

Number & Columns:

seven $\left\{ \begin{array}{l} 3 \text{ (motor/eff.)} \\ 4 \text{ (sensory/aff.)} \end{array} \right.$

Pharyngeal Arches:

I $\rightarrow$ mandibular Nv. $\Rightarrow$ M/s of Masticat.
(V₃)

II $\rightarrow$ Facial Nv $\Rightarrow$ facial M/s.
(VII)

III $\rightarrow$ IX } M/s of palate, pharynx
IV } $\rightarrow$ X } & larynx
VI }

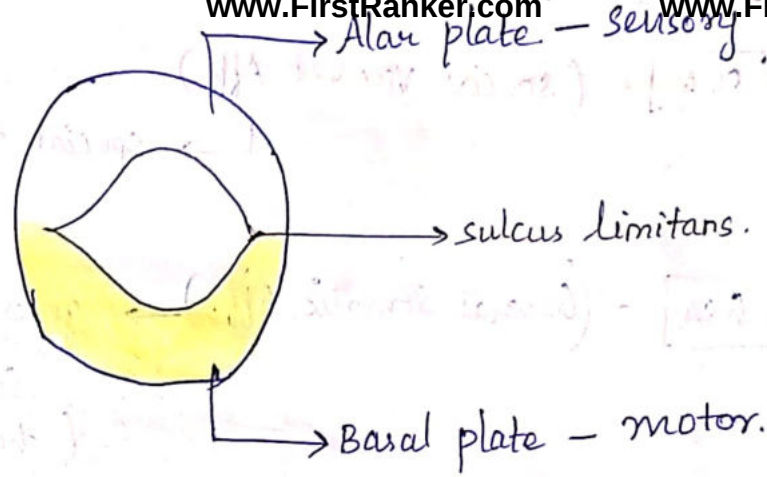
Branchial Arch skeletal muscles

Whereas

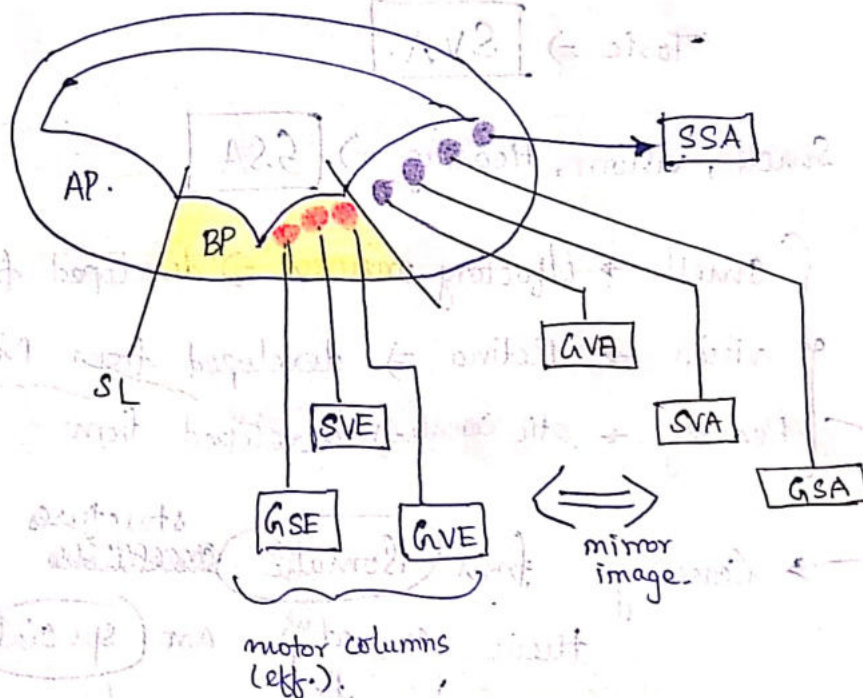
(i) EOM (Extra Ocular Muscles)

&
(ii) Tongue Muscle

$\Downarrow$
Somatic M/s.



Brain stem:



GSE - (Gen. Somatic Eff.) → E.O.M & Tongue Muscles.

SVE - (Special Visceral Eff.) → Masticatⁿ, facial, palate, pharynx, & larynx m/s.

GVE - (General Visceral Eff.) → Smooth m/s & glands.

SVA

(Special Visceral Aff.)

special sensatⁿ from viscera
(TASTE).

GSA

(General Somatic Aff.)

general sensatⁿ from
Somatic struc.
(body wall.).

How TASTE sensatⁿ is different from other
Special Sensations such as Smell, vision & Hearing?

Taste $\Rightarrow$

SVA.

Smell, vision, Hearing $\Rightarrow$

GSA

Smell $\rightarrow$ olfactory mucosa $\Rightarrow$ developed from ^{surface} ectoderm
vision $\rightarrow$ Retina $\Rightarrow$ developed from Neuroectoderm
Hearing $\rightarrow$ otic capsule $\Rightarrow$ developed from

Coming from Somatic structures but
their sensatⁿ are special.

