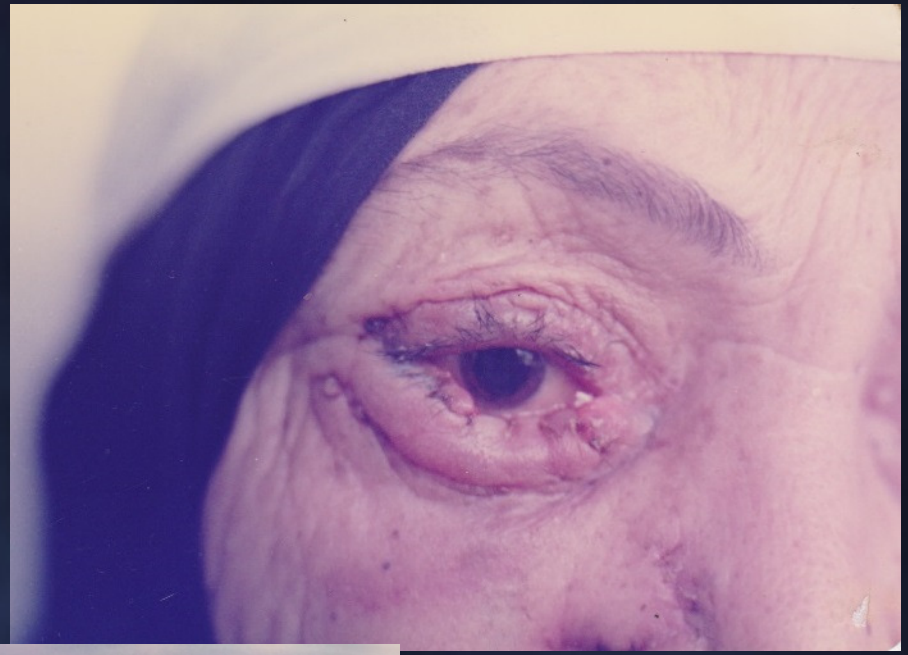
# Combination

Upper and lower lid reconstruction



Alghoul et al, 2013

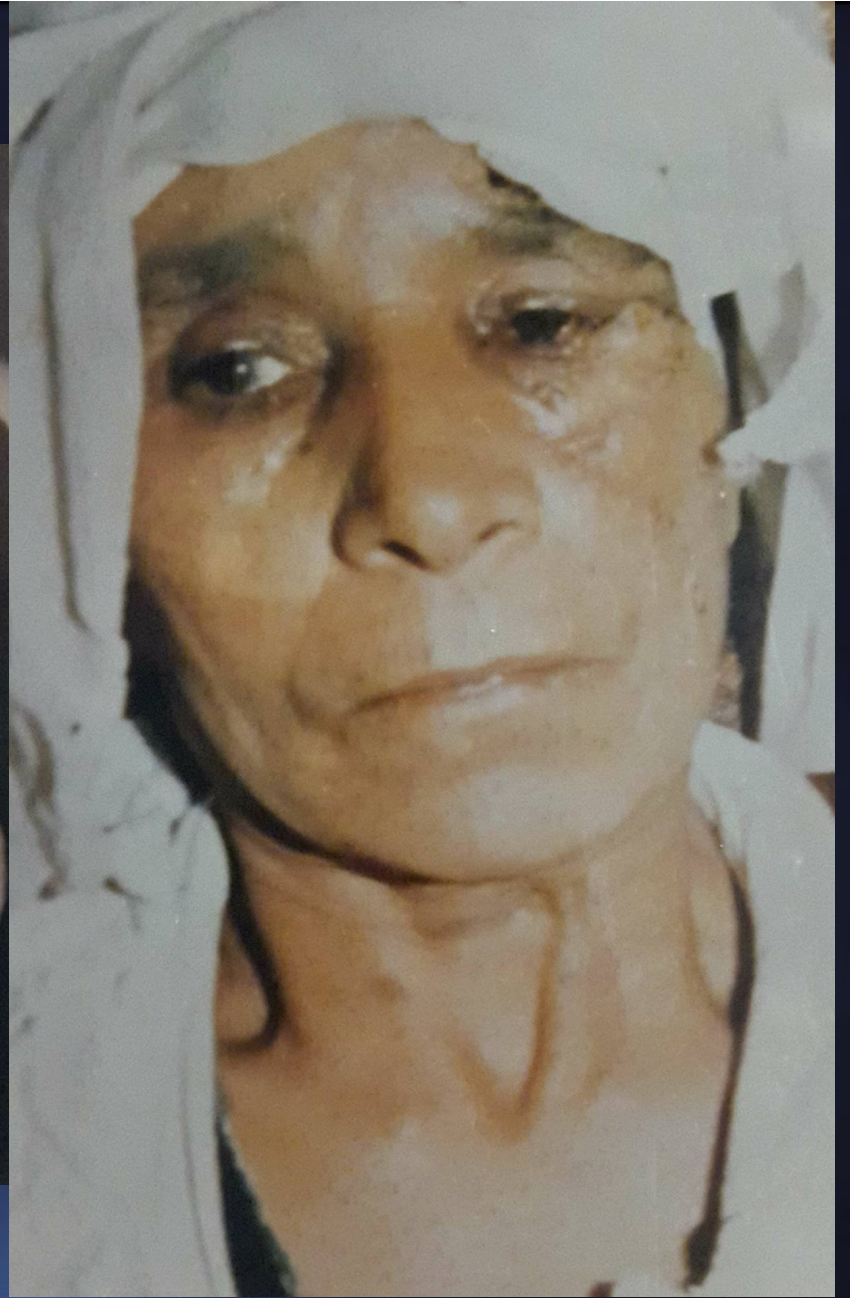
