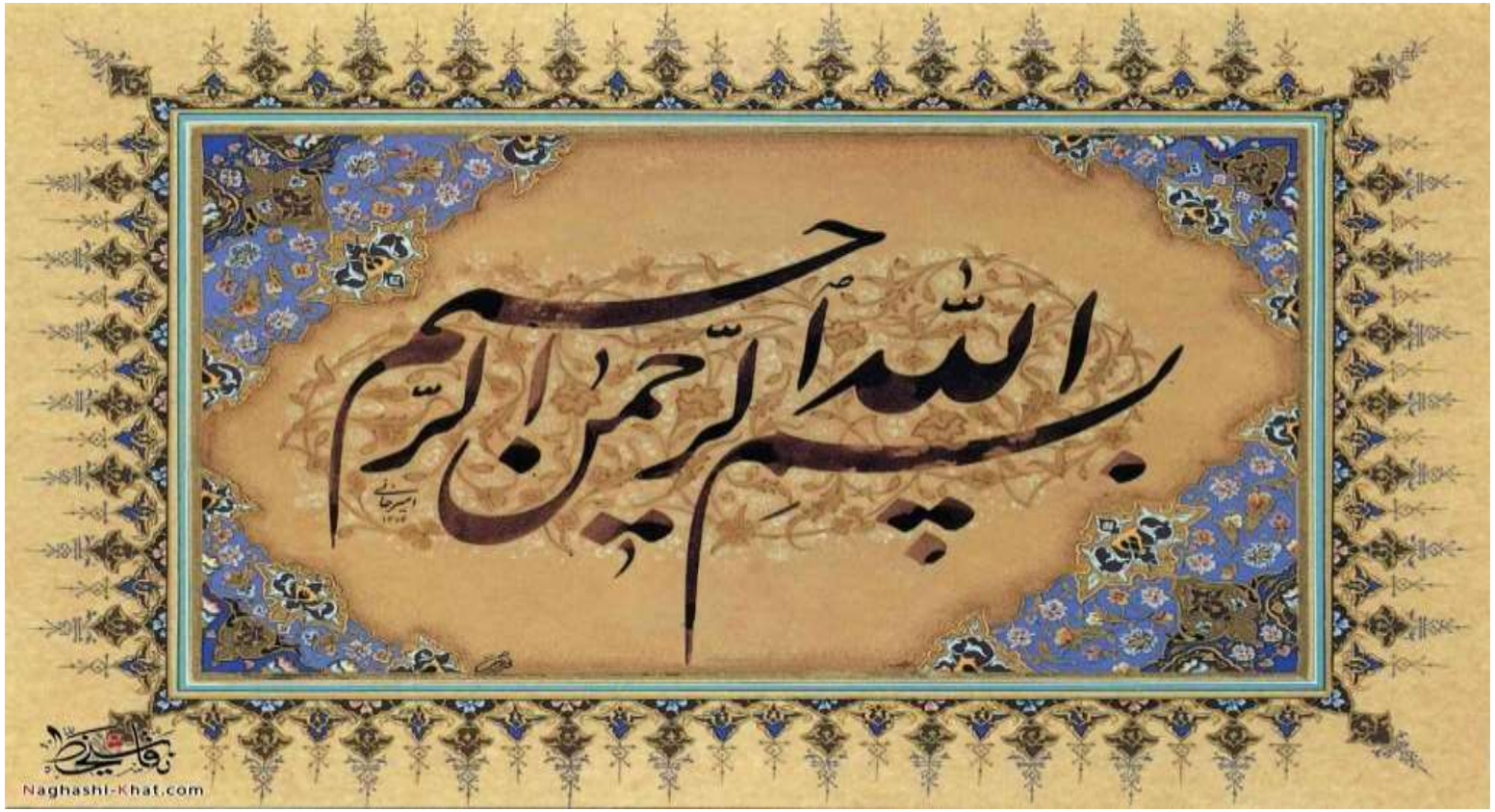
بسم الله الرحمن الرحیم
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Forehead Lift

by: Dr Tolouei

1401/2/29

Anatomy

Temporal crest

Deep Temporal Fascia[Periosteum]

Superficial Temporal Fascia[Galia]