So S.S.A

SSA

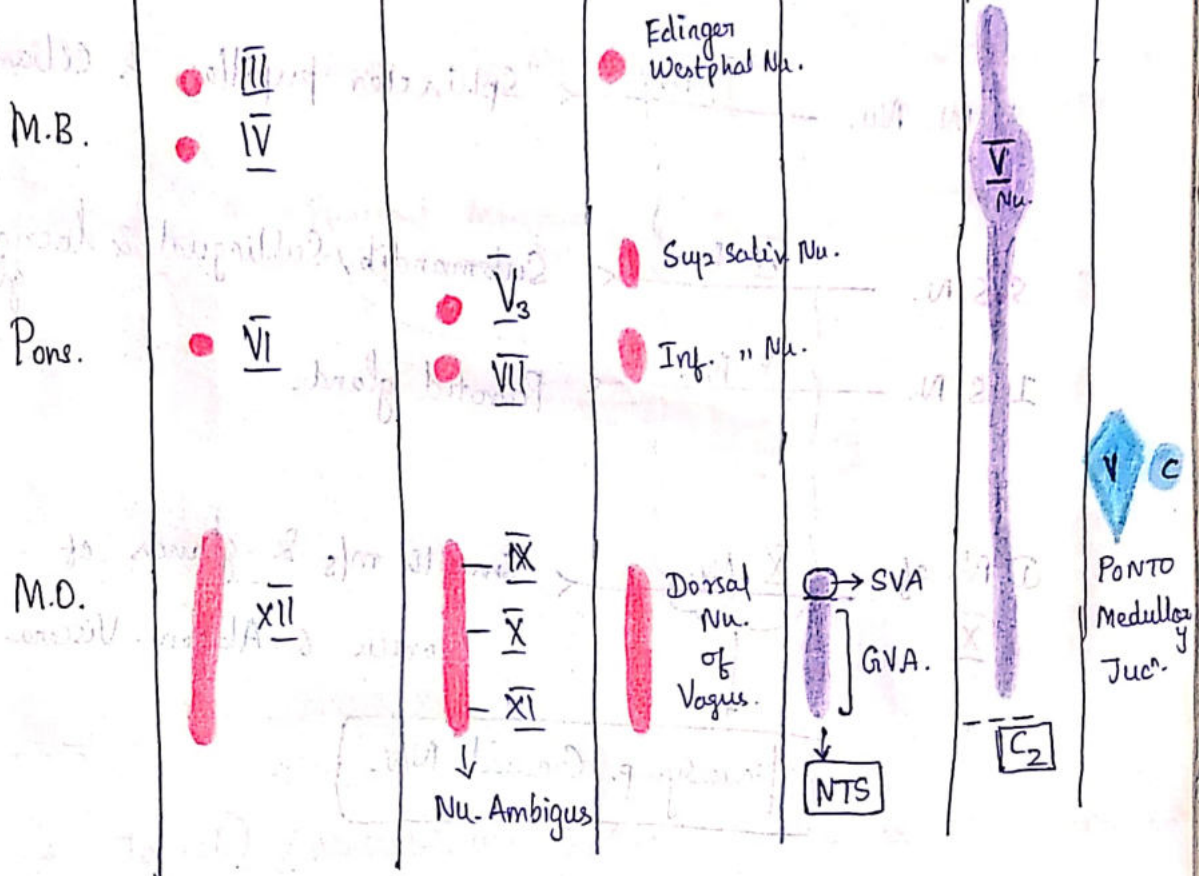
(Special Somatic Aff.)

olfaction $\rightarrow$ I n^v.
vision $\rightarrow$ II n^v.
Hearing/Balancing $\rightarrow$ VIII n^v.

No nuclei



vestib. nuclei
cochlear nuclei



⊗ M/s of palate & pharynx → supp. by XI via X
(or) cranial acc. NV.

Vago Accessory Complex/VAC

(or)

Pharyngeal plexus.

Clinical ⇒ injury to Nu. Ambiguus. (IX, X, XI)

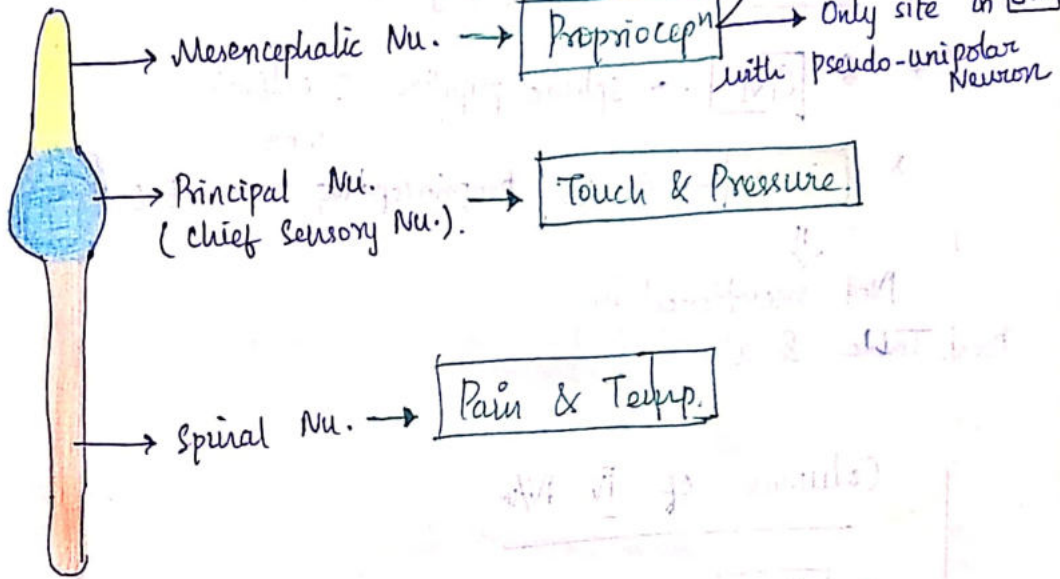
↓

ipsilateral **bulbar** paralysis & loss of GAG Reflex

↓

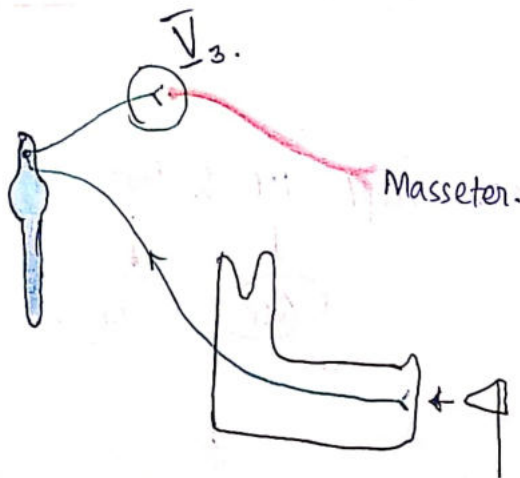
paralysis of m/s of palate, phx, larynx.

V
Nu.