# Case Examples









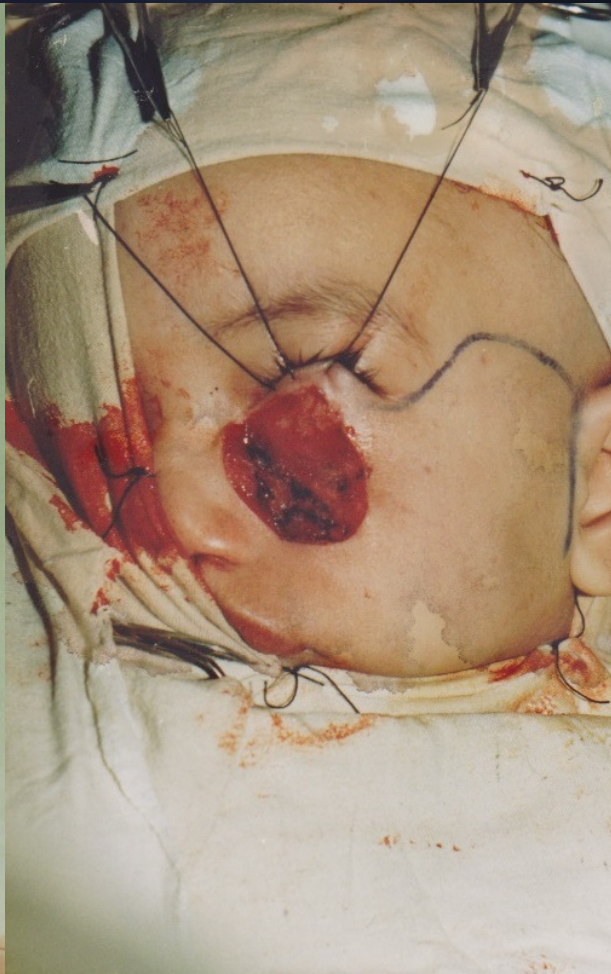






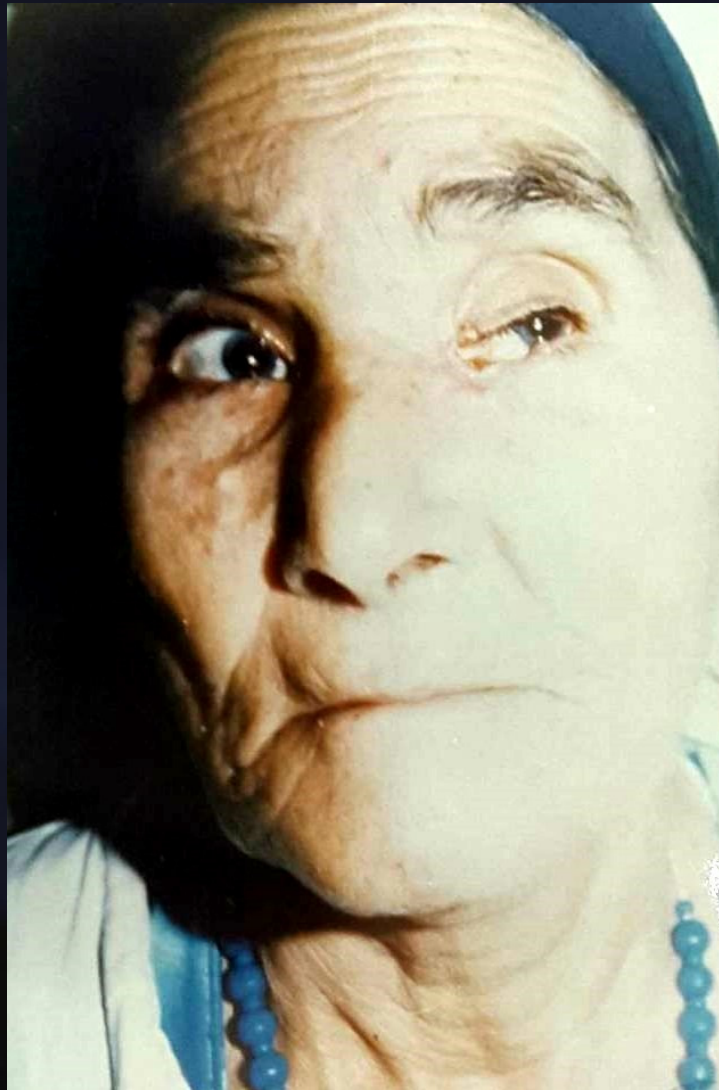
















# THANK YOU

