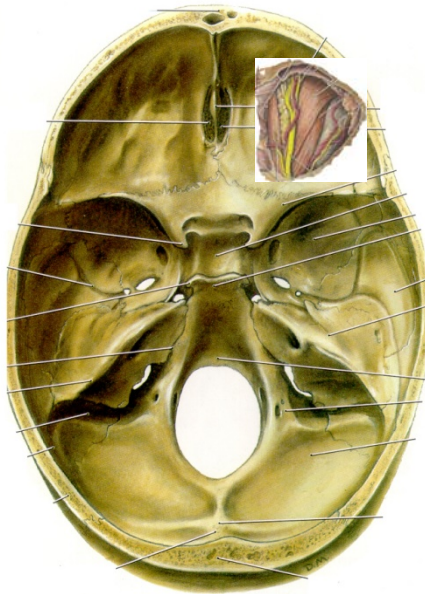


**ORIENTATION/INSTRUCTIONS TO
ORBIT DISSECTION
2022**

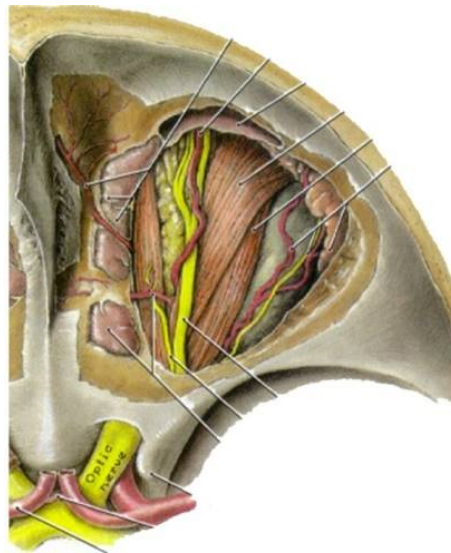
ORBIT DISSECTION: OVERVIEW

APPROACH (BOTH SIDES)



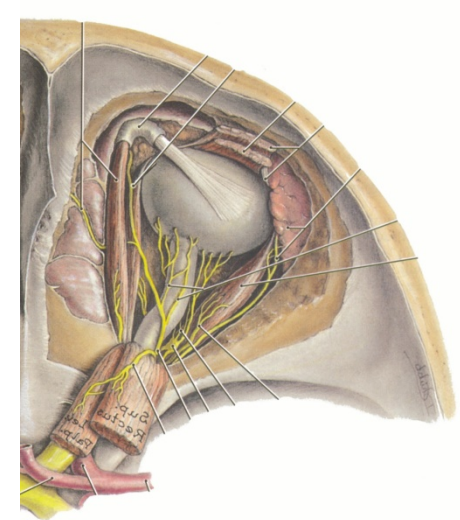
REMOVE BONE
OF ROOF OF
ORBIT

SUPERFICIAL DISSECTION



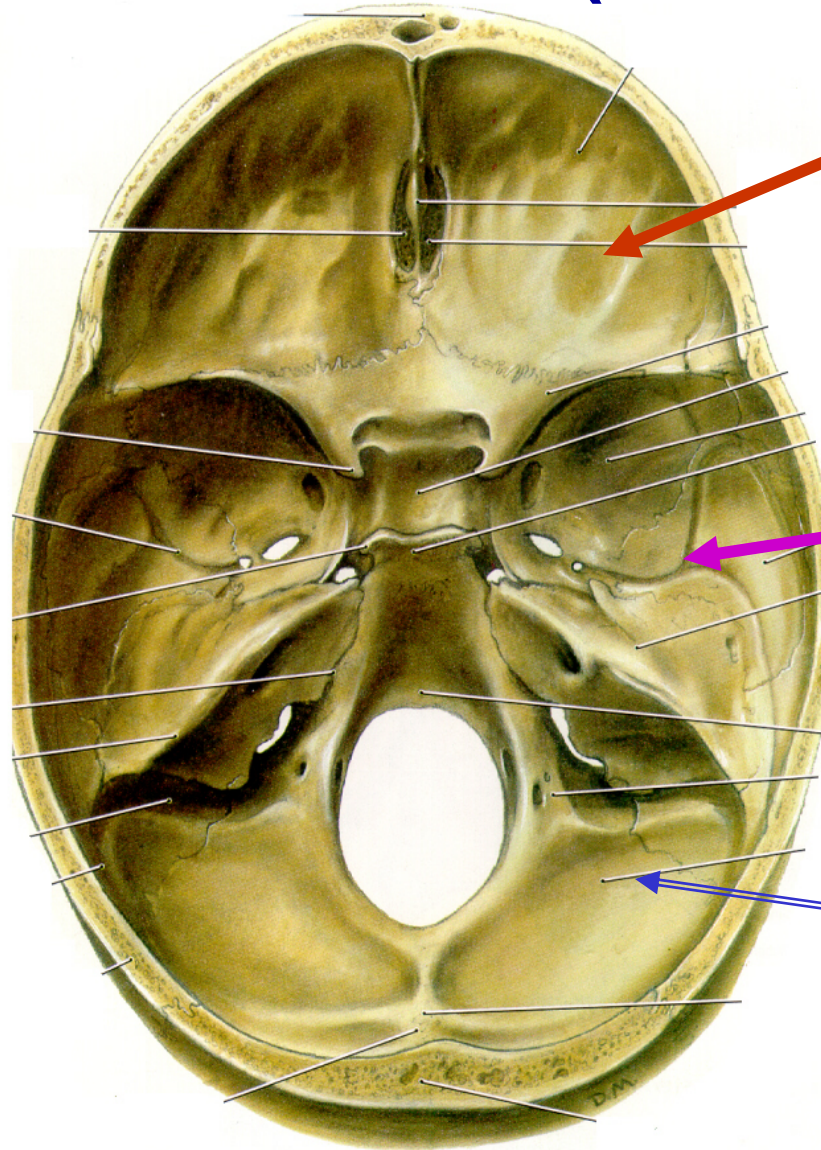
SEE
LEVATOR
PALPEBRAE
SUPERIORIS,
EYE MUSCLE

DEEP DISSECTION



CUT
LEVATOR PALPEBRAE,
SUPERIOR RECTUS
SEE OPTIC NERVE,
CILIARY GANGLION,
ETC.

CRANIAL CAVITY- DIVIDED INTO DEPRESSIONS (FOSSAE)



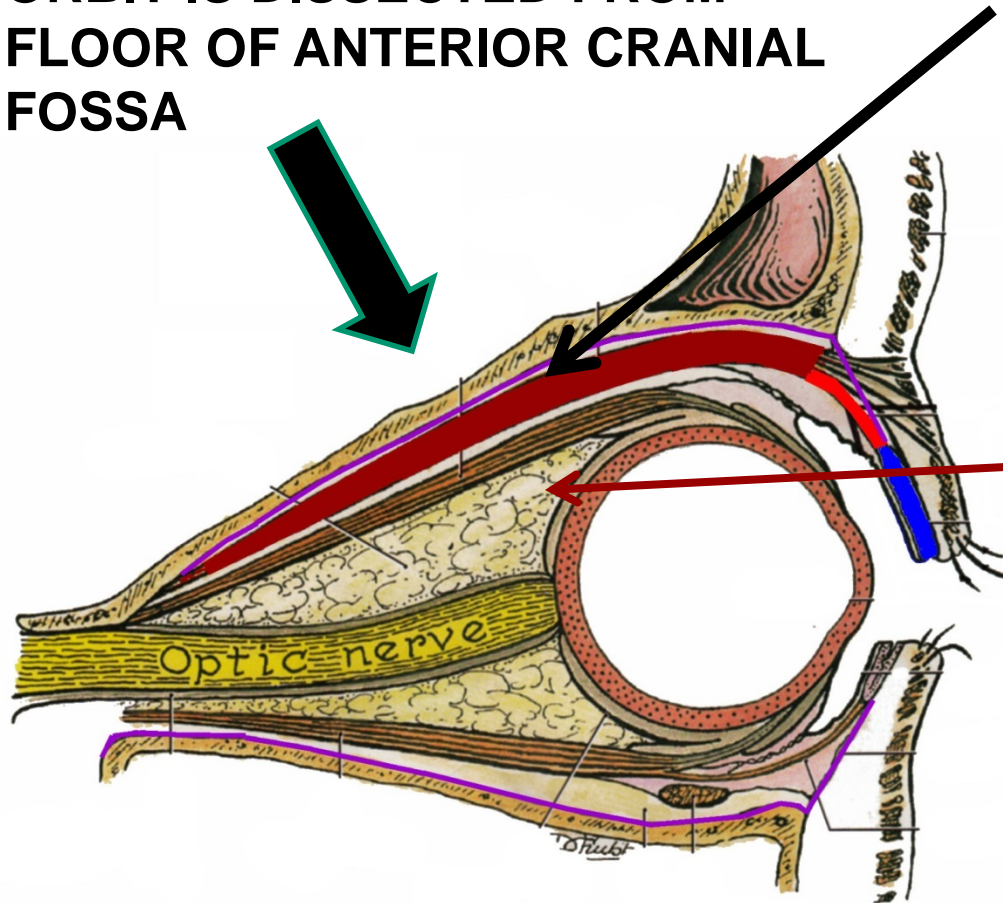
ANTERIOR CRANIAL FOSSA (ROOF OF NASAL CAVITY, ORBIT)