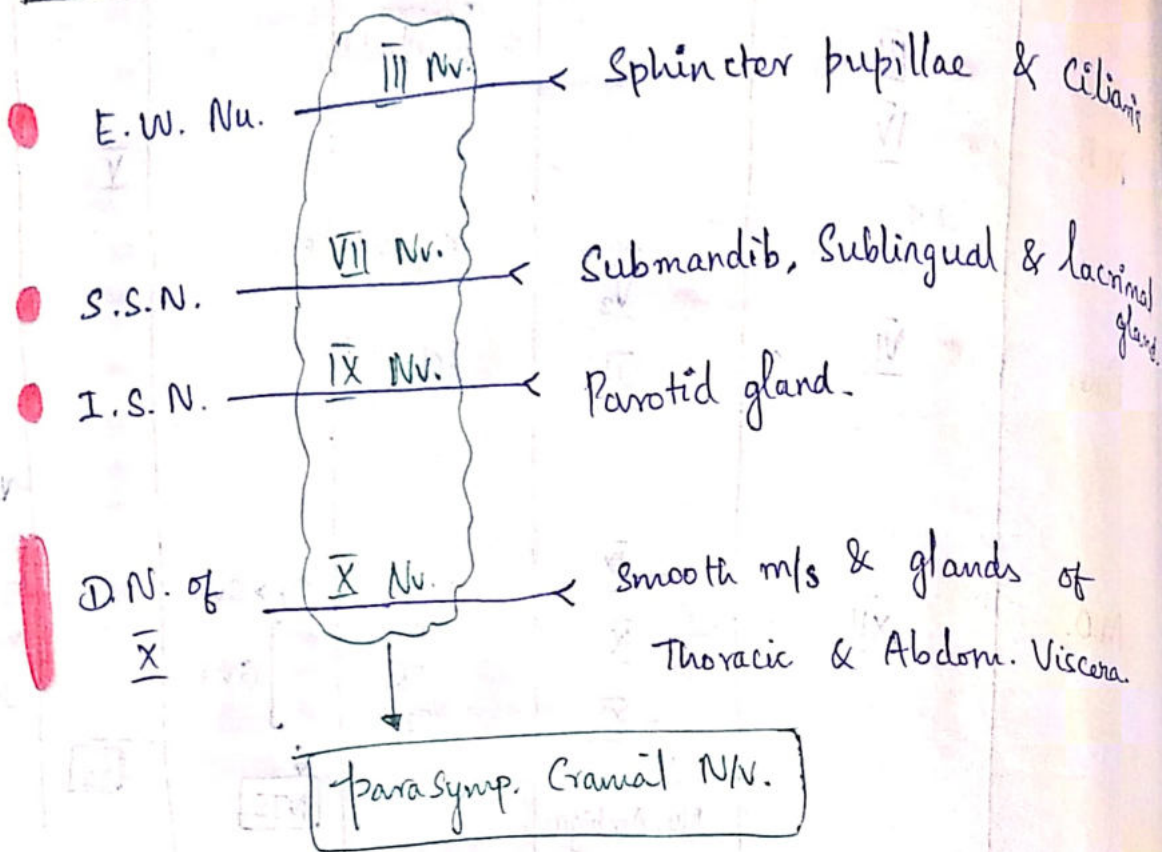
* Jaw (R) / Masticatory (R) ⇒ checking whether the proprioception is feasible. While striking with the Hammer, we are sending stretch information inside the muscle to the CNS.

* Jaw (R) → Deep Tendon (R) $\xrightarrow[\text{physio}]{\text{CNS}}$ Monosynaptic (R)

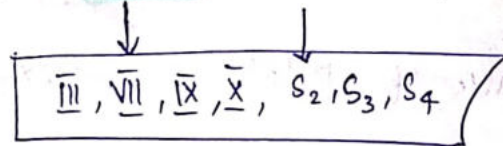


↓
Pseudo Unipolar Neurons.

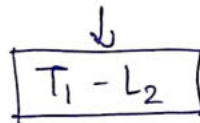
FAST Reflex.
(polysynap ⇒ slow.)



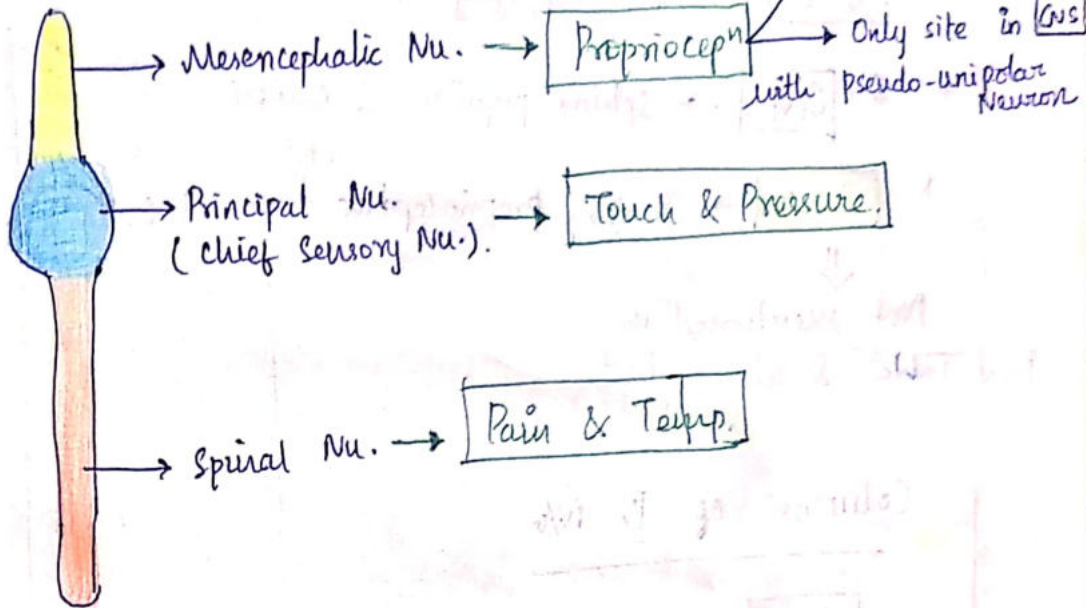
* Parasymp. Outflow $\Rightarrow$ Cranio - Sacral outflow.



* Symp. Outflow $\Rightarrow$ Thoraco - lumbar outflow.

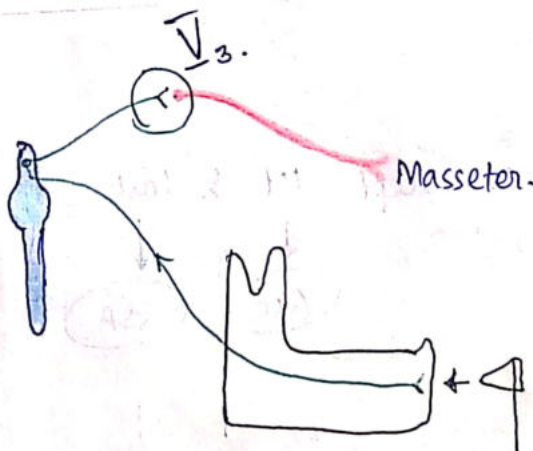


V
Nu.



