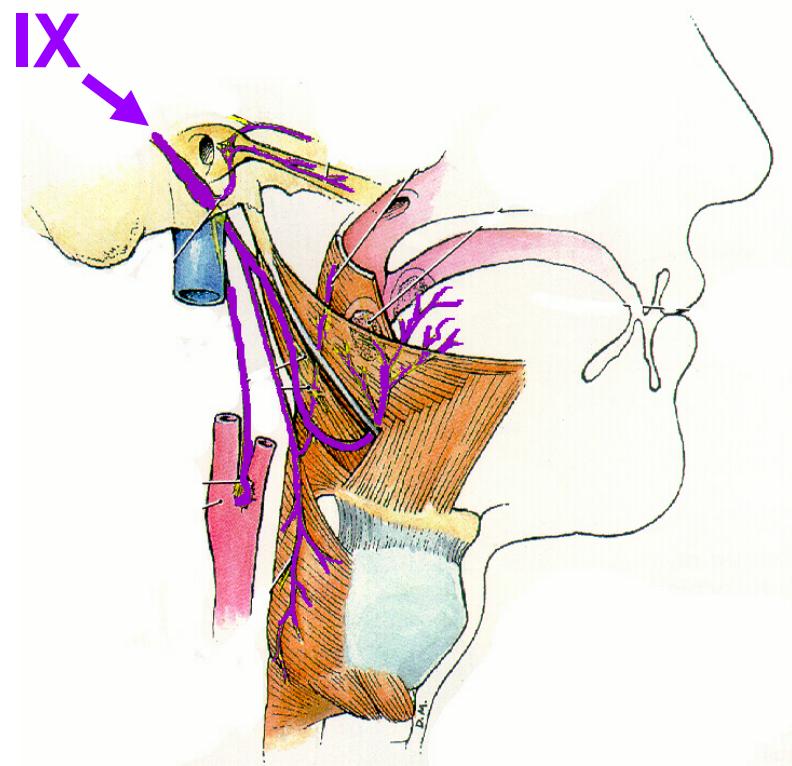


GLOSSOPHARYNGEAL NERVE (IX)



IX - GLOSSO-
PHARYNGEAL

OUTLINE

- I. GLOSSO-
PHARYNGEAL NERVE
- II. HITCHHIKING FIBERS

- review branches of IX
- pathways complicated by
hitch-hiking fibers

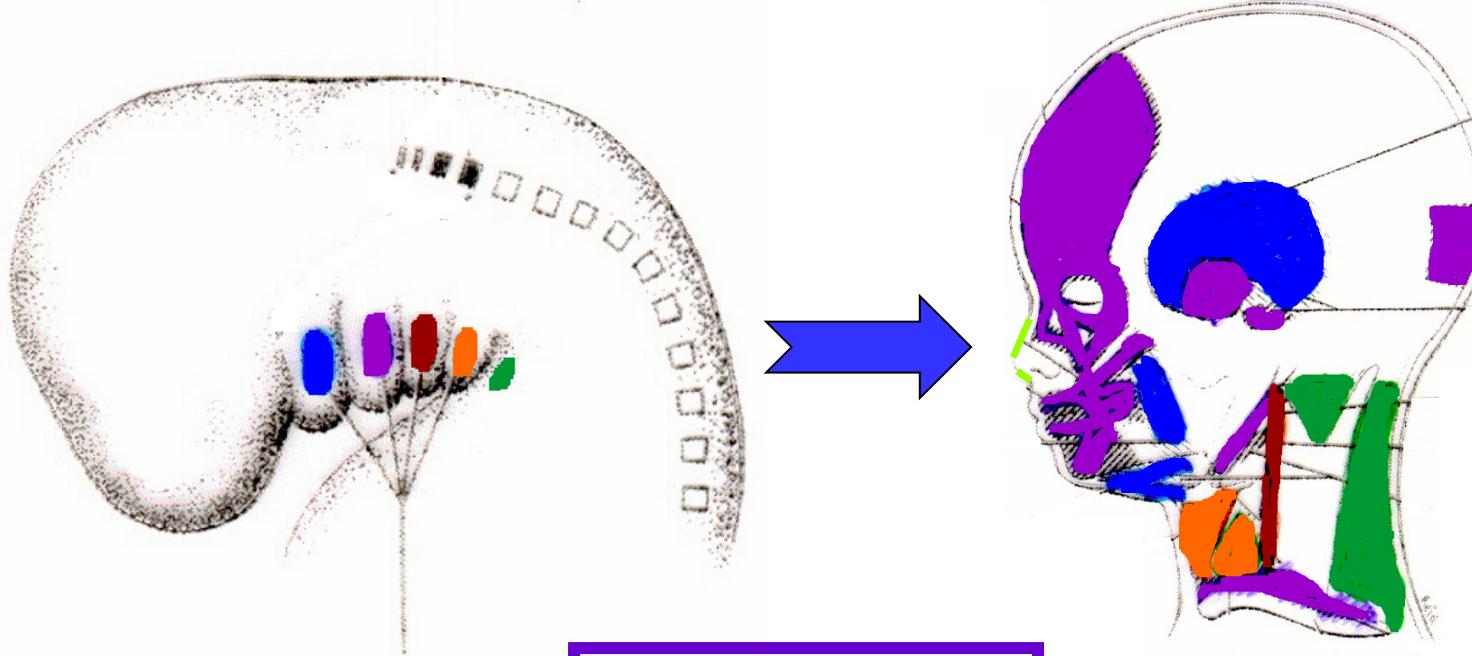
CRANIAL NERVE CHART: TYPES OF NEURONS

	Branchial muscles	Visceral motor =Autonomic	Somatic Sensory	Visceral Sensory	Taste, Smell
	SVE	GVE	GSA	GVA	SVA
V	+		+		
VII, IX X	+	+	+	+	+

VII, IX and X are complex and have a number of components

Branchial Motor (SVE - Special Visceral Efferents)

- motor to voluntary skeletal muscles derived from branchial arches
- visceral because develop in pharynx then migrate



First -
Trigeminal
V

Second -
Facial
VII

Third
Glosso-
pharyngeal
IX

Fourth
Vagus
X

Sixth
Accessory
XI

C. SVE (Special Visceral Efferents) - motor to muscles of face, ear, pharynx and neck that are derived from branchial arches.