MIDDLE CRANIAL FOSSA (ORBIT, NASAL CAVITY, FACE)

POSTERIOR CRANIAL FOSSA (FACE, ORAL CAVITY, NECK)

GUIDE TO ORBIT DISSECTION

ORBIT IS DISSECTED FROM FLOOR OF ANTERIOR CRANIAL FOSSA



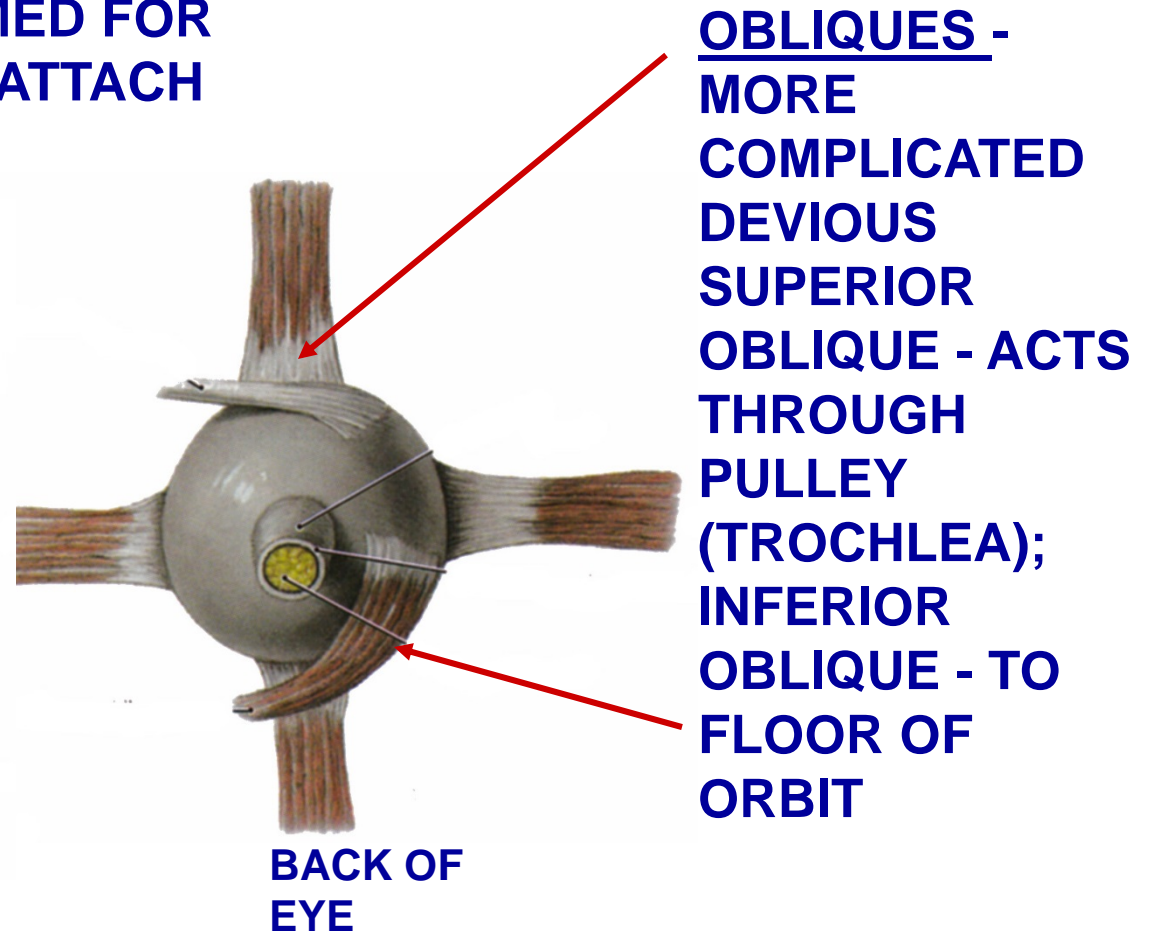
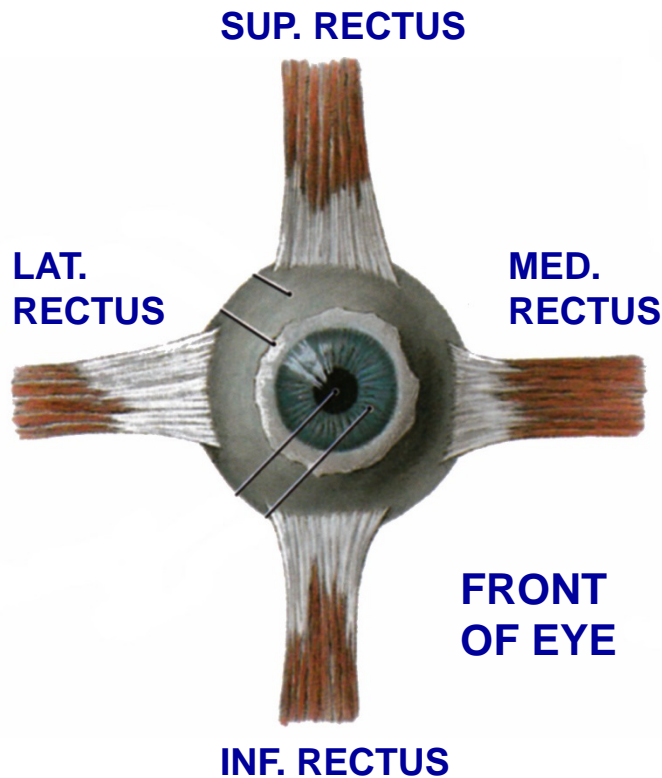
SUPERFICIAL DISSECTION - remove bone, periorbita (periosteum of bone of orbit), fat; shows structures leaving orbit (V1 branches to face); also muscle of upper eyelid (Lev.Palp.Sup.) , Lacrimal gland

DEEP DISSECTION - reflect Lev. Palp. Sup., Superior Rectus Muscles; see Optic Nerve, structures entering back of eye (Ciliary ganglion); also V1 branches to nasal cavity