* Jaw (R) / Masseteric (R) ⇒ checking whether the propriocepⁿ is feasible. While striking with the Hammer, we are sending stretch informatⁿ inside the muscle to the CNS.

* Jaw (R) → Deep Tendon (R) $\xrightarrow[\text{physio}]{\text{CNS}}$ MonoSynaptic (R)



* **GSE** → for supplying E.O.M.

* **GVE** → sphincter pupillae & ciliaris.

* **GSA** → Carries proprioceptive info. from E.O.M.



Not mentioned in
prev. Table & also in books.

Columns of IV N/v

* **GSE** → Supplying Superior Obliq. M/s.

* **GSA** → proprioceptive from S.O. M/s.

Columns of VI N/v:

* **GSE** → supplying Lat. Rectus M/s.

* **GSA** → prop. from Lat. Rectus.

VII
IX
X

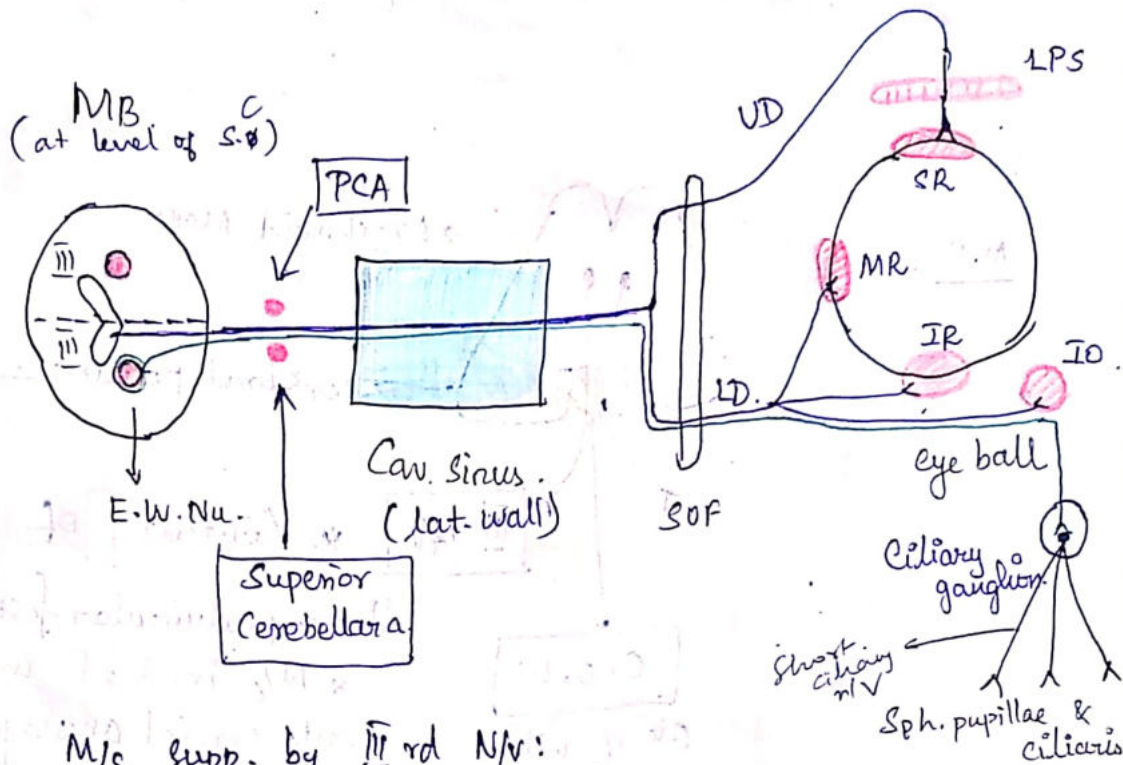
⇒ all columns except 1st & last

↓
GSE

↓
SSA

— X — X — X —

* IIIrd ~~Nu.~~ is $\oplus$ in MB at the level of SC



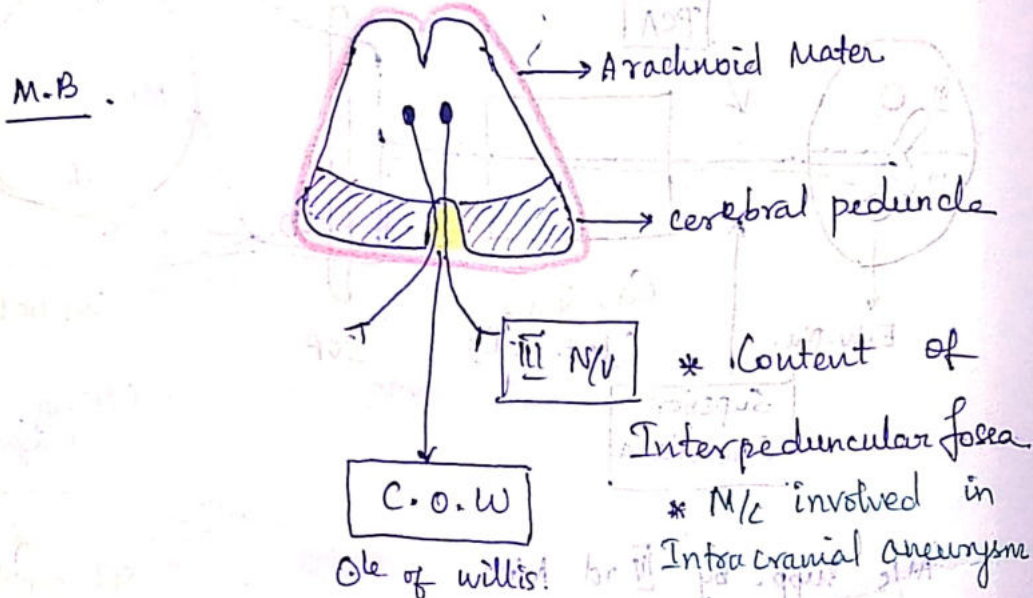
M/s supp. by IIIrd N/v:

* All ~~muscles~~ except SO 4 & LR 6
E.O.M.
↓
Sup. Obliq. @ 4'o clock
↑
supplied by IIIrd N/v
↓
Lat. Rectus @ 6'o clock
↑
supp. by VI n/v

Note: All nerves (3, 4, ophth.) which need to enter orbit must enter Cav. Sinus.