<u>Nerve</u>	<u>Innervates</u>
V (Trigeminal) (all in V3)	muscles of mastication mylohyoid tensor tympani tensor palati anterior belly of digastric
VII (Facial)	muscles of facial expression stylohyoid posterior belly of digastric stapedius
IX (Glossopharyngeal)	stylopharyngeus
X (Vagus)	all muscles of pharynx (except stylopharyngeus) muscles of larynx all muscles of palate (except tensor palati)
XI (Accessory)	sternocleidomastoid trapezius

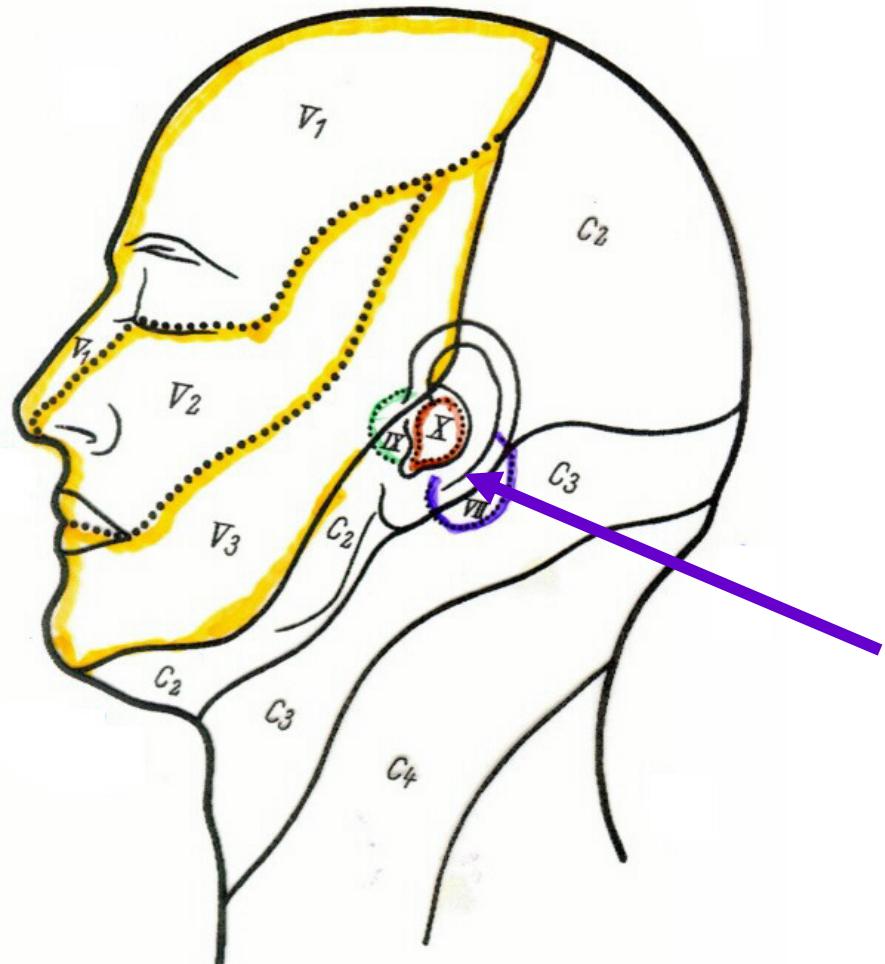
CRANIAL NERVES I. GVE PARASYMPATHETIC GANGLIA

2. Parasympathetic innervation (craniosacral) - first neuron in brainstem; axon goes out with cranial nerve to synapse in named ganglion located close to target; second neuron innervates target.

<u>Nerve</u>	<u>Ganglion</u>	<u>Innervates</u>
III (Oculomotor)	Ciliary ganglion	Pupillary sphincter muscle, ciliary muscle
VII (Facial) and	Pterygopalatine ganglion	Lacrimal gland, mucus glands of nose palate
	Submandibular ganglion	Submandibular and sublingual salivary glands
IX (Glossopharyngeal)	Otic Ganglion	Parotid gland
X (Vagus)	(Many ganglia in thorax, abdomen)	Provides parasympathetic innervation to many organs in thorax and abdomen.

Somatic Sensory (GSA - General Somatic Afferents)