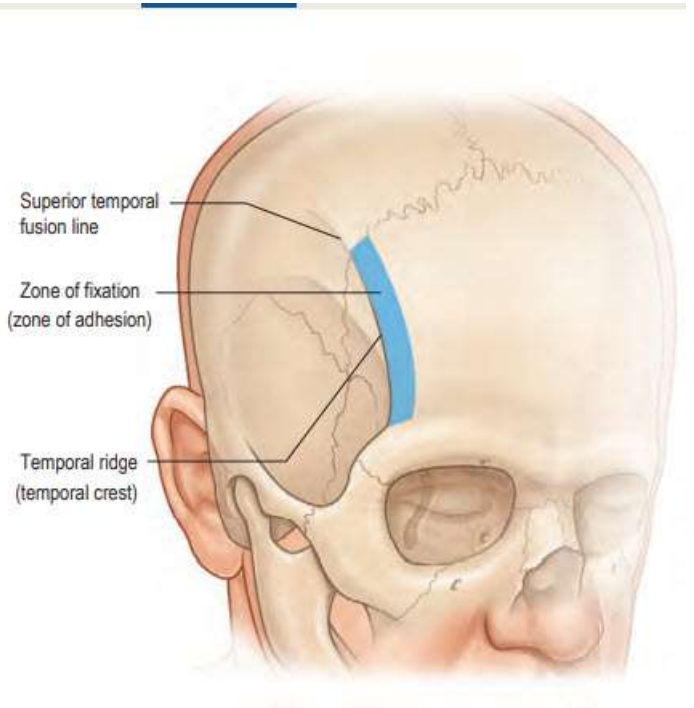
Zone of Fixation

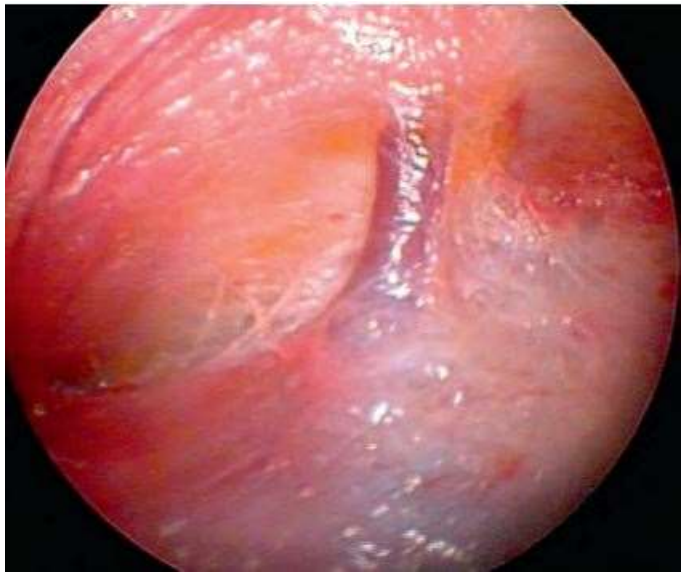
Orbital Ligament

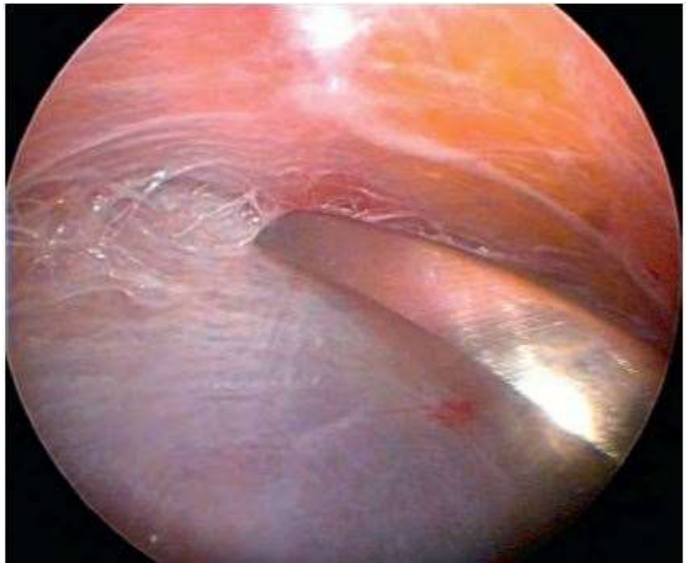
Inferior Temporal Ligament

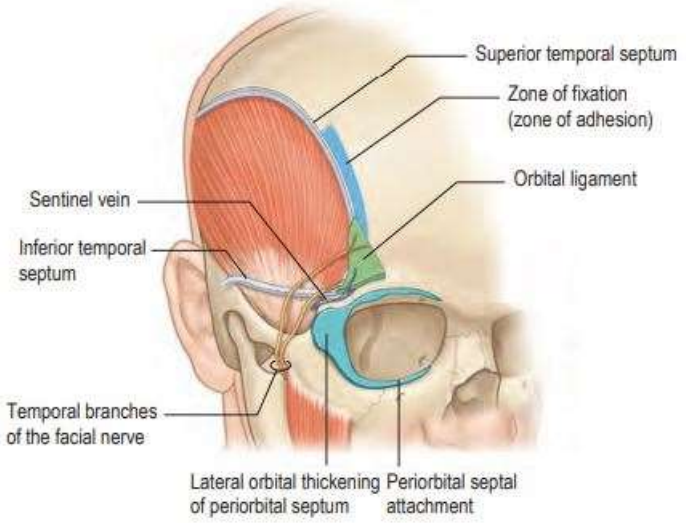
Temporal Branch of Facial Nerve

Sentinel Vein








Superior temporal septum
Zone of fixation
(zone of adhesion)
Orbital ligament
Sentinel vein
Inferior temporal
septum
Temporal branches
of the facial nerve
Lateral orbital thickening
of periorbital septum
Periorbital septal
attachment

Galea

In frontal split into Superficial and Deep

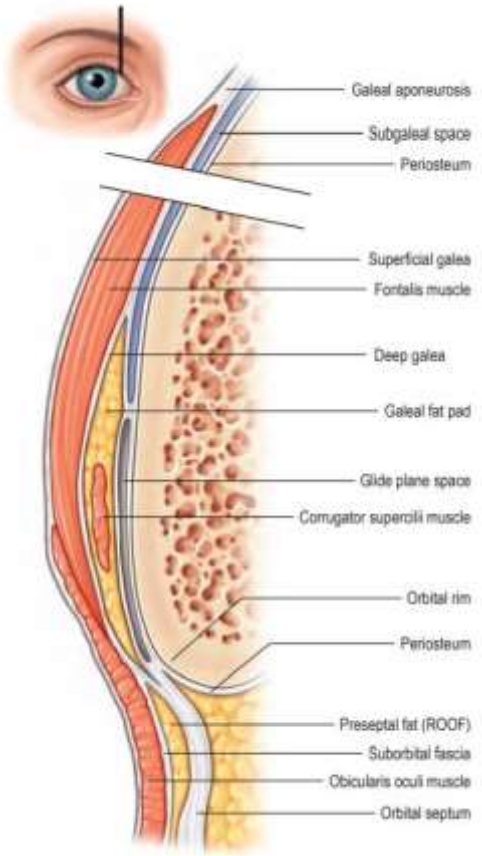
Inferiorly Deep Galea separate to 3 layers

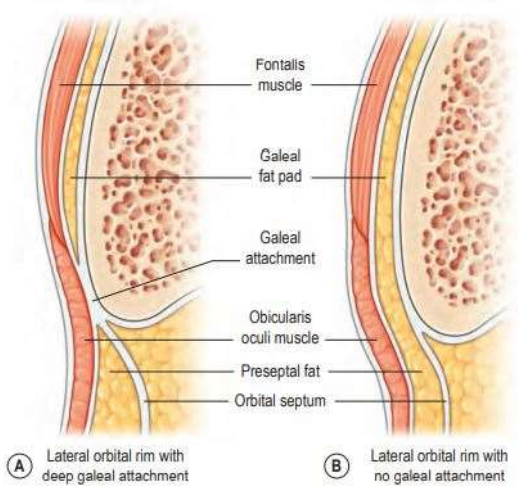
Glide plane space

Galeal fat pad

ROOF

Septum Orbitale in medial





Muscle

Eyebrow level

Brow Depressor:

Originate from bone medially inserting into soft tissue

Procerus

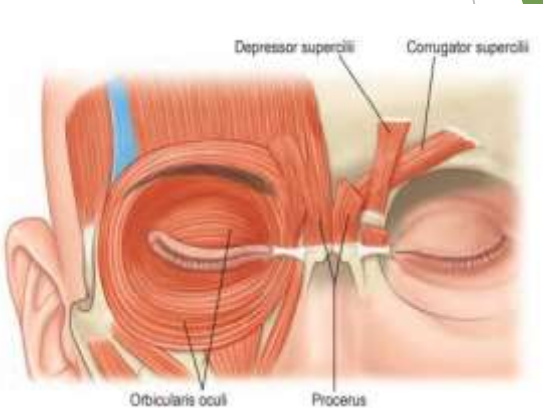
Depressor supercilii

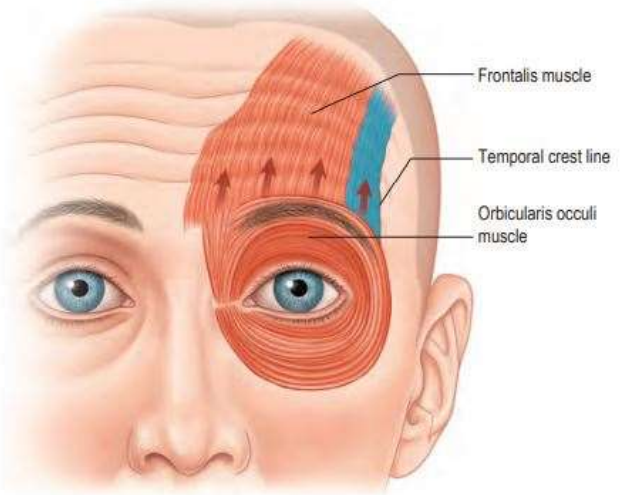
Corrugator

Orbicularis oculi[sphincter]

OO is only depressor brow muscle laterally

Frontalis [lateral deficiency]





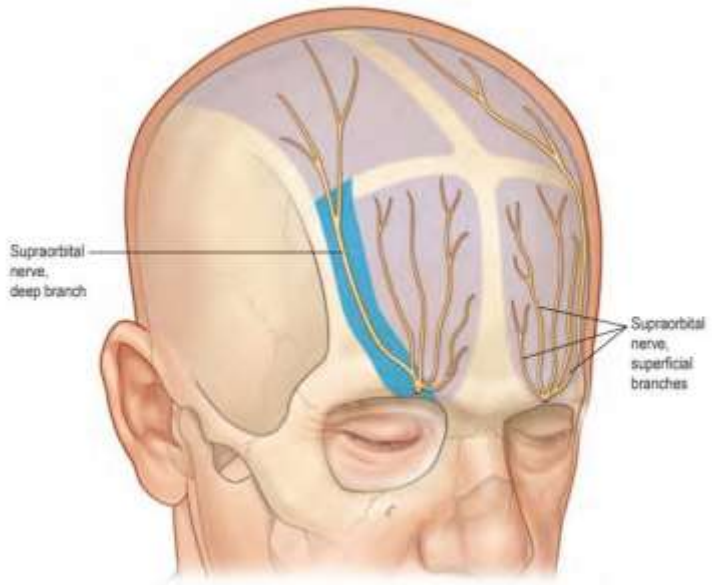
Sensory Nerves

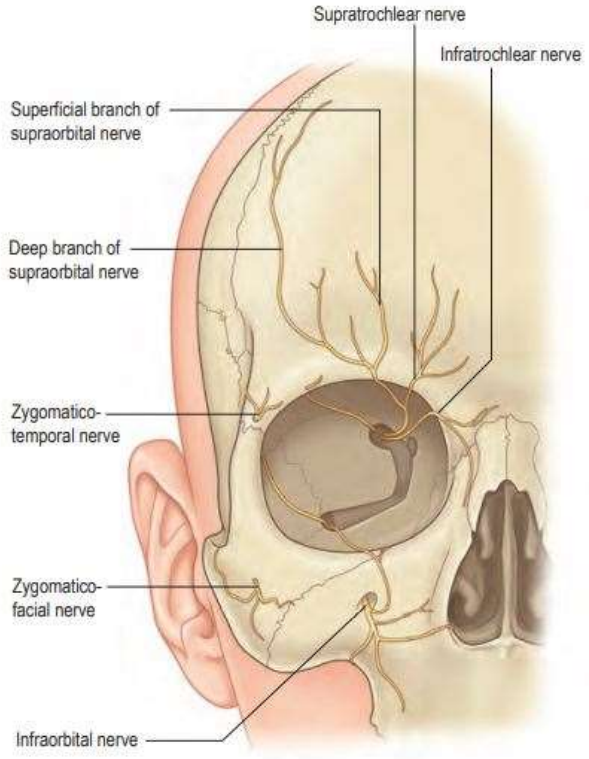
Infratrochlear

Zygomatocotemporal

Supratrochlear

Supraorbital





Motor Nerves

Temporal branch of facial nerve

2-4 fine branches

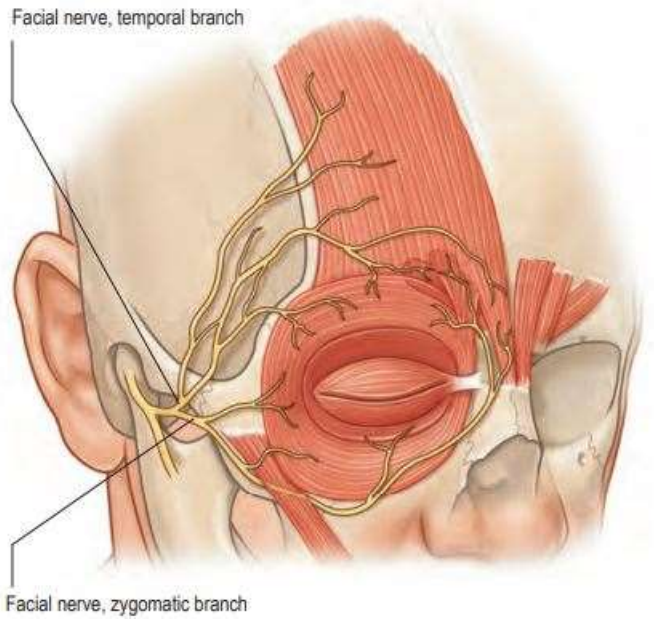
landmarks:

1.Middle third of palpable zygomatic arch

2.1.5cm lateral to tail of the eyebrow

3.Parallel and adjacent to inferior temporal septu

4.Immediately superior to sentinel vein



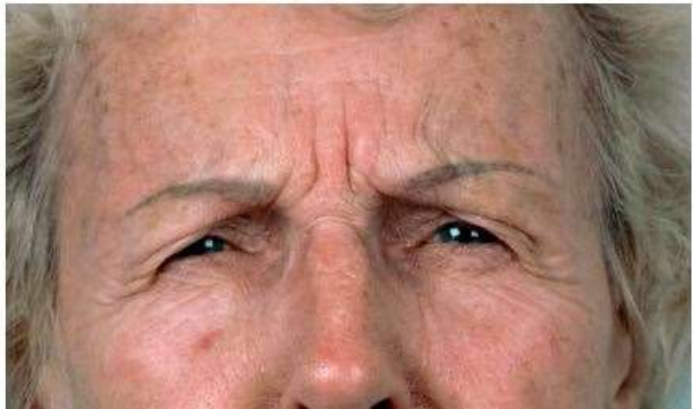
Forehead Aging

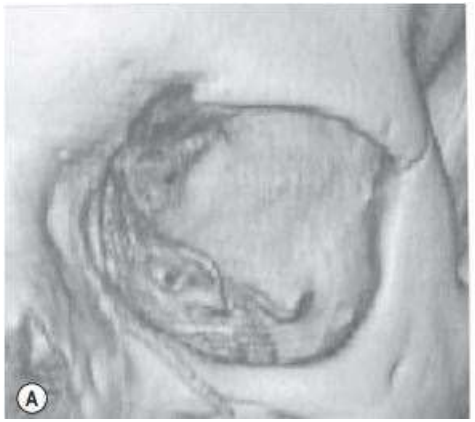
First:Furrows caused by repetitive action of underlying muscles

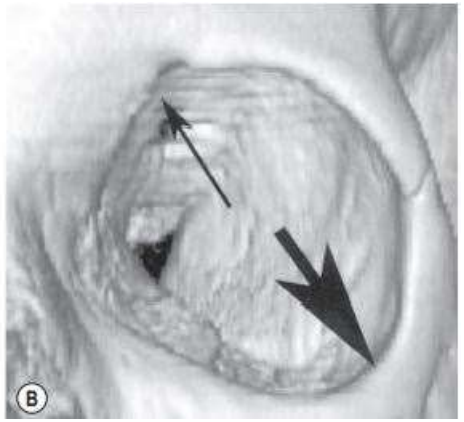
Second:ptosis of forehead/eyebrow complex

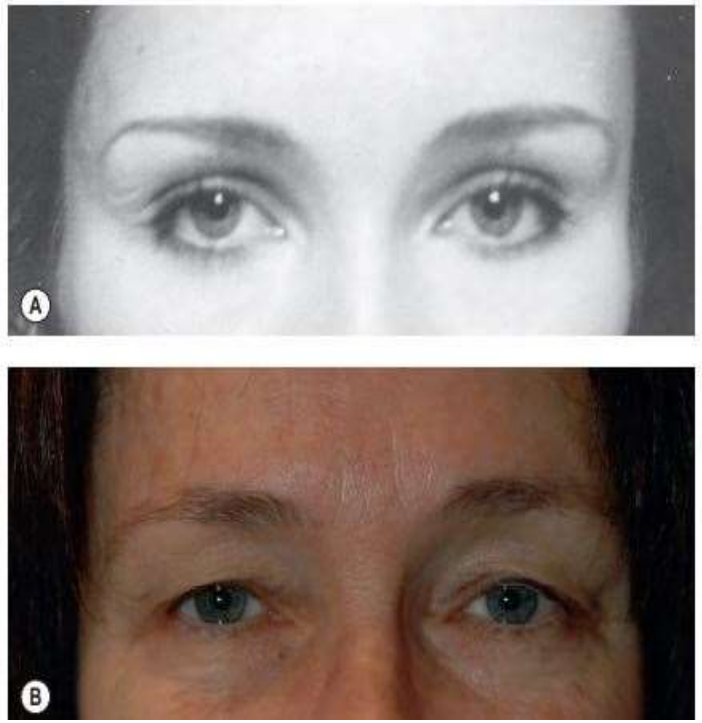
Pseudo-excess of upper eyelid skin

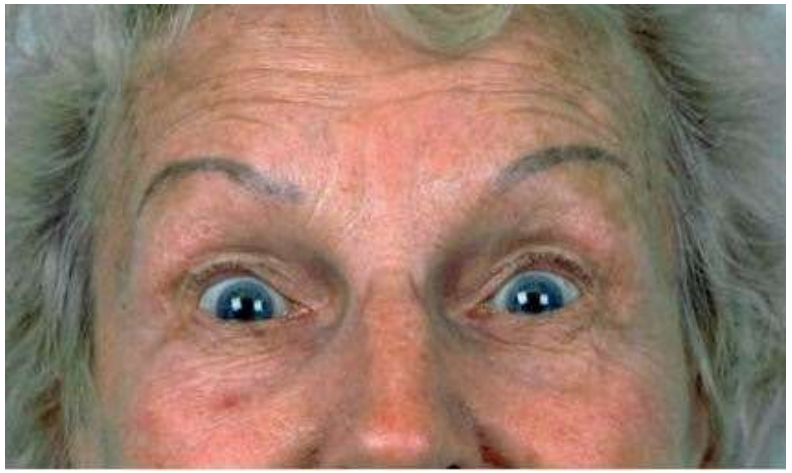
Central and medial eyebrow could rise over time