Clinical: ↑ I.C.P.
* IIIrd N/v $\Rightarrow$ m/c involved in UNILAT. ICA ↑
* VI ~~th~~ N/v $\Rightarrow$ m/c involved in BILAT. ICA ↑

* Cerebral peduncle $\Rightarrow$ all desc. Tracts from Cerebrum Pass thro' this part of M.B.



Clinical: Rupture of Berry Aneurysm immediately affects IIIrd N/V why?

* Bcoz Circ of willis is a content of Interped. Cistern, from which IIIrd N/V emerges out

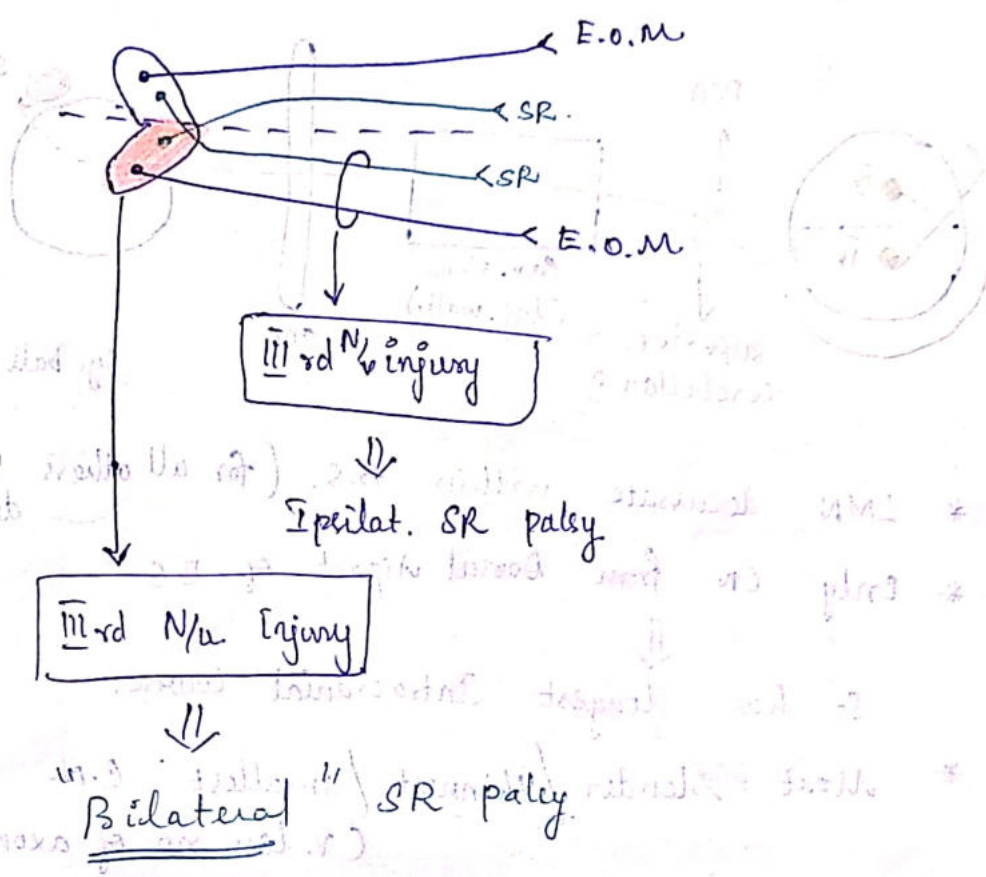
* Berry Aneurysm $\Rightarrow$ affects C.O.W. (commun. a.)

* Longest CN/V $\Rightarrow$ Vagus N/V

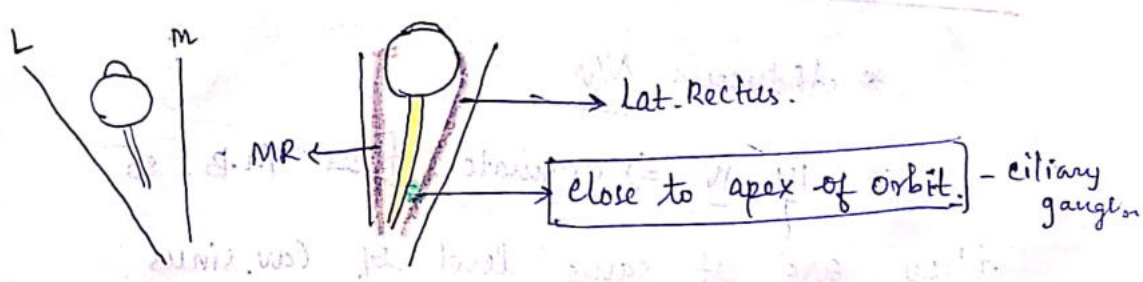
* Largest CN/V $\Rightarrow$ Trigeminal N/V

* Smallest CN/V $\Rightarrow$ IV / Trochlear N/V (Thinnest).

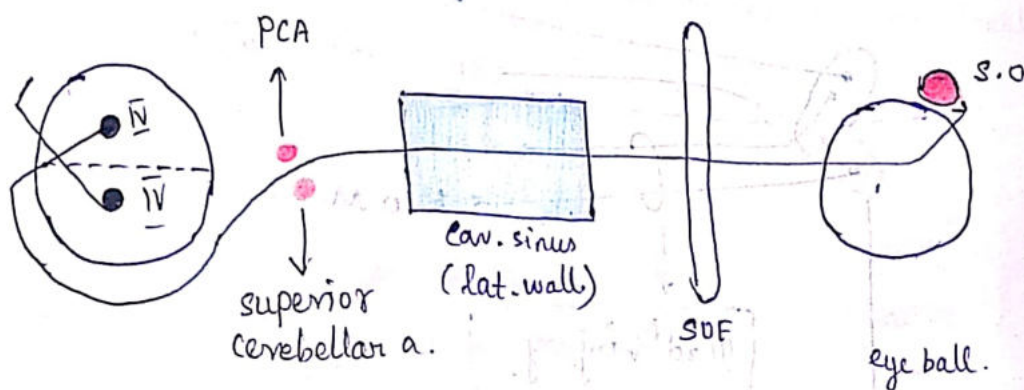
* Shortest CN/V $\Rightarrow$ I / olfactory N/V



Superior view - locatⁿ of ciliary ganglion:



IV Nu. is $\oplus$ in MB of IC.