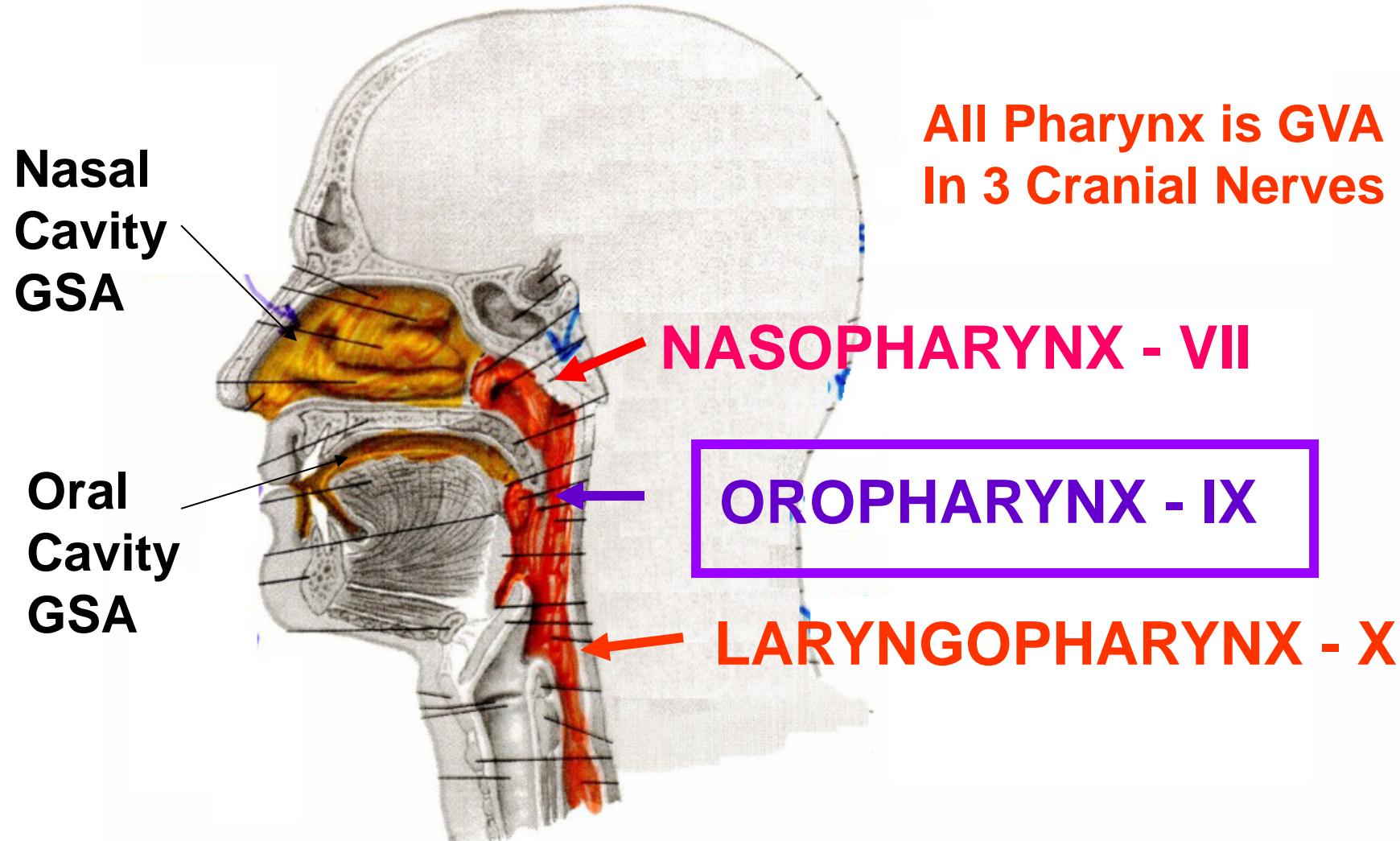
sensory to skin, ORAL cavity, NASAL cavity, joints, muscles



ALMOST ALL
TRIGEMINAL V
EXCEPTION:
SKIN OF OUTER EAR
ALSO
1) **VII- FACIAL**
2) **IX - GLOSSO-
PHARYNGEAL**
3) **X - VAGUS**

Visceral Sensory (GVA - General Visceral Afferents)