V. EXTRAOCULAR MUSCLES

- VOLUNTARY SKELETAL MUSCLES WHICH MOVE EYEBALL

RECTI = STRAIGHT, NAMED FOR SIDES ON WHICH THEY ATTACH

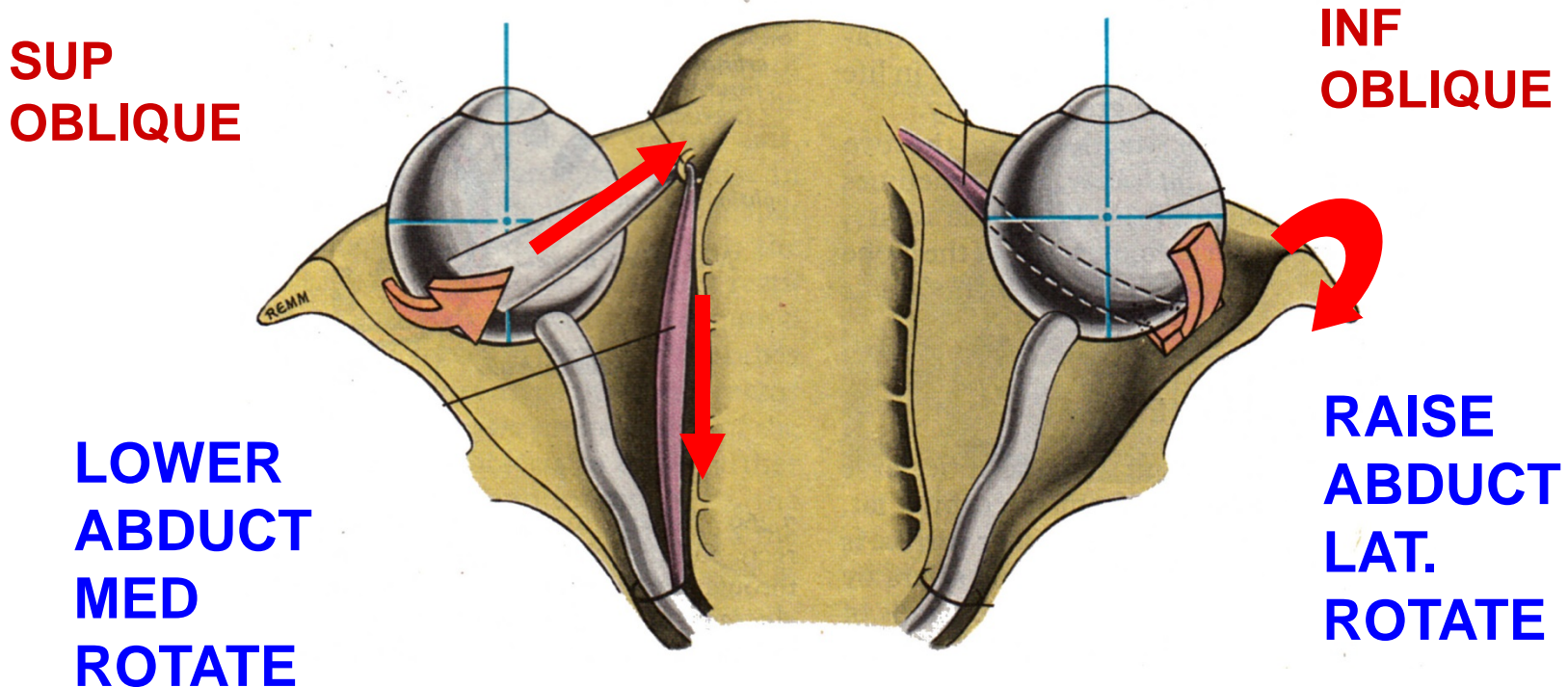


EYE MOVEMENTS

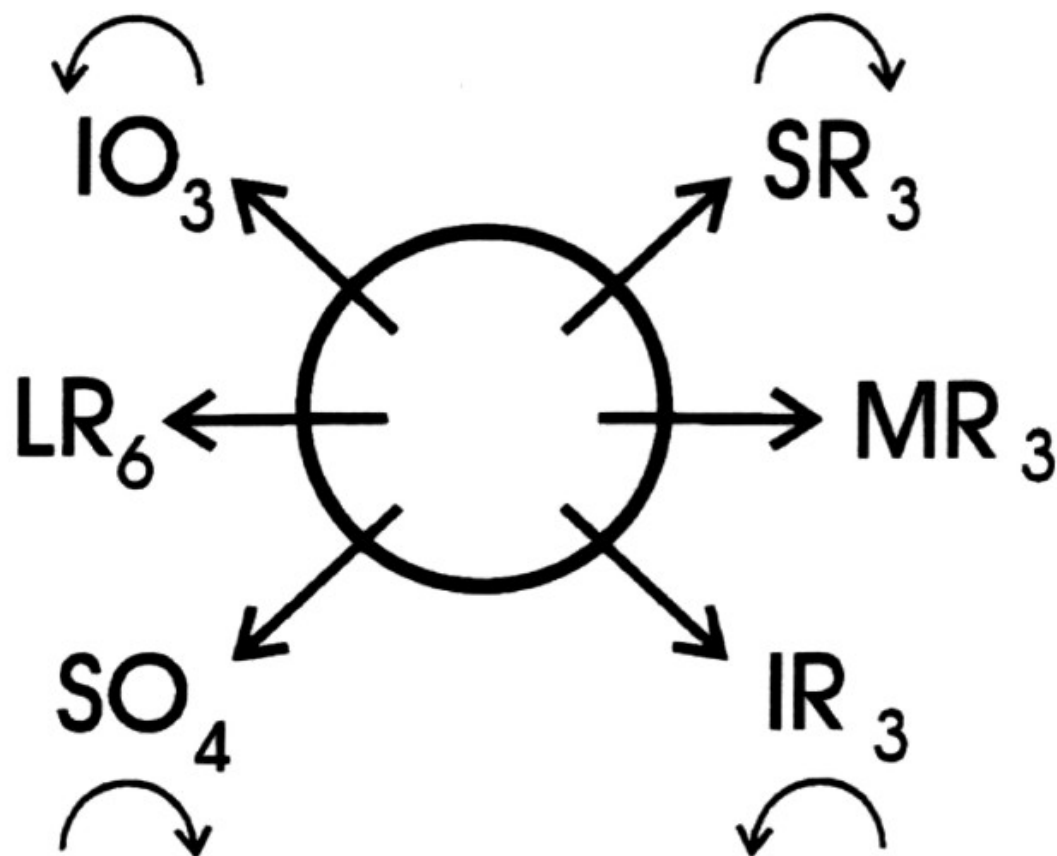
ACTION OF OBLIQUE MUSCLES COMPLEX (COUNTERINTUITIVE)

SUP OBLIQUE (IV) - ACTS THROUGH PULLEY (TROCHLEA) LIKE MUSCLE ON NOSE

INF OBLIQUE (III) - ORIGIN FROM FLOOR OF ORBIT- LIKE MUSCLE ON EAR



EYE MOVEMENTS DIAGRAM

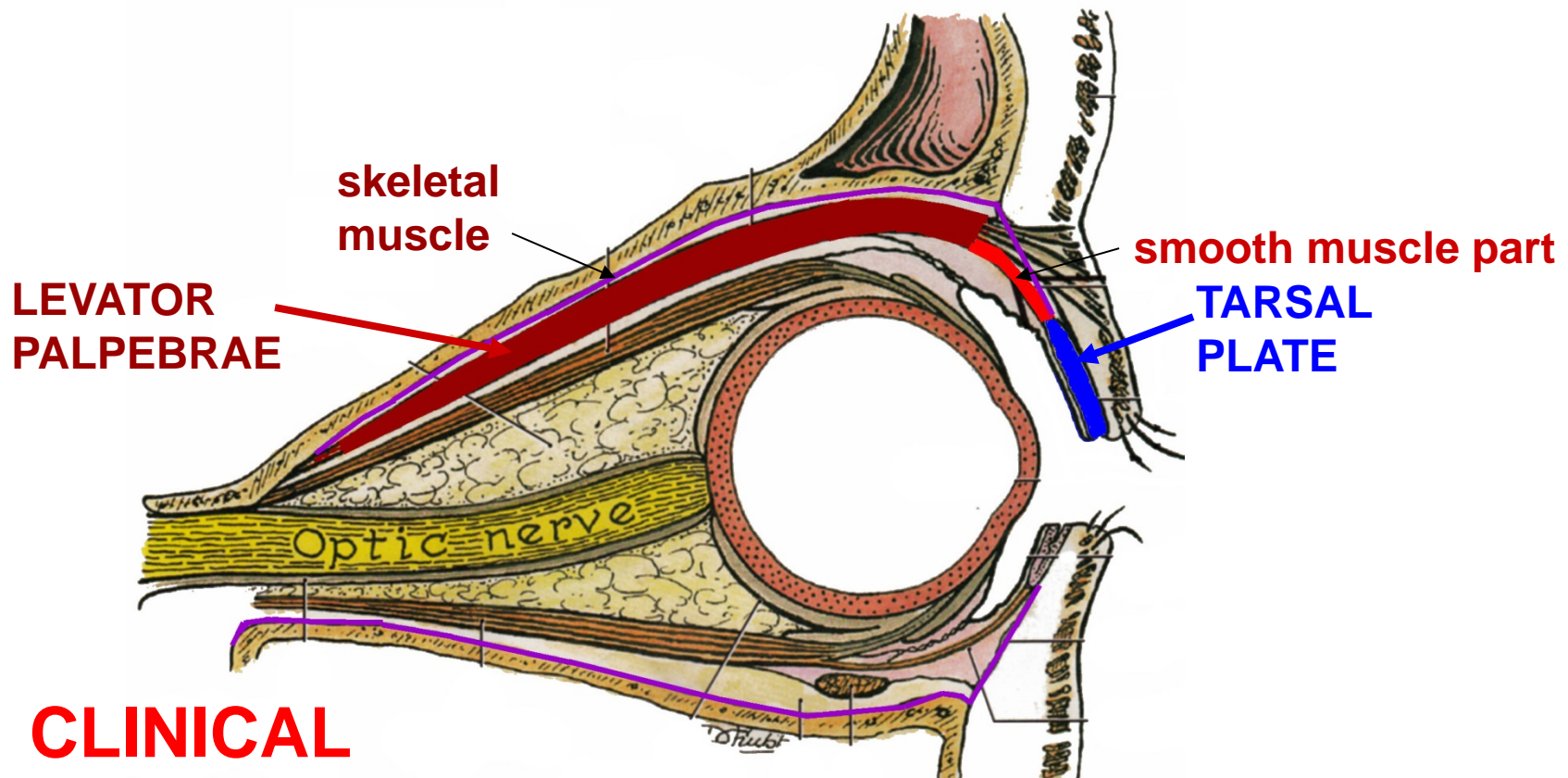


NOSE



- 1- Resting position of eye depends upon tonic activities in muscles.
- 2- Damage to any one muscle does not entirely eliminate abduction, adduction, elevation or depression; only get weakness.