- * LMN decussate within B.S. (for all others VMN decussate).
- * Only CN from Dorsal Aspect of B.S.
- ⇓
- So has longest Intracranial course.
- * Most slender / Thinnest / smallest C.N. (v. less no. of axons).

VIth Nu.

* Abducent N/v

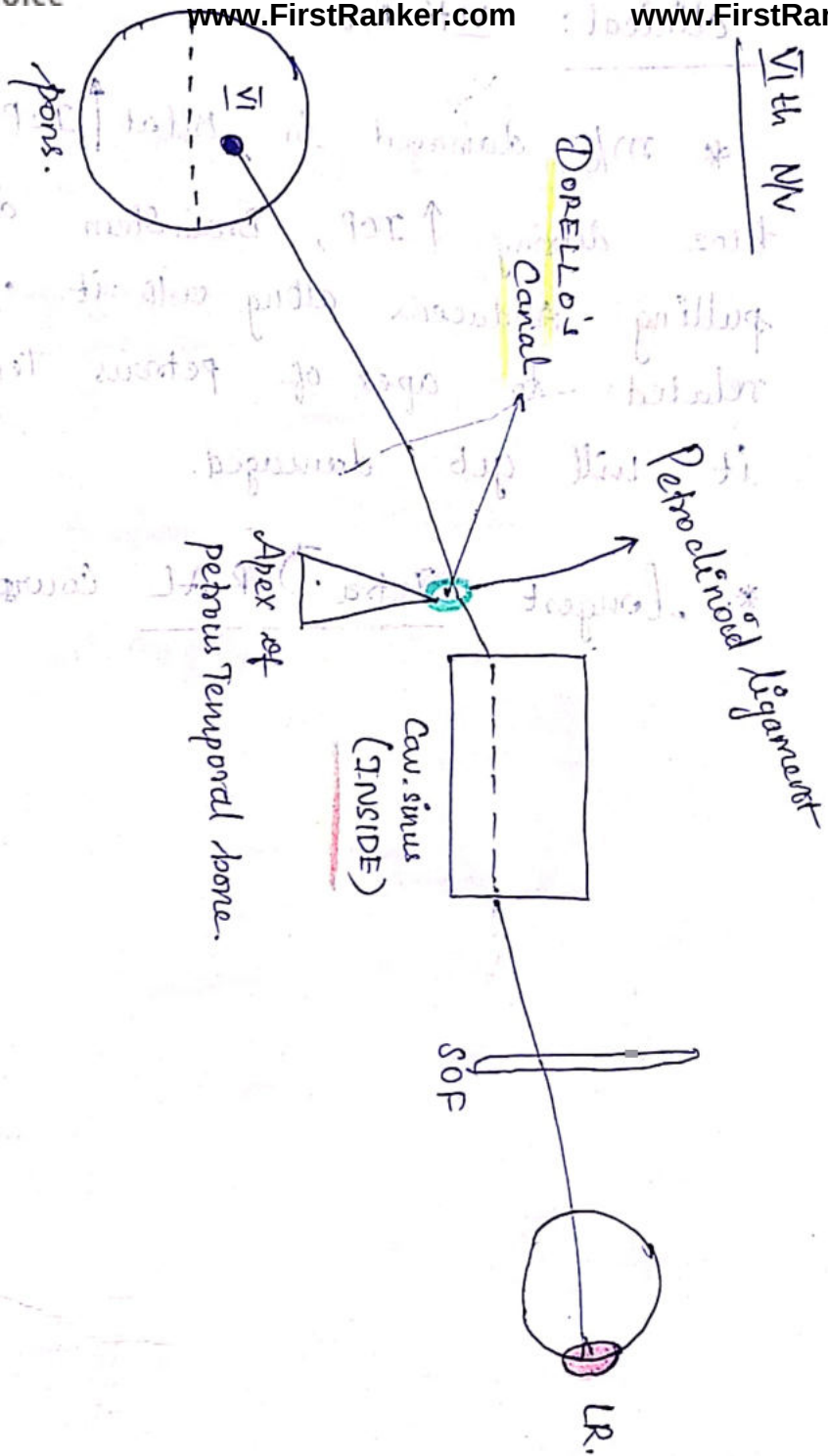
* III, IV $\Rightarrow$ originates from M.B. so

they are at same level of Cav. sinus

but VI arises from pons so it has to Ascend upwards.

& so.

* it Travels inside Cav. sinus.



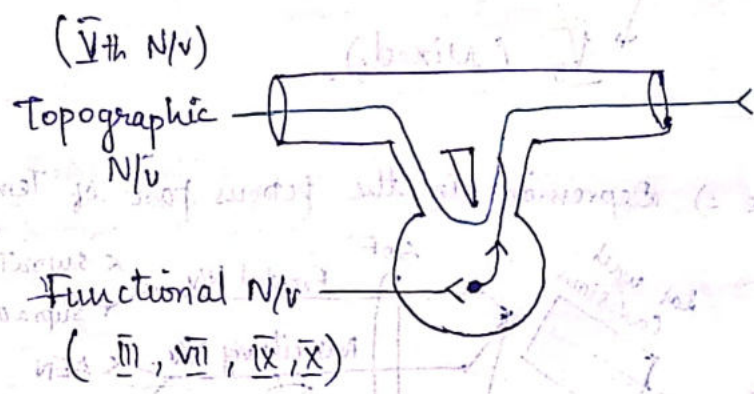
* m/c damaged in Bilat ↑ ICP, This is
bcz during ↑ ICP, Brain stem descends downwards
pulling Abducens along with it. ∴ VI N/V is
related to apex of petrous Temporal bone
it will get damaged. (v. sharp.)

* Longest Intra DURAL course:



Parasymp. Ganglion (4)

- i) Ciliary ganglion
- 2) Pterygo Palatine ganglion
- 3) Otic ganglion
- 4) Submandib. ganglion.



* post-ganglionic nerve comes out along with Topographic nerve.