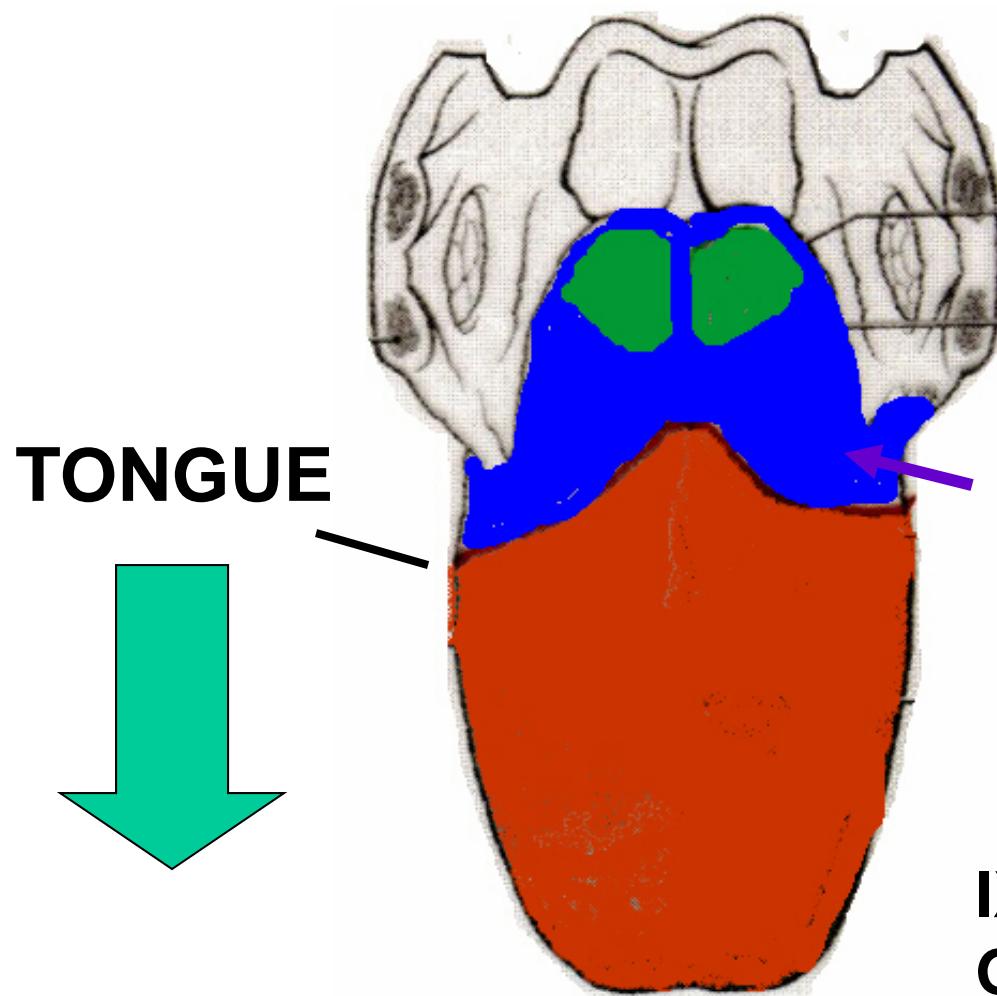
Sensory to Pharynx and derivatives



IX – Also provides GVA touch to post. 1/3 of tongue

TASTE - (SVA - Special Visceral Afferents)

Chemical Sense - TASTE - in three cranial nerves



X - VAGUS -
ant. to epiglottis

IX - GLOSSO-
PHARYNGEAL
post. 1/3 of tongue

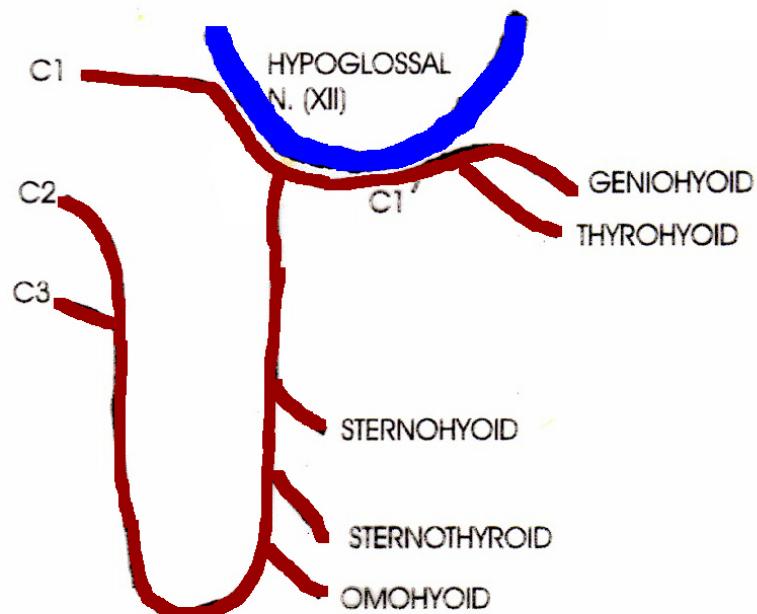
VII - FACIAL -
ant. 2/3 of tongue

IX - SVA taste and
GVA touch to post. tongue

BRANCHES OF IX HITCHHIKE WITH BRANCHES OF V

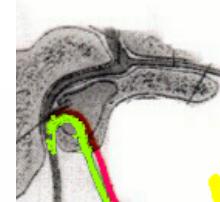
Recall:

CN XII Receives
hitchhiking
fibers from C1



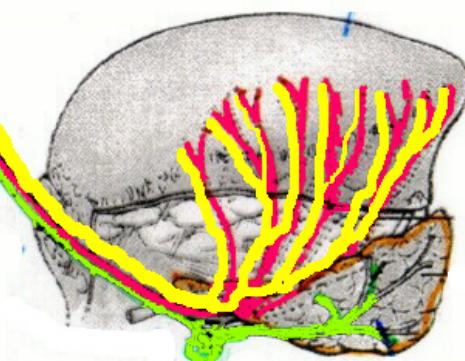
Recall:

Trigeminal V Receives hitchhiking
fibers from Facial VII and
Glossopharyngeal IX



example:

V3 Lingual
VII
Chorda
Tympani



Parasympathetics from IX also hitchhike with a branch
of Trigeminal: Auriculotemporal nerve (V3)