A
B



Aesthetics

Correct eyebrow position

Eyebrow height

Age:lateral downturn

Complex junction of upper eyelid and brow:

1.Eyelid shape and position

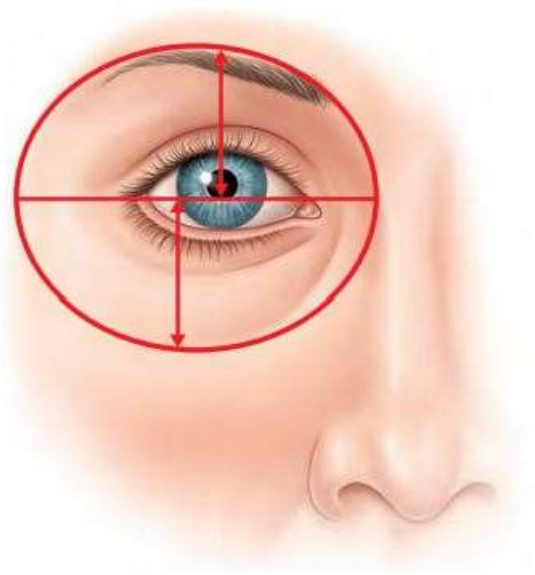
2.Fullness or hollowness of upper sulcus

3.Shape of orbit

Gunter:eyebrow and nasojugal fold create oval shape

Pupil

Vertical size and height

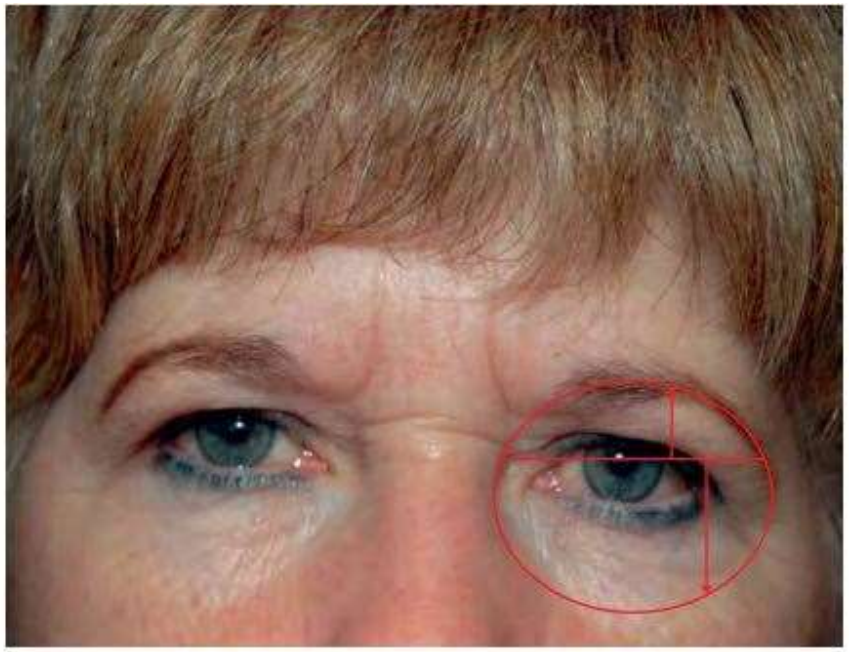


Distance from lashes to lower border of eyebrow:

1. Changing eyebrow height
2. Lid ptosis or retraction
3. Redundant upper eyelid soft tissue
4. Loss of upper sulcus fat

Individualization:

1. Gender
2. Ethinicity
3. Eye prominence
4. Facial proportion



Ideal eyebrow

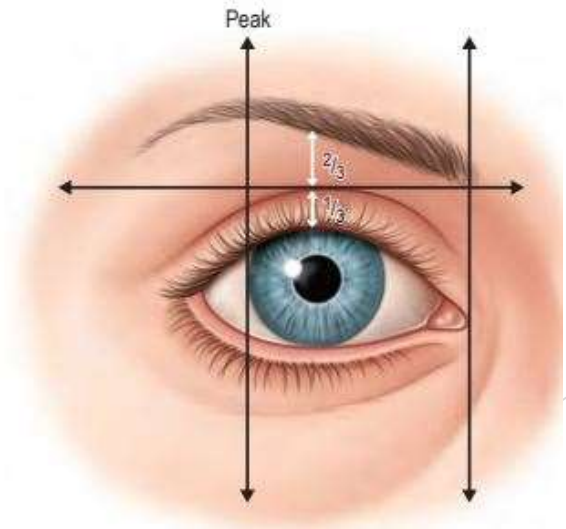
1.The Medial eyebrow level[should lie over the medial orbit rim

2.The medial border of the eyebrow should be vertically in line with the medial cantus

3.Eyebrow should be rise gently peaking slightly at least two-third of the way to its lateral end,vertically above the lateral cantus

4.Lateral tail of eyebrow should be higher than the medial end

5.The male brow should be lower and less peaked



Patient selection

Main component of every patient

Old photograph

Assessment in sitting or standing and head in vertical position

Visual acuity

Periorbital symmetry

Anterior hairline

Thickness of scalp hair

Transverse forehead lines

Glabellar frown lines

Thickness of eyebrow hair

Eyebrow height,axis and shape

Passive and active eyebrow mobility

Old scars and tattoos

Upper eyelid redundancy,hollowness

Lid level[ptosis or retraction]

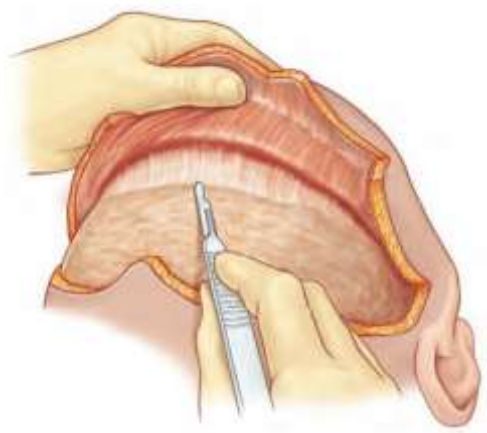
Exam with eyelid open and closed

Entire or only laterally lift

Frown muscle ablation

Surgical Techniques

OPEN CORONAL APPROACH



Gold standard

Advantages:

1.Unparalleled surgical exposure

2.Stable and long standing

Technique:incision6-8cm behind hairline in vertex to reduce numbness

Anterior incision:less dissection,better visibility and closer point of eyebrow traction

Ant flap:subperiosteal or more common subgaleal

Frown muscles:deep galeal surface,galeal fat pad

Leave some galeal attachment medially

Release of zone of fixation

Drawn flap superolaterally

Deeper fixation?