LEVATOR PALPEBRAE SUPERIORIS

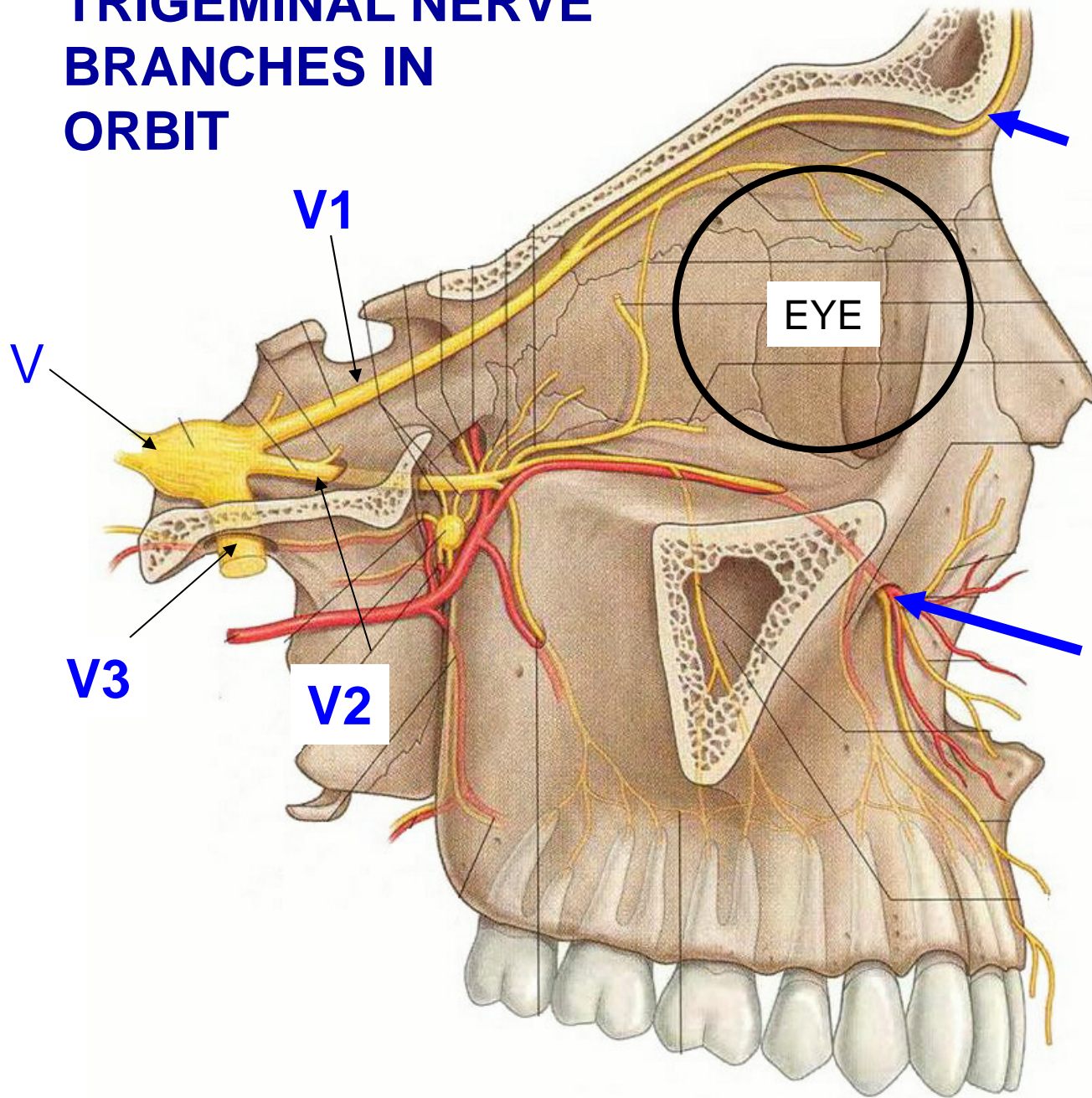


CLINICAL

LEVATOR PALPEBRAE SUPERIORIS MUSCLE - ORIGIN FROM TENDINOUS RING - COMPOSED OF SKELETAL (CN III) AND **SMOOTH (SYMPATHETICS)** MUSCLE PARTS - damage either part:
EYELID DROOP = PTOSIS * *

DIFFERENTIAL DIAGNOSIS: DAMAGE III, PUPIL DILATED, DAMAGE SYMPATHETICS, PUPIL CONSTRICTED

TRIGEMINAL NERVE BRANCHES IN ORBIT



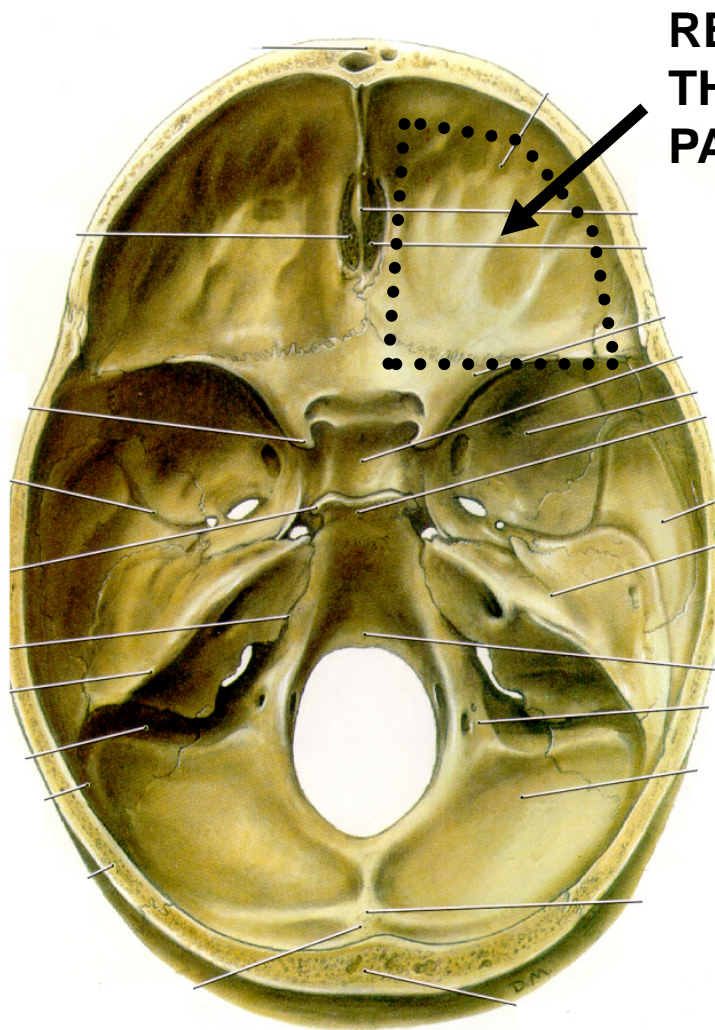
**SUPRAORBITAL
NERVE (V1) -
below roof
of orbit**

**INFRAORBITAL
NERVE (V2) -
on
floor of orbit**

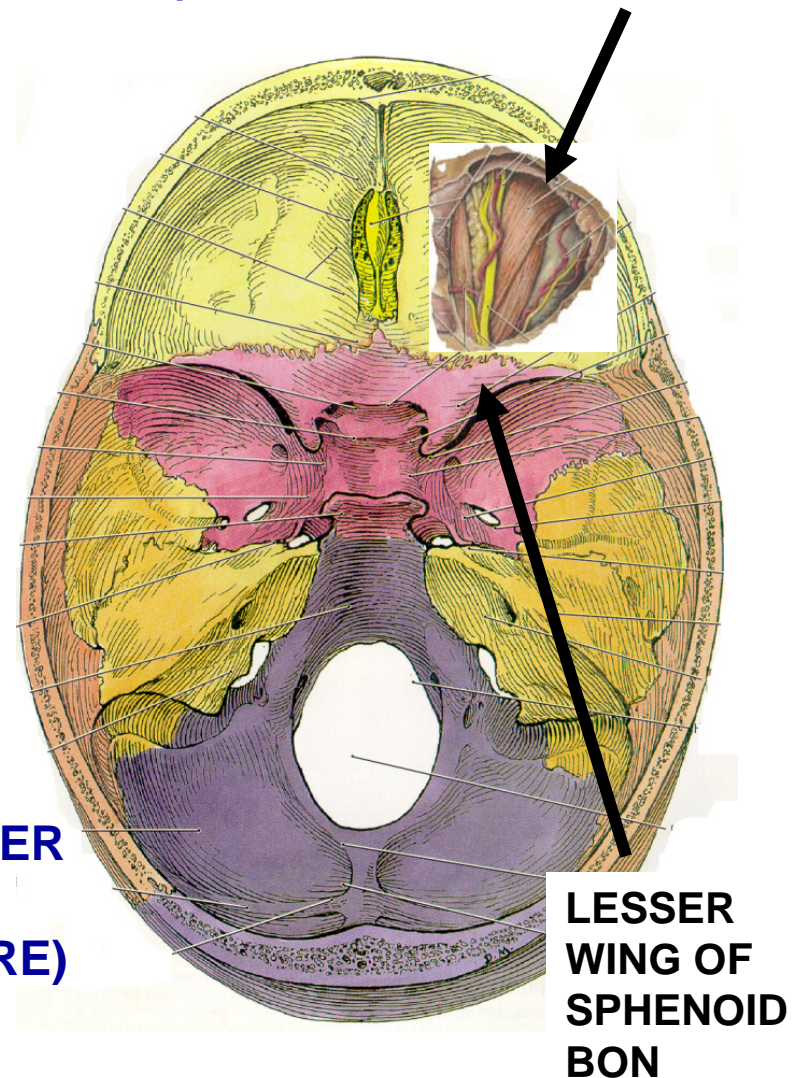
GUIDE TO ORBIT DISSECTION

1. REMOVE FRONTAL BONE OVERLYING ORBIT -
 - 1) Crack bone with chisel and hammer
 - 2) Piece out bone with bone cutters (wire cutters)