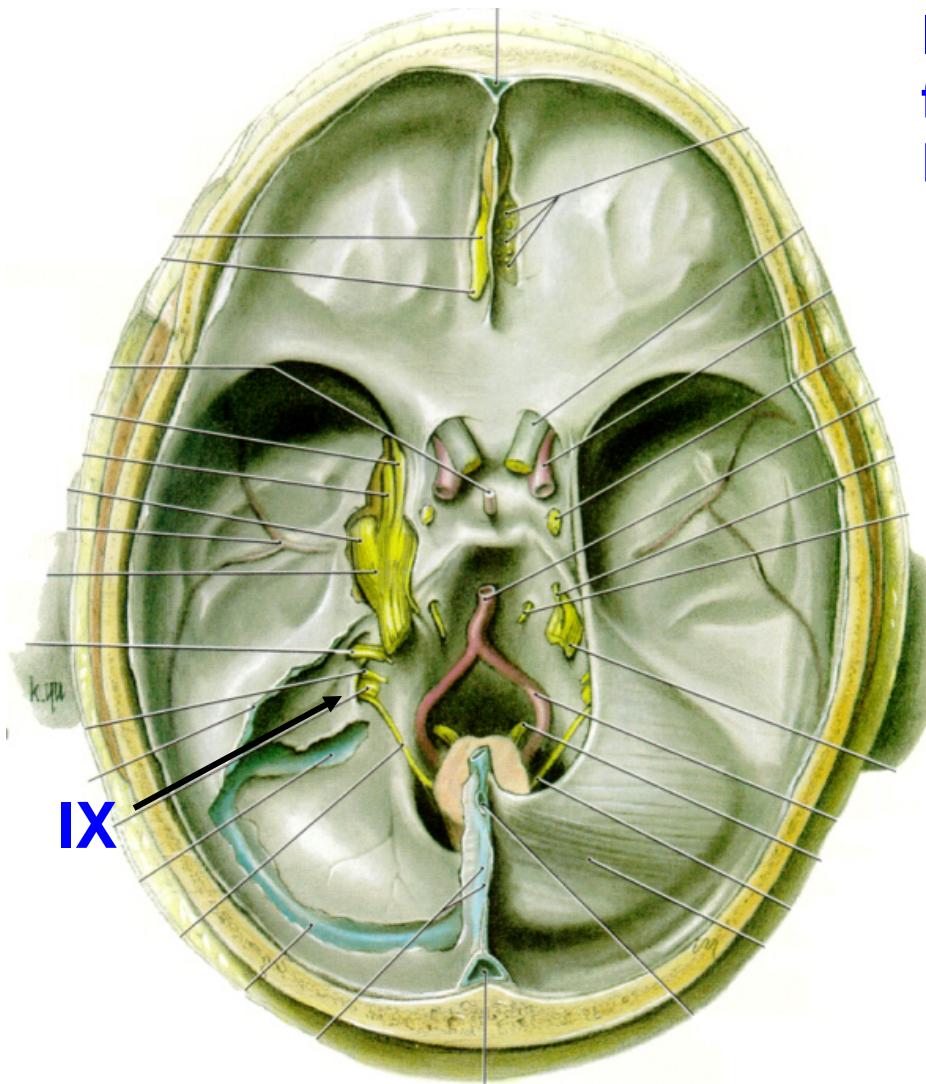
PARASYMPATHETICS AND TASTE FIBERS OF VII AND IX JOIN BRANCHES OF V

II. PARASYMPATHETICS OF IX JOIN BRANCHES OF V

A. Parasympathetics – GVE

NERVE	PRE-GANGLIONIC FIBER IN	POST-GANGLIONIC FIBERS ARISE IN	JOINS	INNERVATES
IX	Lesser Petrosal n.	Otic ganglion	Auriculotemporal n. (V3)	Parotid gland

IX - GLOSSOPHARYNGEAL



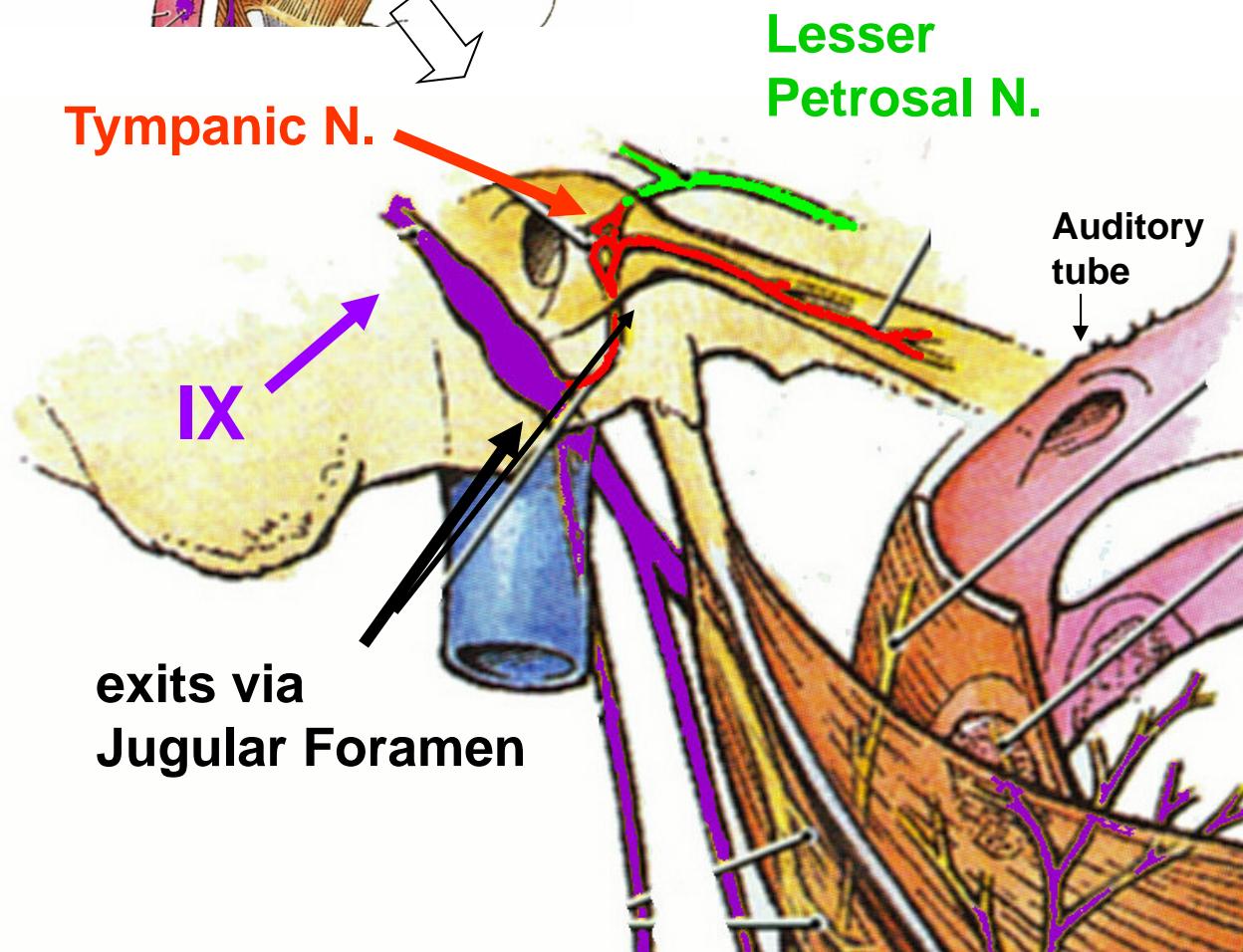
leaves Post. Cranial
fossa via Jugular
Foramen