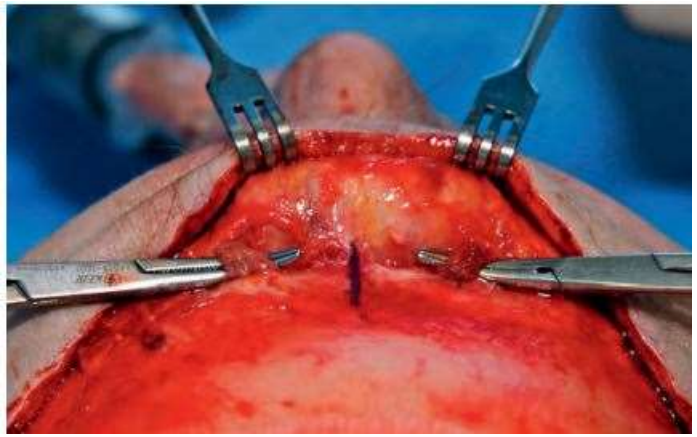
Disadvantages:

Numbness

Long scar

Hair follicles damage

dysesthesia



Anterior Hairline Approach

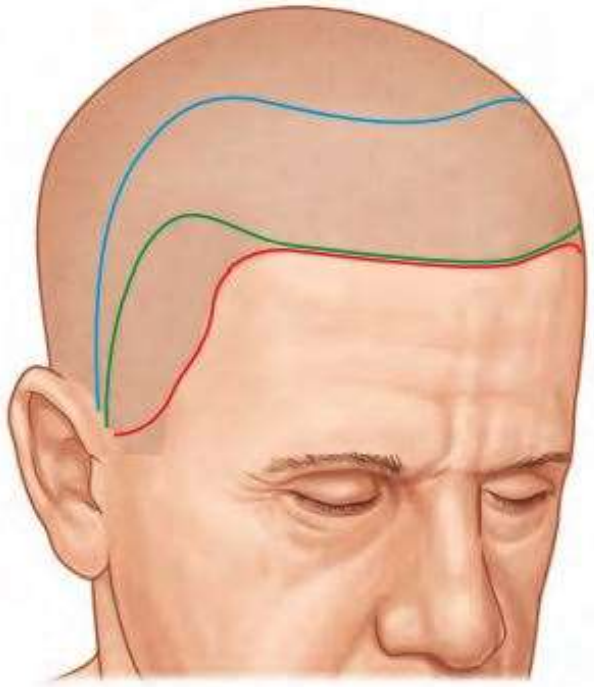
Along anterior hairline

Scar visibility:within hairline,beveling,slightly wavy line

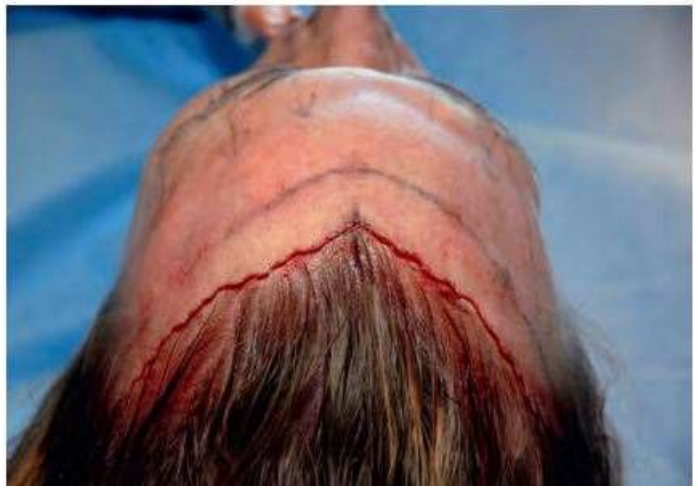
3 different dissection planes:subperiosteal,subgaleal,subcutaneous

Advantages:coronal approach+excellent surgical exposure

No moving anterior hairline posterior



Two uniques advantages:1.subcutaneous plane dissection
2.Lower excessively high anterior hairline or to lower overly high eyebrow[congenital or prior brow lift surgery]
Bony fixation?
Disadvantages:1.most important is permanent scar
2.Severescalp denervation 3.possible partial skin necrosis



Endoscopic Approach

Advantages:1.very good exposure

2.Magnification of the view

3.short, undetectable incisions

4,avoid numbness

Lateral:mechanical fixation ,not excision

Medial:passively brow lifting with

frown muscles ablation

3-5 small incisions

Medial dissection:subperiosteal or subgaleal first

blindly then near orbital rim with endoscopic control

Lateral dissection against DTF

Lateral orbital rim and supraorbital rim released

Dissection as far as lateral cantus for lateral brow elevation

Joined lateral to medial dissection

Glabellar muscle ablation [risk injury to sensory nerves]