AFTER REMOVAL
LOOK INTO ORBIT
FROM ABOVE

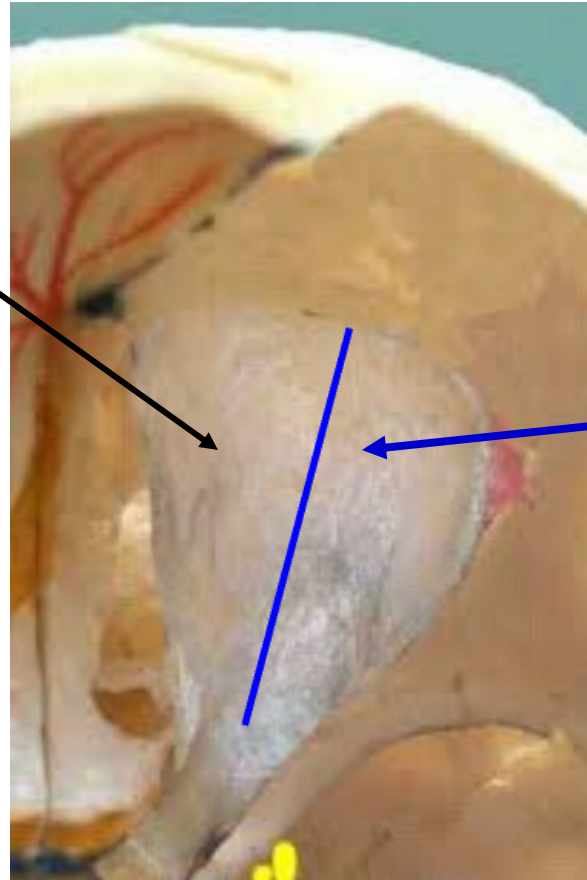


2. REMOVE
LESSER
WING OF
SPHENOID
BONE (PART OVER
SUPERIOR
ORBITAL FISSURE)



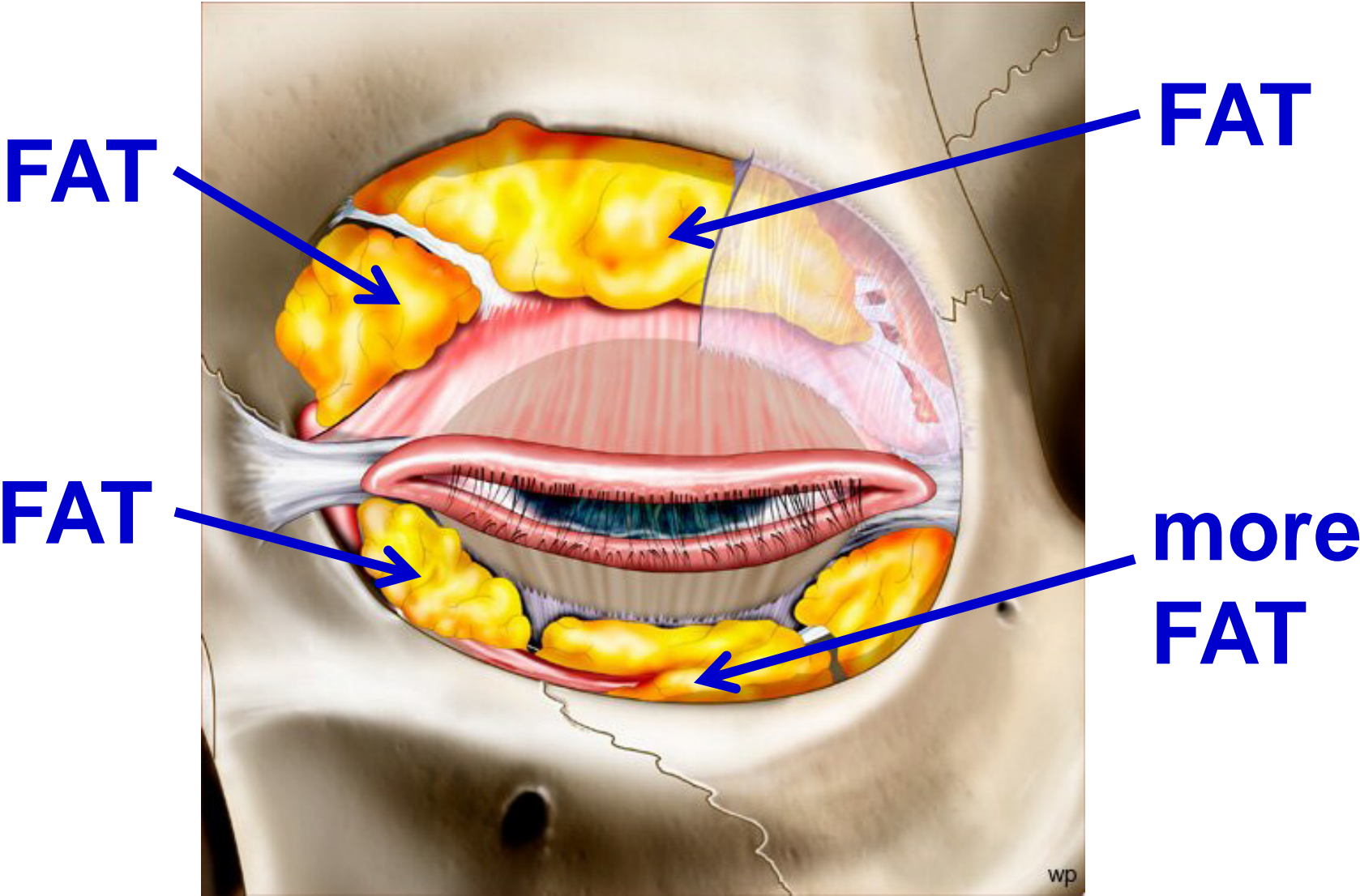
2- REMOVE PERIOSTEUM LINING ORBIT (PERIORBITA) – Incise white connective tissue layer in midline and cut away from underlying structures. Should now see muscles and nerves surrounded by fat.