IX - GLOSSOPHARYNGEAL

NOSE
→

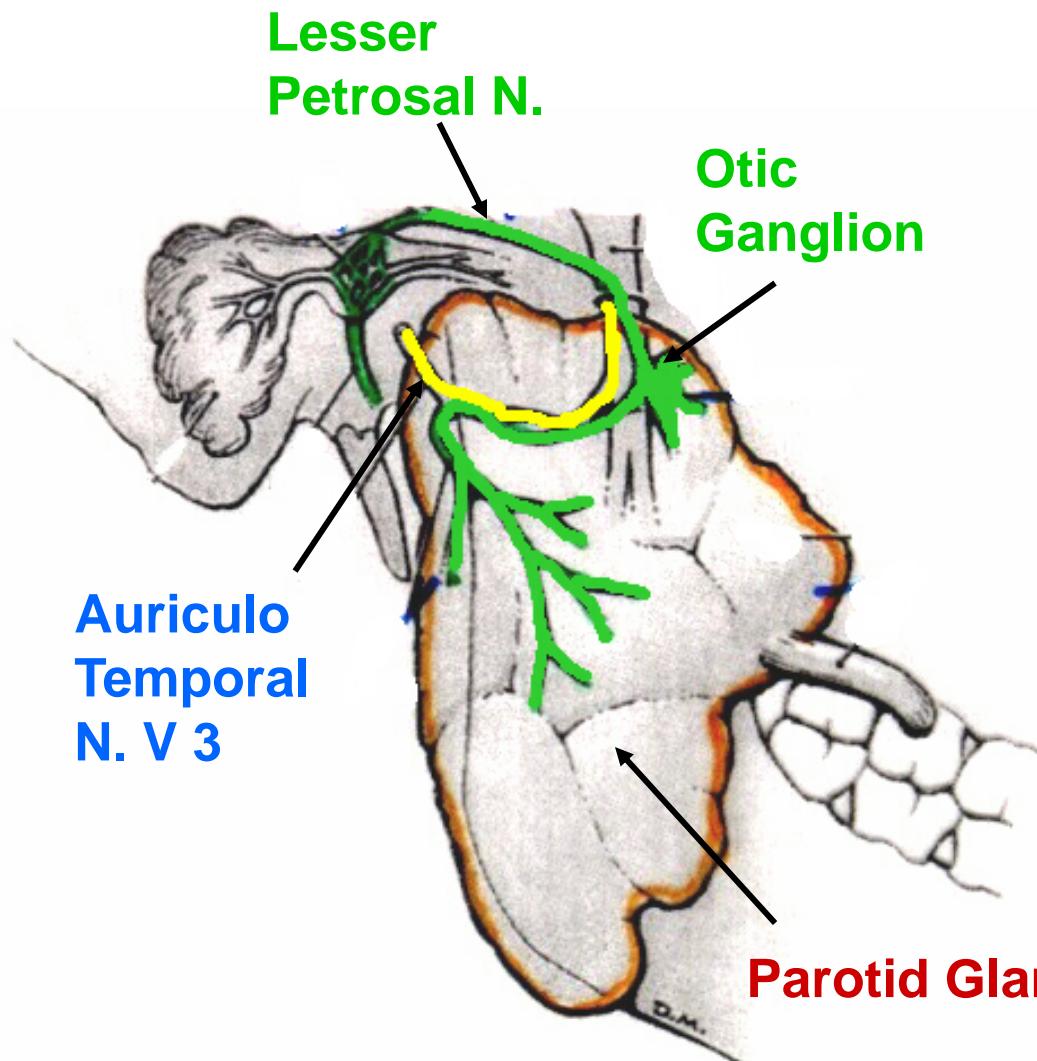
exits via
Jugular Foramen



1. Tympanic Nerve
Forms tympanic plexus; GVA sensory to middle ear
Mastoid sinus auditory tube

2. Lesser Petrosal
GVE parasymp To Parotid Gland

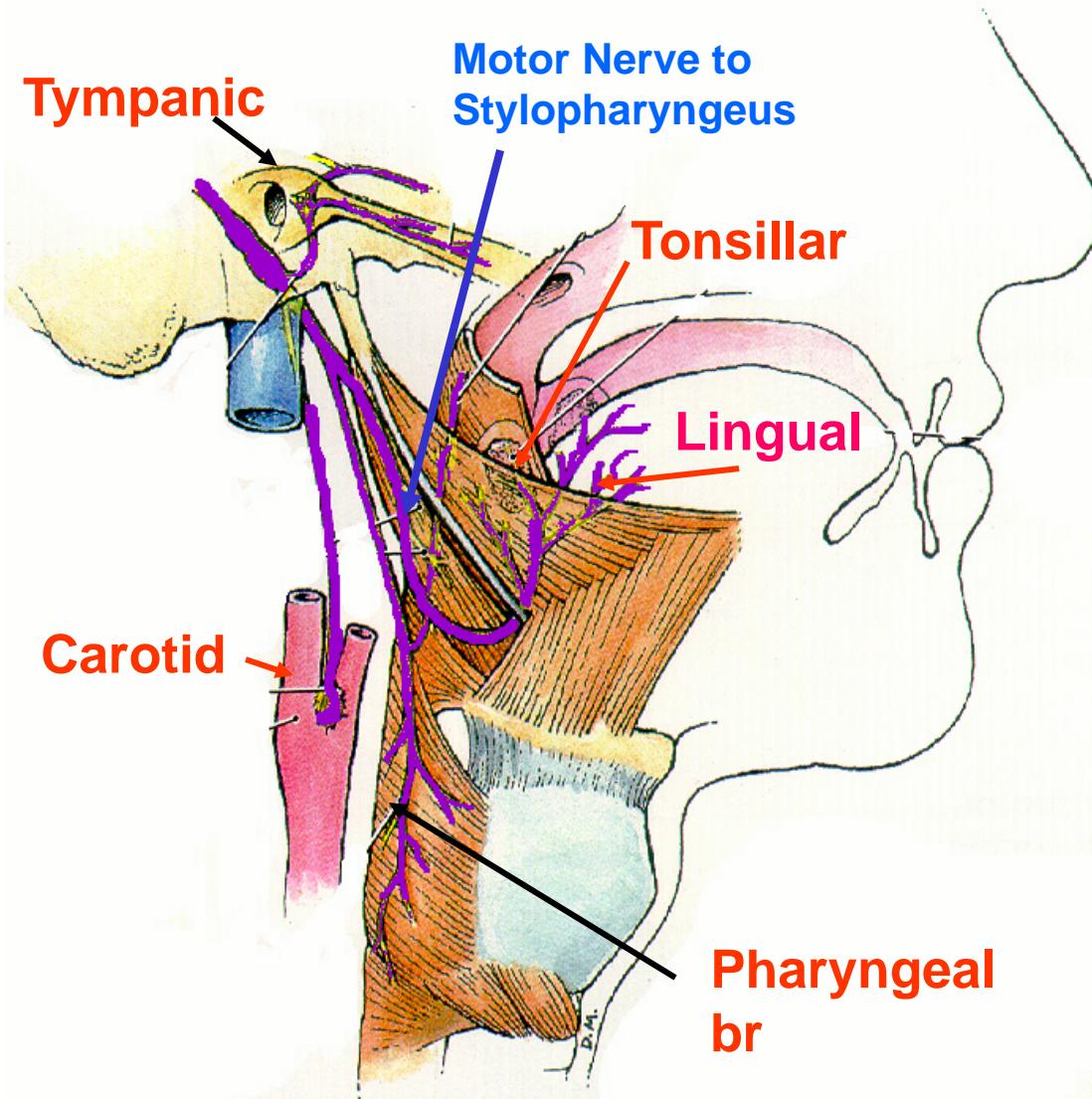
IX- LESSER PETROSAL NERVE - PAROTID GLAND



IX Lesser Petrosal –
synapse in Otic
Ganglion
Post. ganglionic
parasymp. from Otic
ganglion join Auriculotemporal N. V 3 - to
Parotid Gland