Avoid excessive release of flap medially

Drawn forehead flap superolaterally

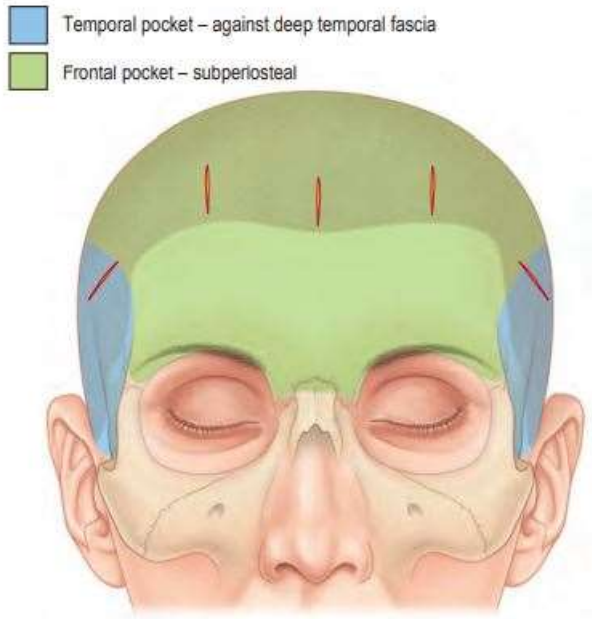
Appropiate customized vectors

Fixation:

1.not need

2.lateral:STF to DTF suturing

 medial:bony fixation



Disadvantages:

1.Technical demands

2.Overly elevating or separating of medial eyebrows

3.Nonadequate fixation

Temple Approach

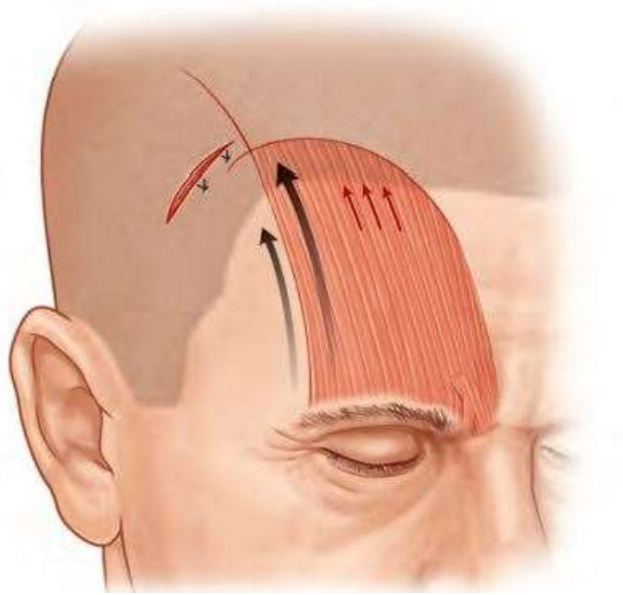
Fullthickness scalp incision

Lateral to temporal crest line

Dissection on DTF

Releasing lateral orbit and supraorbital rim and zone of fixation with endoscope

Fixation: suture between STF and DTF



Disadvantages;

1.Limited visibility of central and medial supraorbital rim

2.Oblique vector for lateral eyebrow

Transpalpebral approach-muscle modification

Blepharoplasty +muscle modification or ablation

Isolate elevation of lateral third of eyebrow

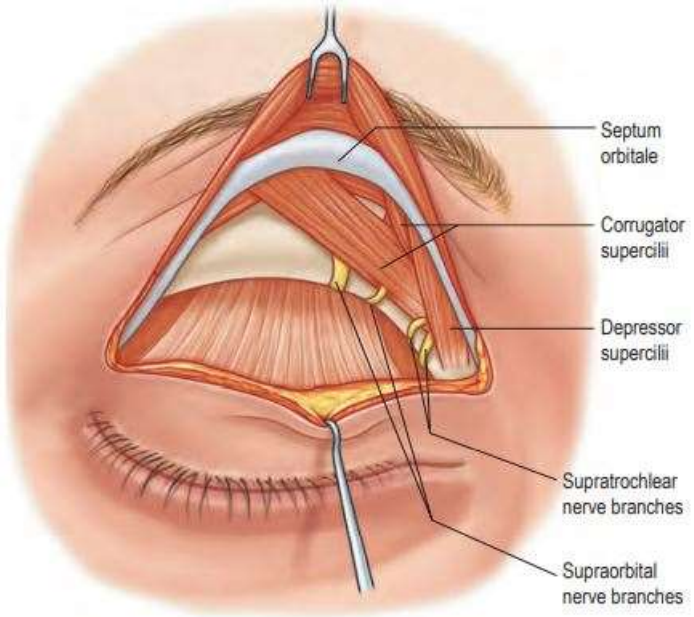
Advantages:

Hidden scar,two purposes

Disadvantages:

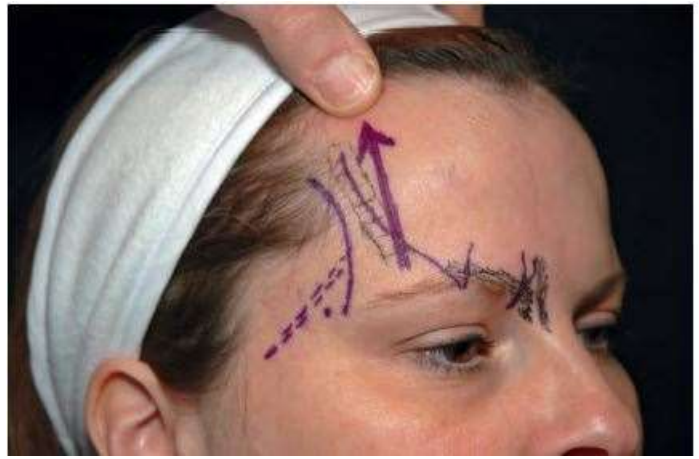
Sensory nerves damage

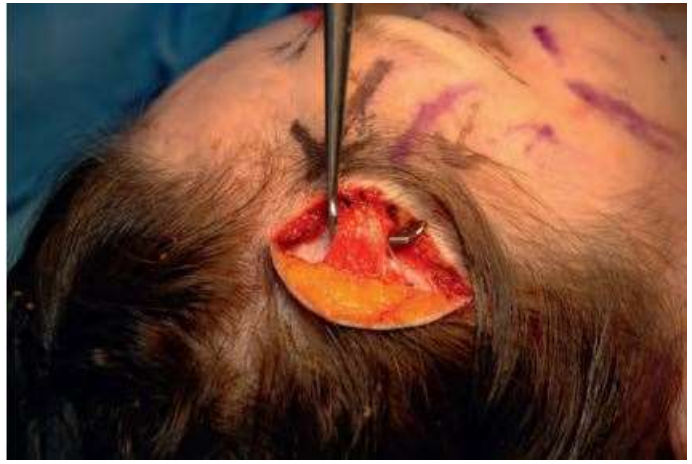
Increased bruising and edema



Lateral Brow Approach

More medial incision based on most effective vector





Direct Suprabrow Approach

Eyebrow is cutaneous structure

Simple

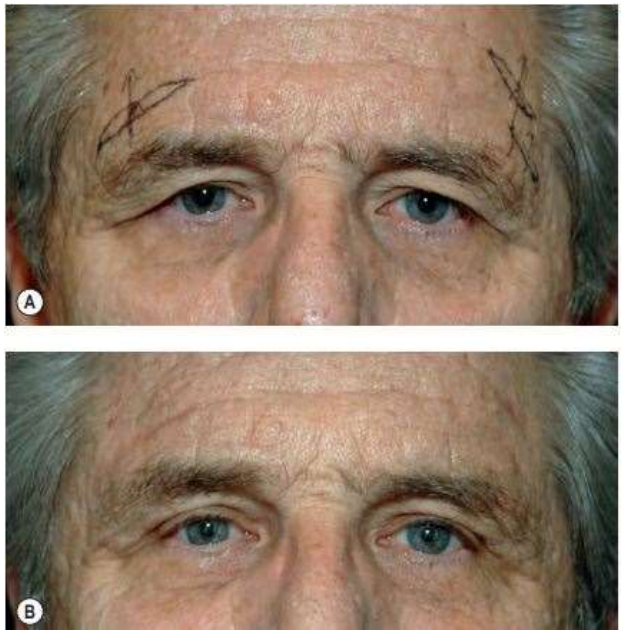
Fullthickness skin excision

Along upper margin or deep forehead creases

1:1 skin removal and elevation

50%relapse

Closer to eyebrow reduce relapse



Advantages:easy,well tolerated,not nerve injury,predictable result

Disadvantages:visible scar, recurrent

Good candidate:old man, deep crease,thick eyebrow

Easily can repeated

Transpalpebral browpexy

Suture suspension browpexy

Postoperative care

Head elevation

Cold packs

Analgesics

Topical ointment

In more extensive procedures:

Dressing

Drins for 24 h

Nerve block: decrease postop headache

Shower after 2 days ,suture removal after7-10 days

Bottox to prevent relapse of lateral brow ptosis

outcomes

Type of deformity,type of procedures and quality of its

Lesser procedures:lesser results

Simultaneous procedures:

Blepharoplasty

Fat grafting

Eyelid ptosis repair

Medial[surprised] and lateral[angry]overly brow are undesirable and difficult to correct

complications

Scar alopecia[incision,cautery,tension if permanent:simple scar excision or fat grafting

Hematoma:uncommon rarely need drainage

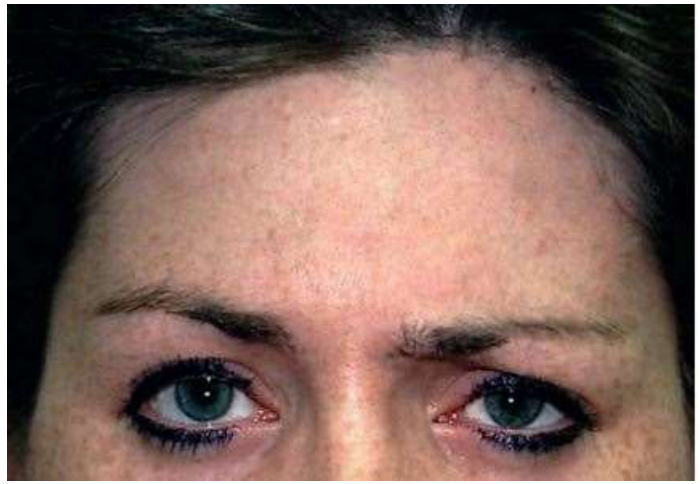
Infection:rare [wound care +antibiotics]

Contour deformity:due to muscle excision[fill with fat or temporal fascia]

Nerve damage:common,normal sensation will likely returned over time

Temporary neuropraxia in muscle ablation

Motor nerve:temporal nerve of facial nerve, permanent damage is rare



Secondary procedures

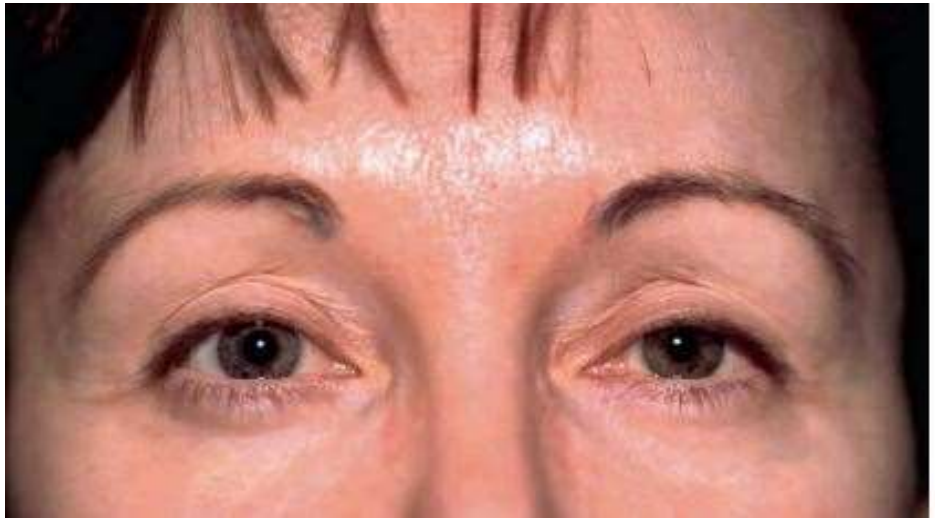
Most reason for revision:correct aesthetic deformity

Upper blepharoplasty or repeat brow lift with different techniques and different planes and different fixation methods

Common:elevated mdial brow if minimal injection of bottox in central frontalis

if severe:surgically lowered

Nerve palsy;bottox in opposite side or repeat brow lift in affected side



Thank you