* In other words, ② N/v's enters the ganglion but only one comes out, which has

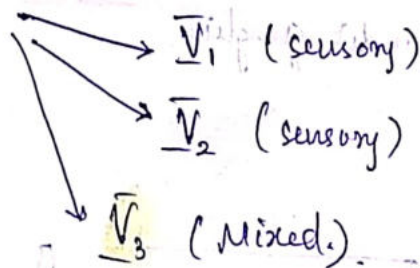
- (i) Topographic N/v
- (ii) post gang. Parasymp. Component

1) N/v which connects the ganglion Topographically also contain post gang. parasymp. fibres

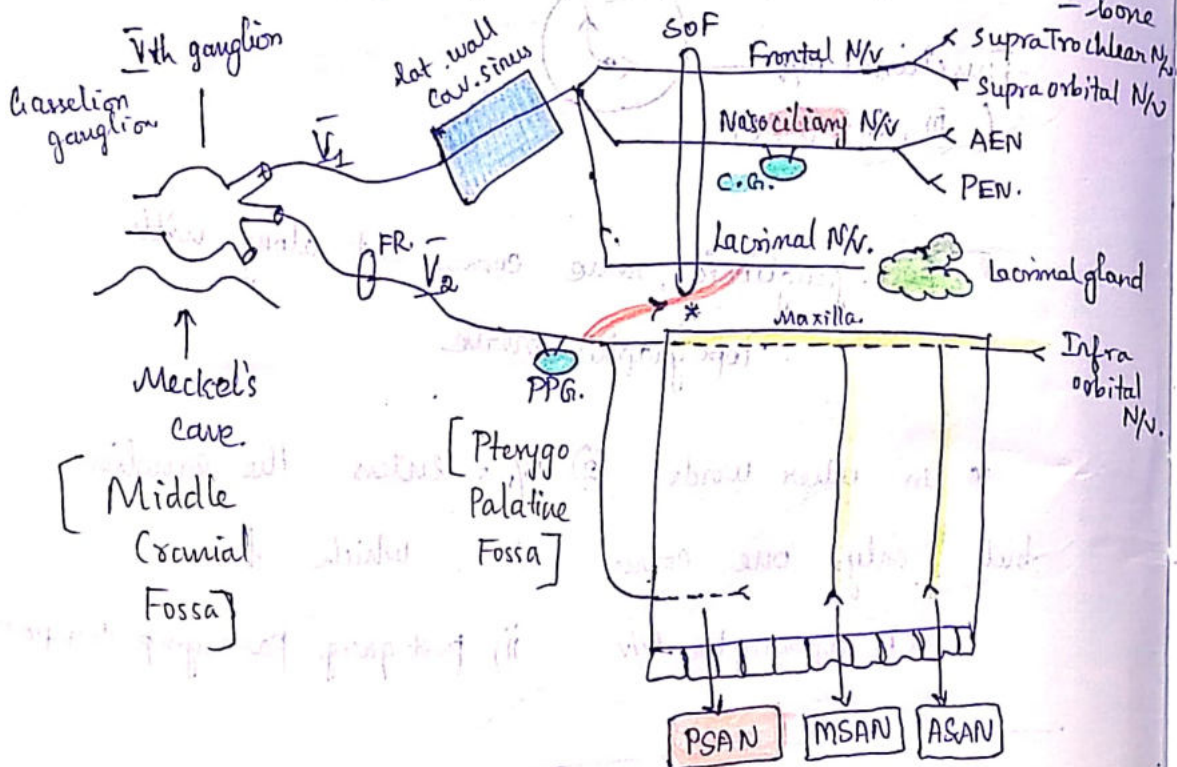
2) All PSG are related to Vth N/v.

(That's why all parasymp. (post gang.) come along with branches of Vth N/v.)

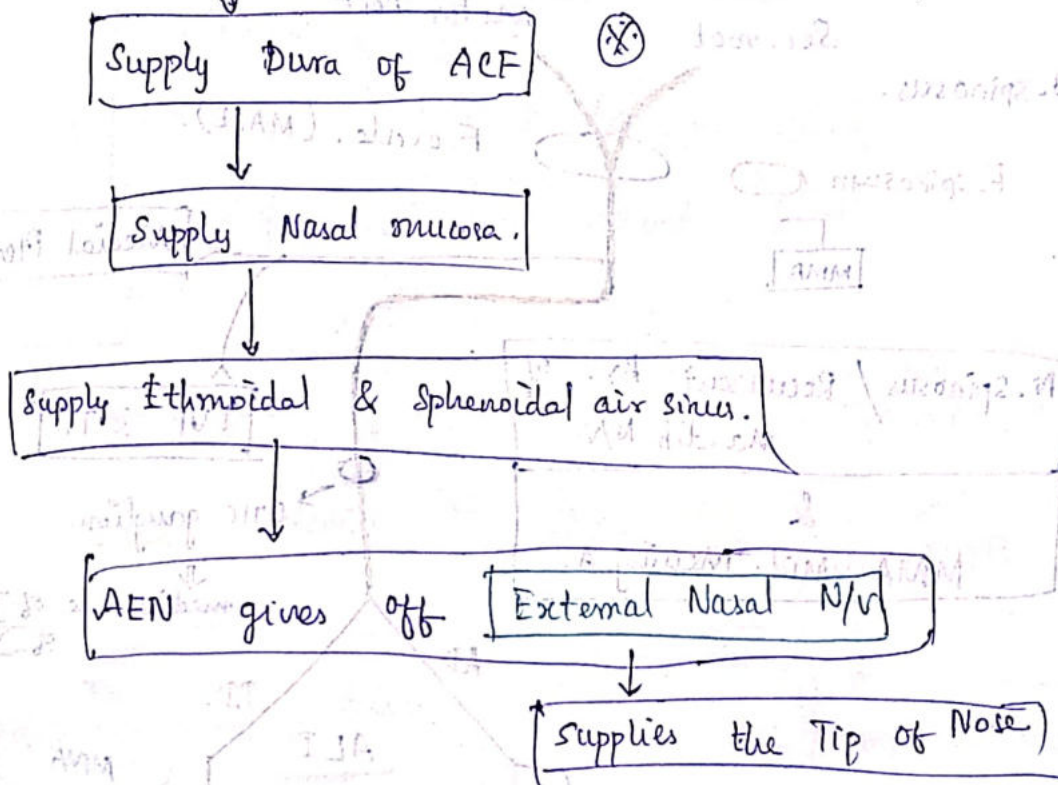
TRIGEMINAL N/v :



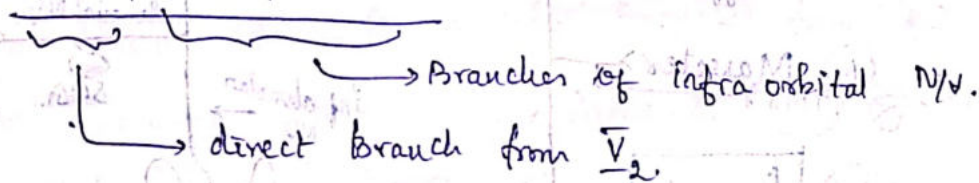
Meckel's cave $\Rightarrow$ Depression in the petrous part of Temporal



* $\rightarrow$ Zygomatico Temporal n/v.