May also carry
Somatic Sensory
(GSA) fibers to outer
ear

IX - GLOSSOPHARYNGEAL



3. Carotid branches

Sensory –

Carotid sinus - blood

Pressure

Carotid Body - CO₂ in
blood

4. Motor Nerve to Stylopharyngeus

5. Pharyngeal Branches

Sensory to oropharynx

6. Tonsillar Branches

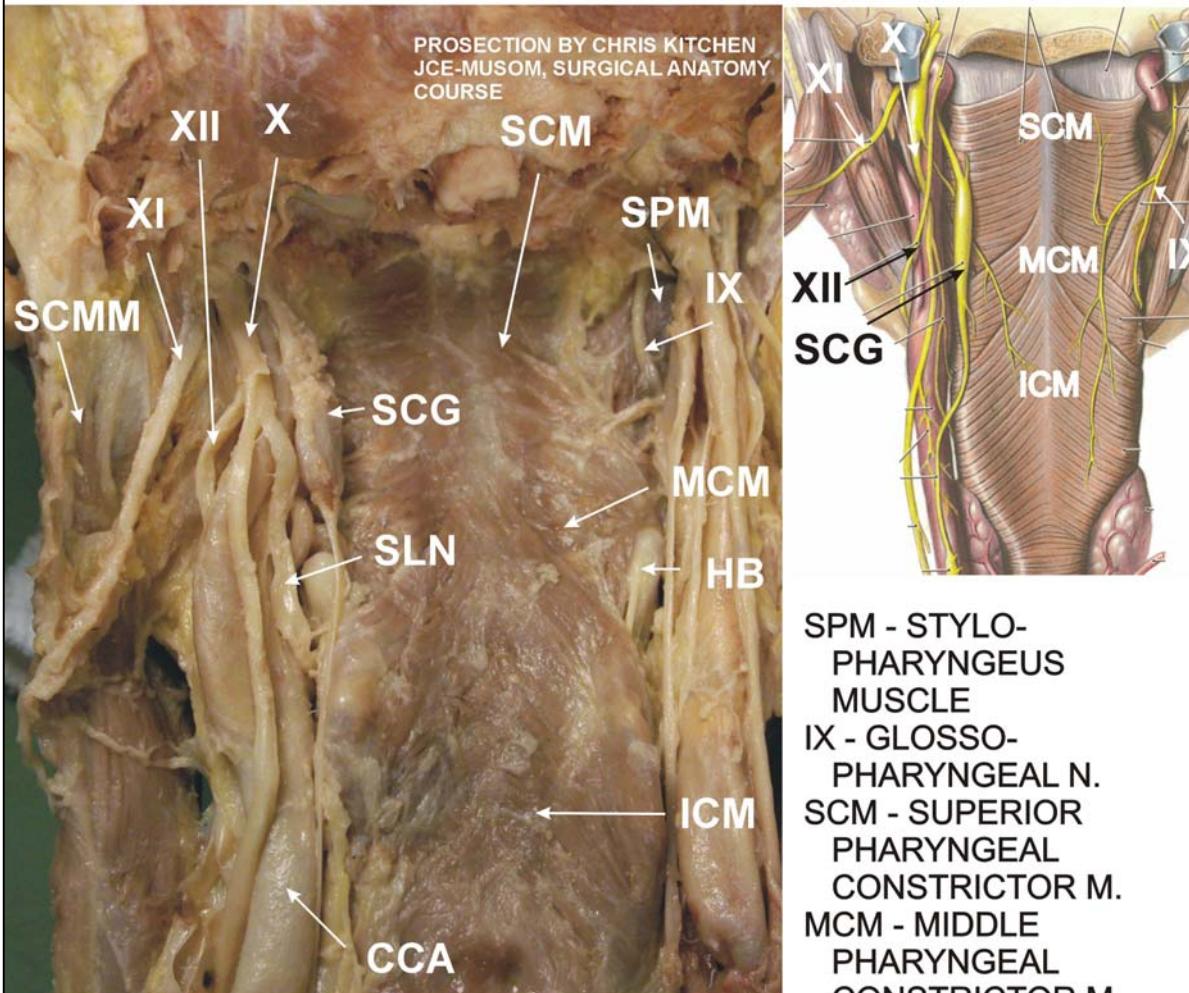
Sensory to palatine tonsil

7. Lingual branches

Sensory (touch) & taste to
post. 1/3 of tongue

POSTERIOR PHARYNX AND CRANIAL NERVES IX, X, XI AND XII

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SCG - SUPERIOR CERVICAL GANGLION
X - VAGUS NERVE
XII - HYOGLOSSAL NERVE
XI - ACCESSORY NERVE
SCMM - STERNOCLIDOMASTOID MUSCLE
CCA - COMMON CAROTID ARTERY
SLN - SUPERIOR LARYNGEAL NERVE

SPM - STYLOPHARYNGEUS MUSCLE
IX - GLOSSOPHARYNGEAL N.
SCM - SUPERIOR PHARYNGEAL CONSTRICTOR M.