PERIORBITA

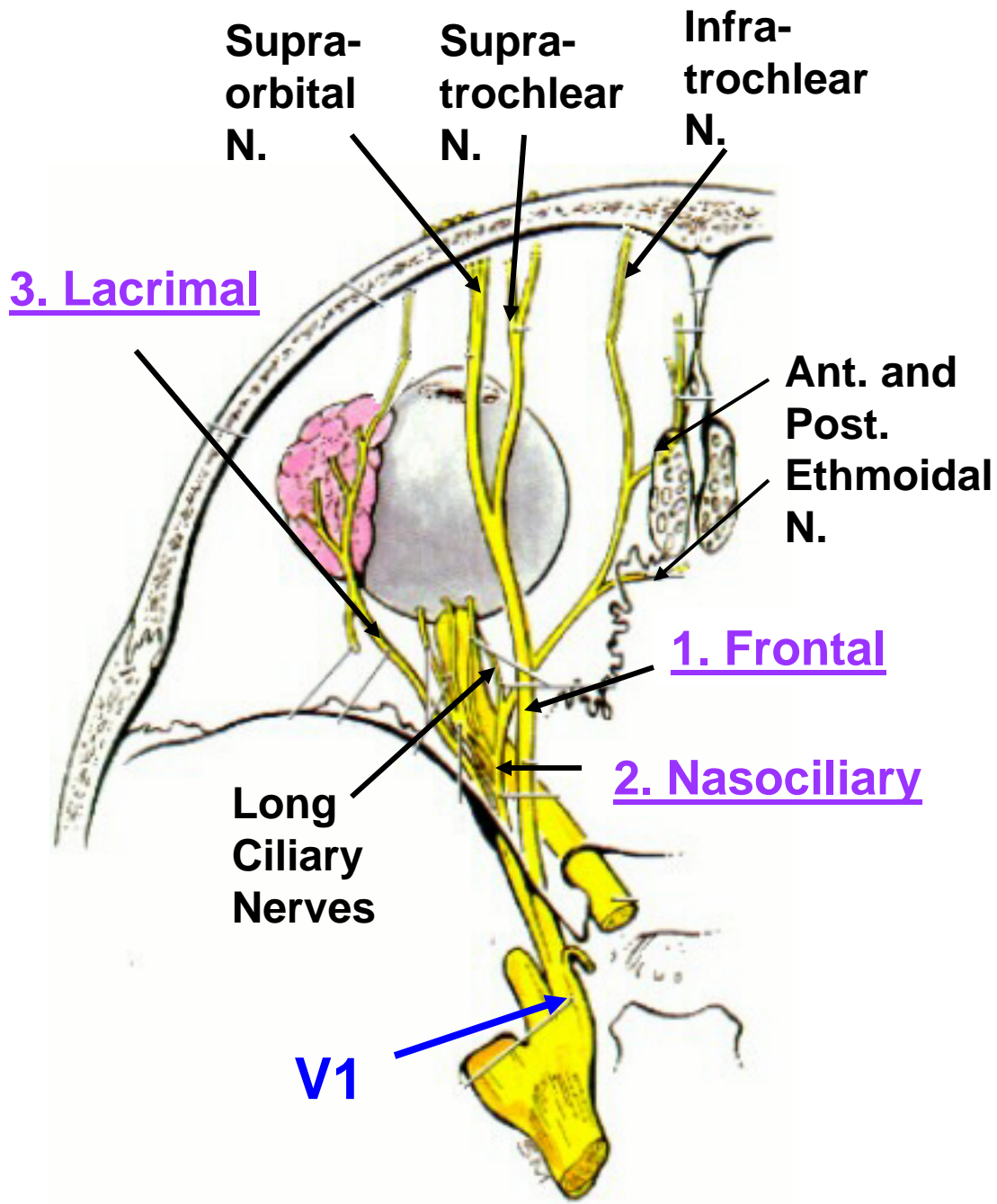


Carefully cut through CT layer with scalpel

ORBIT IS FULL OF FAT



V1 - OPHTHALMIC - ALL SOMATIC SENSORY



- 1. Frontal N.
 - a) Supraorbital N.
 - b) Supratrochlear N.**Forehead, Upper Eyelid**

- 2. Lacrimal N.
Upper eyelid

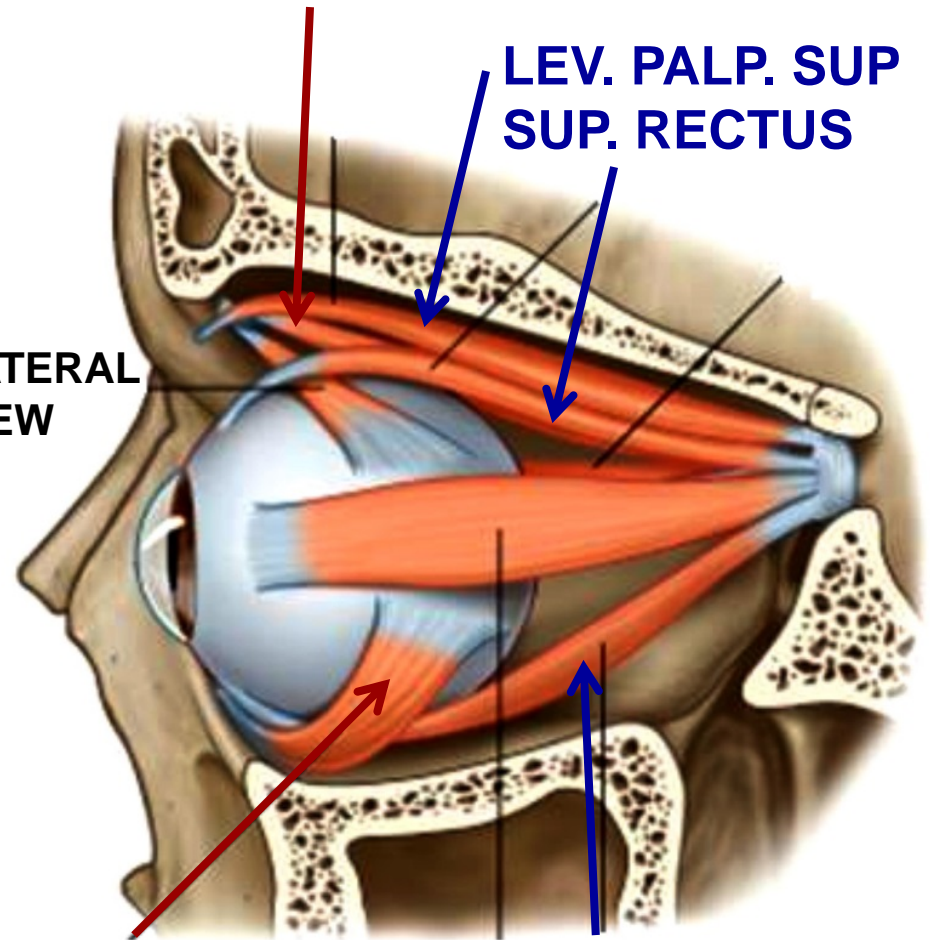
- 3. Nasociliary N.
 - a) Ant. and Post. Ethmoidal N.**Nasal Cavity**
 - Ethmoid Sinus , Tip of Nose**
 - b) Long Ciliary N.**Sensory to Cornea**
 - c) Infratrochlear N.**Upper eyelid, Nose**

IN DISSECTION SEE:

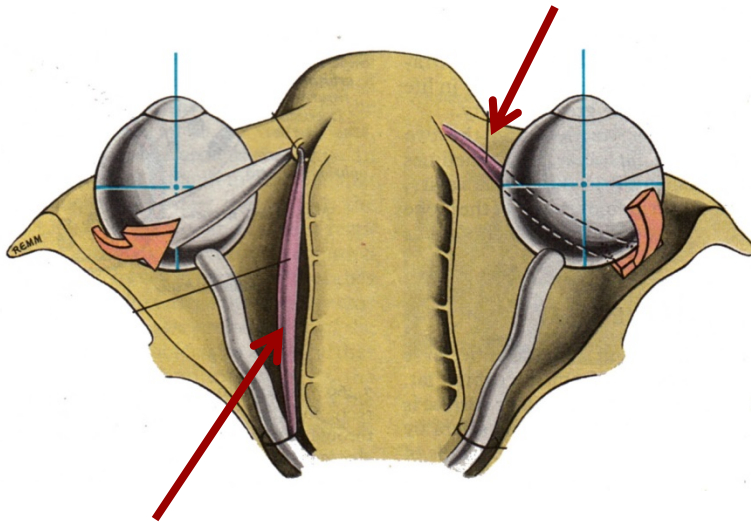
SUP OBLIQUE - medial to

**LEV. PALP. SUP
SUP. RECTUS**

LATERAL
VIEW



**INF
OBLIQUE**

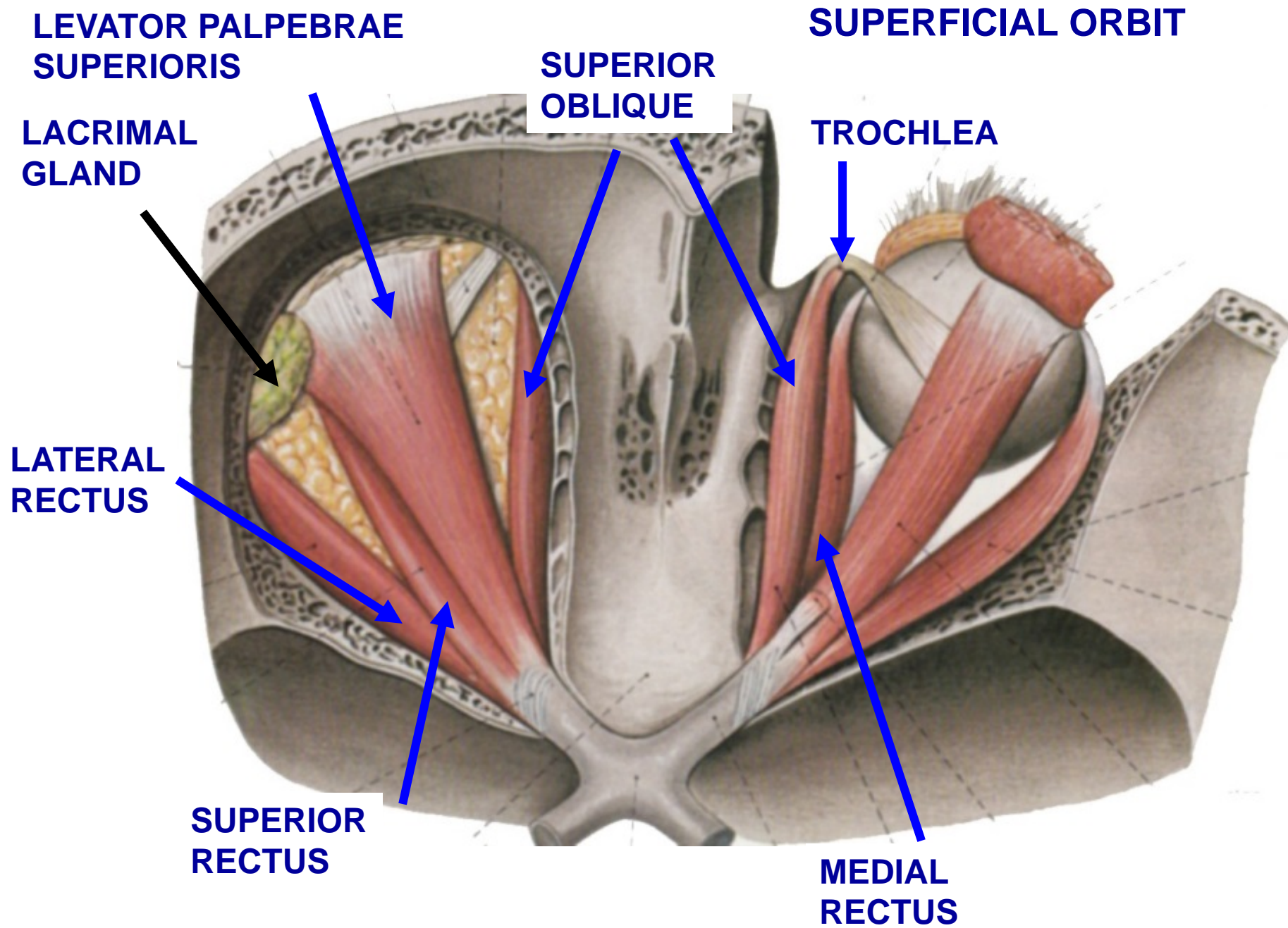


**SUP
OBLIQUE**

IN DISSECTION NOT SEE:

INF. OBLIQUE

INF. RECTUS

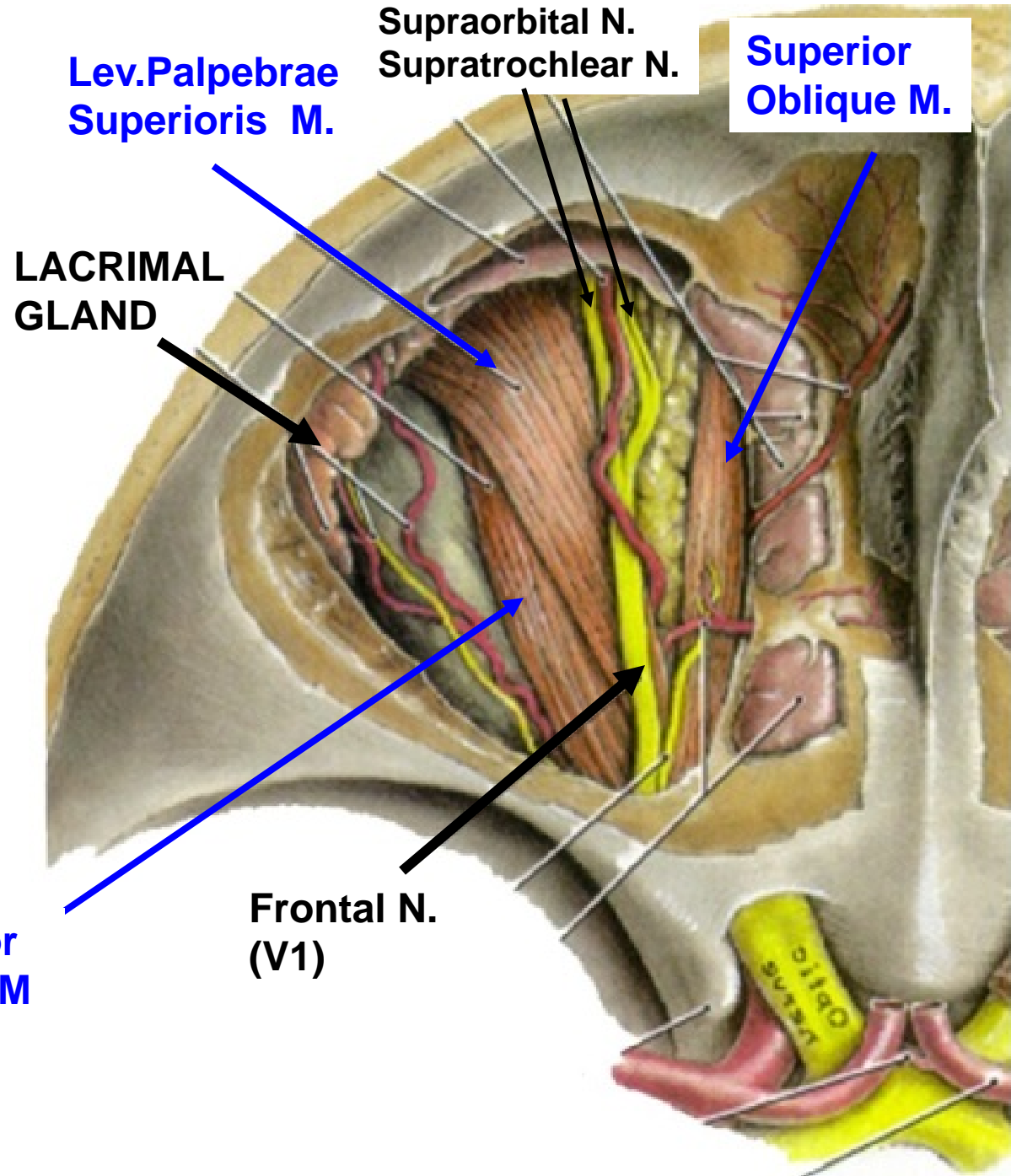


**SUPERFICIAL
ORBIT**

see
NERVES (V1)
- V1 - Frontal
n.: divides to form
Supraorbital,
Supratrochlear
Nerves

**Muscles - Lev.
Palpebrae
Superioris to
Upper Eyelid**

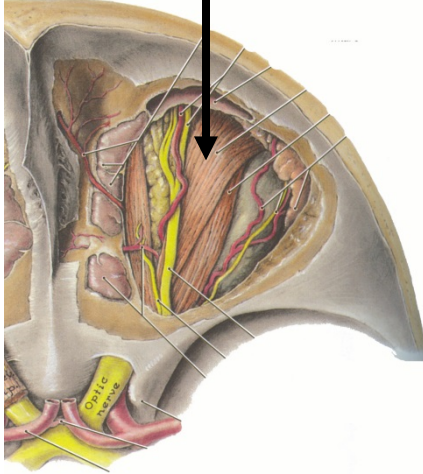
**Superior
Rectus M**



**N
O
S
E**

DEEP ORBIT

REFLECT LEV PALP SUP,
SUP. RECTUS.



↑
N
O
S
E

ANTERIOR AND POSTERIOR
ETHMOIDAL NERVES (V1)

LONG CILIARY NERVES (V1)