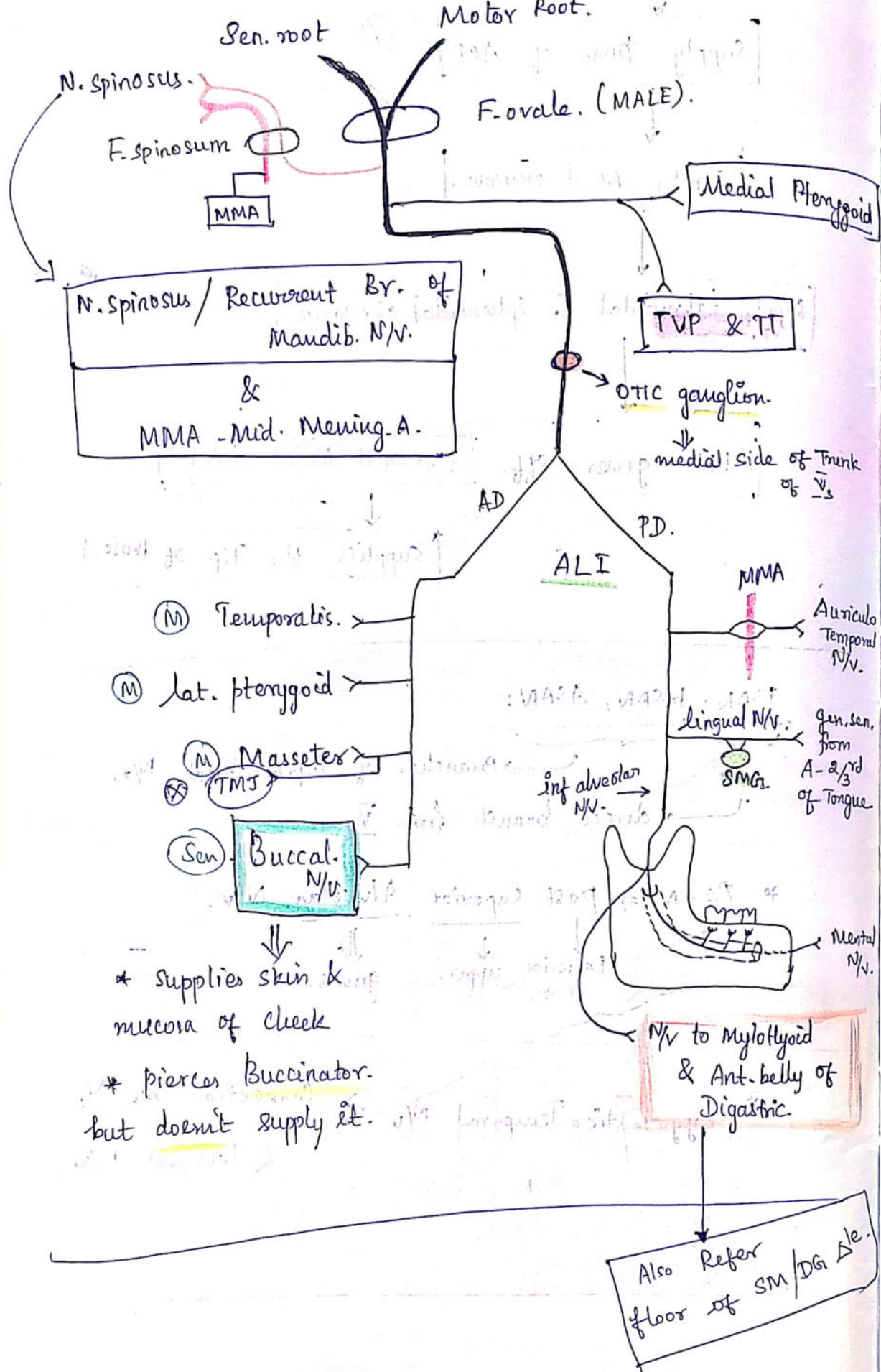


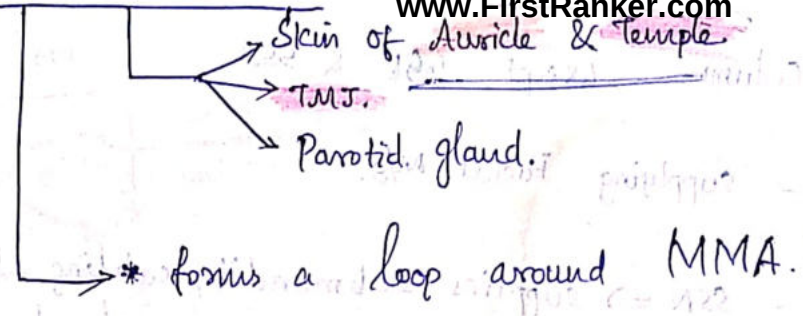
PSAN, MSAN, ASAN:



* PSAN $\Rightarrow$ post. superior Alveolar N/v.
 ↓
 posterior part. upper. gums.

* Zygomatico Temporal N/v $\Rightarrow$ Connection b/n V₂ & lacrimal N/v.





only muscle of masticatn supplied by Trunk of $\bar{V}_3$:

* Medial Pterygoid

TVP & TT
(Tensor veli
pallatini) (Tensor
Tympani)
and
Mylohyoid & Ant. digastric

developed from 1st pharyngeal Arch

* Buccal N/v is a Sen. Branch from A.D of $\bar{V}_3$
it pierces pterygo mandib. Raphe & ~~Masse~~ Buccinator
m/s but doesn't supply it.