MCM - MIDDLE PHARYNGEAL CONSTRICTOR M.
HB - HYOID BONE
ICM - INFERIOR PHARYNGEAL CONSTRICTOR M.

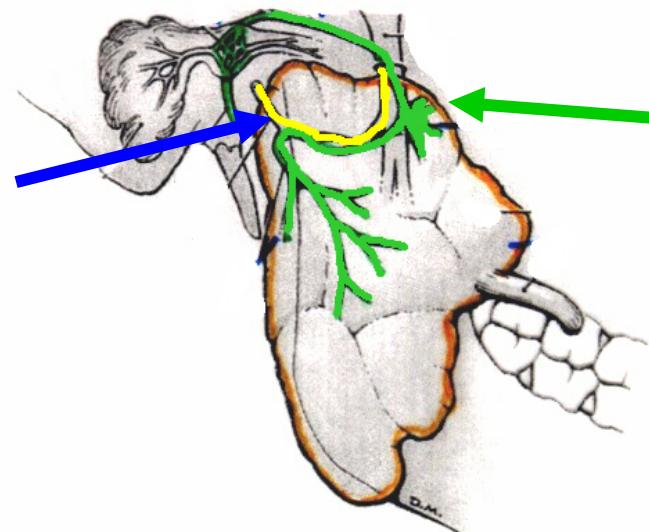
PARASYMPATHETIC OF IX JOIN BRANCHES OF V

II. PARASYMPATHETICS OF IX JOIN BRANCHES OF V

A. Parasympathetics – GVE

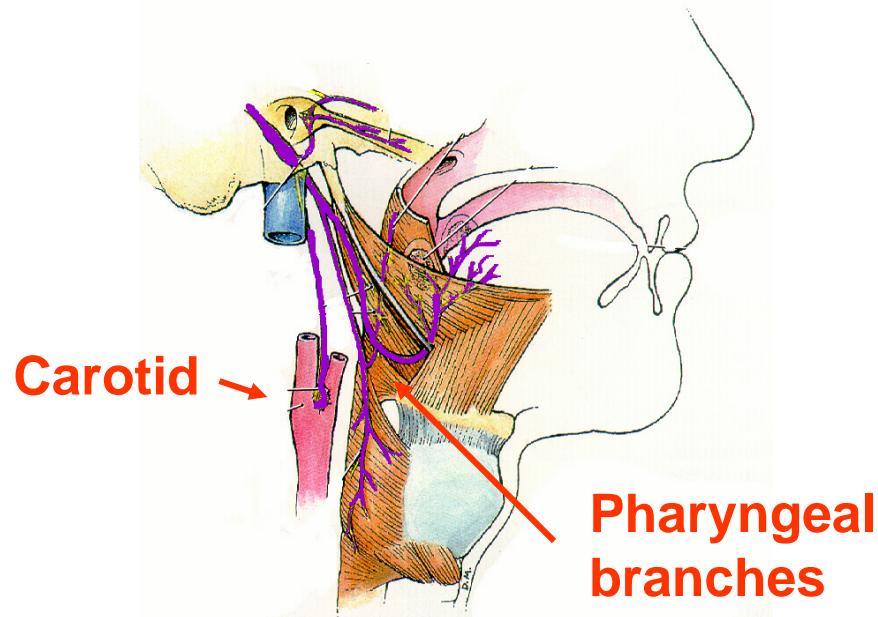
NERVE	PRE-GANGLIONIC FIBER IN	POST-GANGLIONIC FIBERS ARISE IN	JOINS	INNERVATES
IX	Lesser Petrosal n.	Otic ganglion	Auriculotemporal n. (V3)	Parotid gland

AURICULO-TEMPORAL NERVE



IX - LESSER
PETROSAL - OTIC
GANGLION

INTEGRATION REVIEW



IX – GAG REFLEX
IN - IX (Pharyngeal
Sensory branches)
OUT - X

IX – CENTRAL LESIONS –
Nucleus solitarius - GVA--
9,10: **cardiac-pulmonary
areflexia**; loss of chemo-
baro-sensory afferents in
the carotid sinus/body
(Carotid branch IX)