OPTIC NERVE

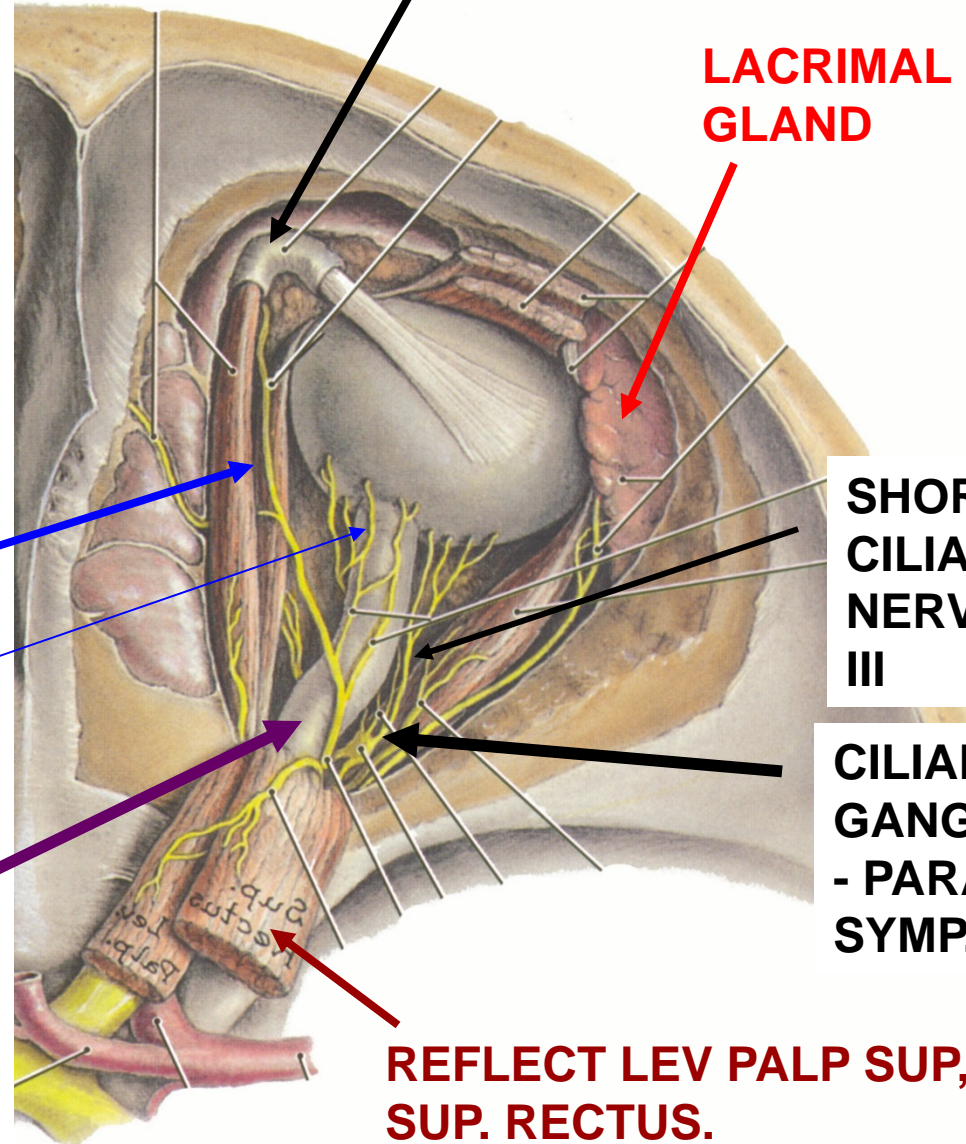
TROCHLEA OF SUP. OBLIQUE

LACRIMAL
GLAND

SHORT
CILIARY
NERVES
III

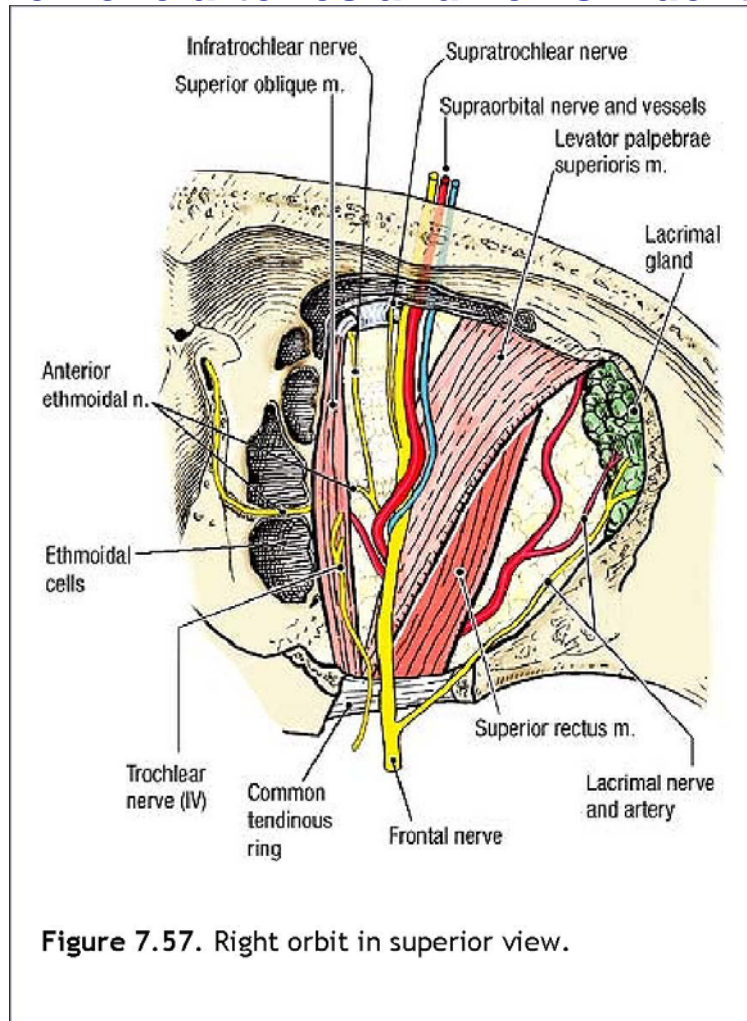
CILIARY
GANGLION
- PARA-
SYMP. III

REFLECT LEV PALP SUP,
SUP. RECTUS.



GRANT'S DISSECTOR INSTRUCTIONS

SUPERFICIAL DISSECTION: REMOVE FAT WITH FORCEPS - Gently pull on globules of fat and remove them from surrounding tissues. This requires patience to preserve small nerves and arteries that course in the fat. When fat is removed, use scissors technique to separate nerves and arteries. Remove arteries and veins. Identify structures in Superficial Orbit.



Superficial Dissection

Levator Palpebrae Superioris muscle
Frontal nerve (V1) dividing to
Supraorbital and Supratrochlear
nerves

Superior oblique muscle
Trochlear nerve – enters proximal
end of Superior Oblique
Lacrimal gland

Lacrimal nerve (V1)
Anterior Ethmoidal nerve (courses
under Superior Oblique)

DEEP DISSECTION CUT AND REFLECT LEVATOR PALPEBRAE SUPERIOR AND SUPERIOR RECTUS MUSCLES - Cut across both muscles and reflect them anteriorly (not posteriorly as in illustration).
 Then very carefully remove underlying fat to expose structures of Deep Orbit. Look for Long and Short Ciliary nerves piercing sclera on posterior eye (medial to Optic Nerve). It will now be useful to remove Lesser Wing of Sphenoid bone (overlying structures entering Superior Orbital Fissure).

Optic Nerve
Nasociliary nerve (giving off Anterior and Posterior Ethmoidal nerves)
(Long Ciliary nerves – with luck)
Short Ciliary nerves – immediately dorsal and lateral to Optic nerve
Ciliary ganglion – swelling on Short Ciliary nerves
Trochlea (pulley) of Superior Oblique muscle
Medial Rectus Muscle
Lateral Rectus Muscle
(Abducens nerve – medial to Lateral Rectus)

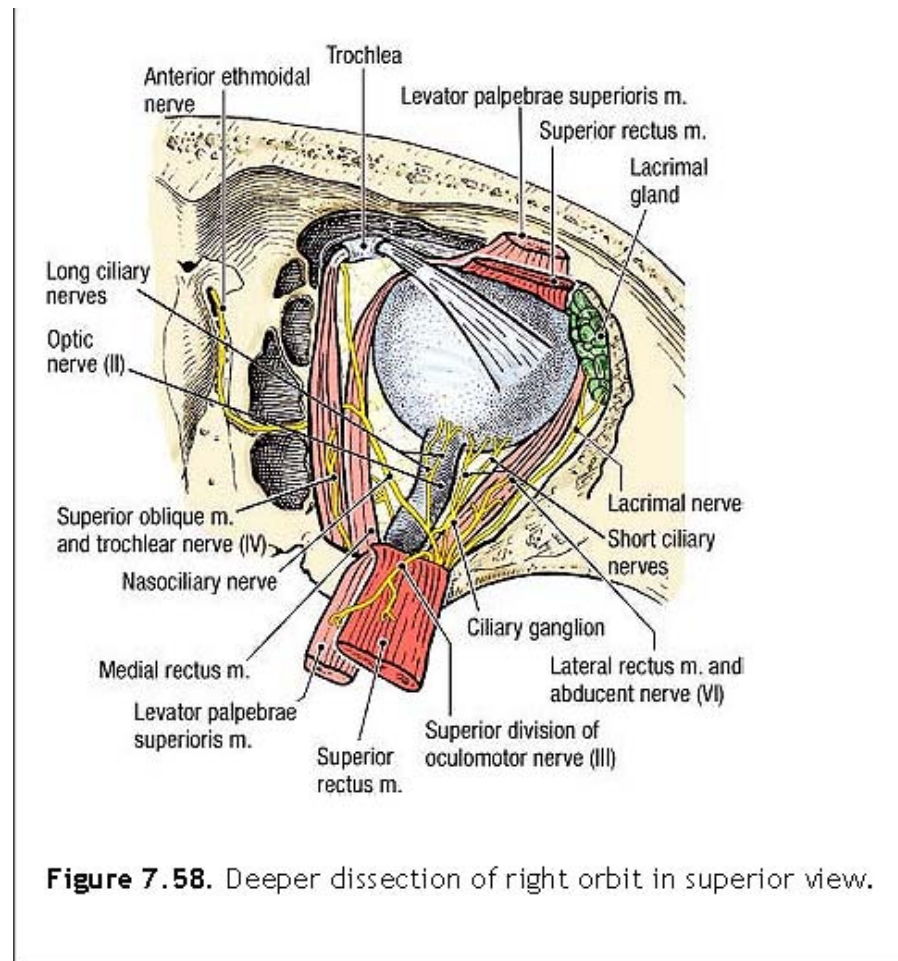


Figure 7.58. Deeper dissection of right orbit in superior view.

CHECKLIST FOR ORBIT DISSECTION

STRUCTURES TO IDENTIFY IN ORBIT

Superficial Dissection

Levator Palpebrae Superioris muscle

Frontal nerve (V1) dividing to Supraorbital and Supratrochlear nerves

Superior oblique muscle

Trochlear nerve – enters proximal end of Superior Oblique

Lacrimal gland

Lacrimal nerve (V1)

Anterior Ethmoidal nerve (courses under Superior Oblique)

Deep Dissection

Optic Nerve

Nasociliary nerve (giving off Anterior and Posterior Ethmoidal nerves)

(Long Ciliary nerves – with luck)

Short Ciliary nerves – immediately dorsal and lateral to Optic nerve

Ciliary ganglion – swelling on Short Ciliary nerves

Trochlea (pulley) of Superior Oblique muscle

Medial Rectus Muscle

Lateral Rectus Muscle

(Abducens nerve – medial to Lateral Rectus)