



Head & Neck Anatomy

Mandibular Nerve

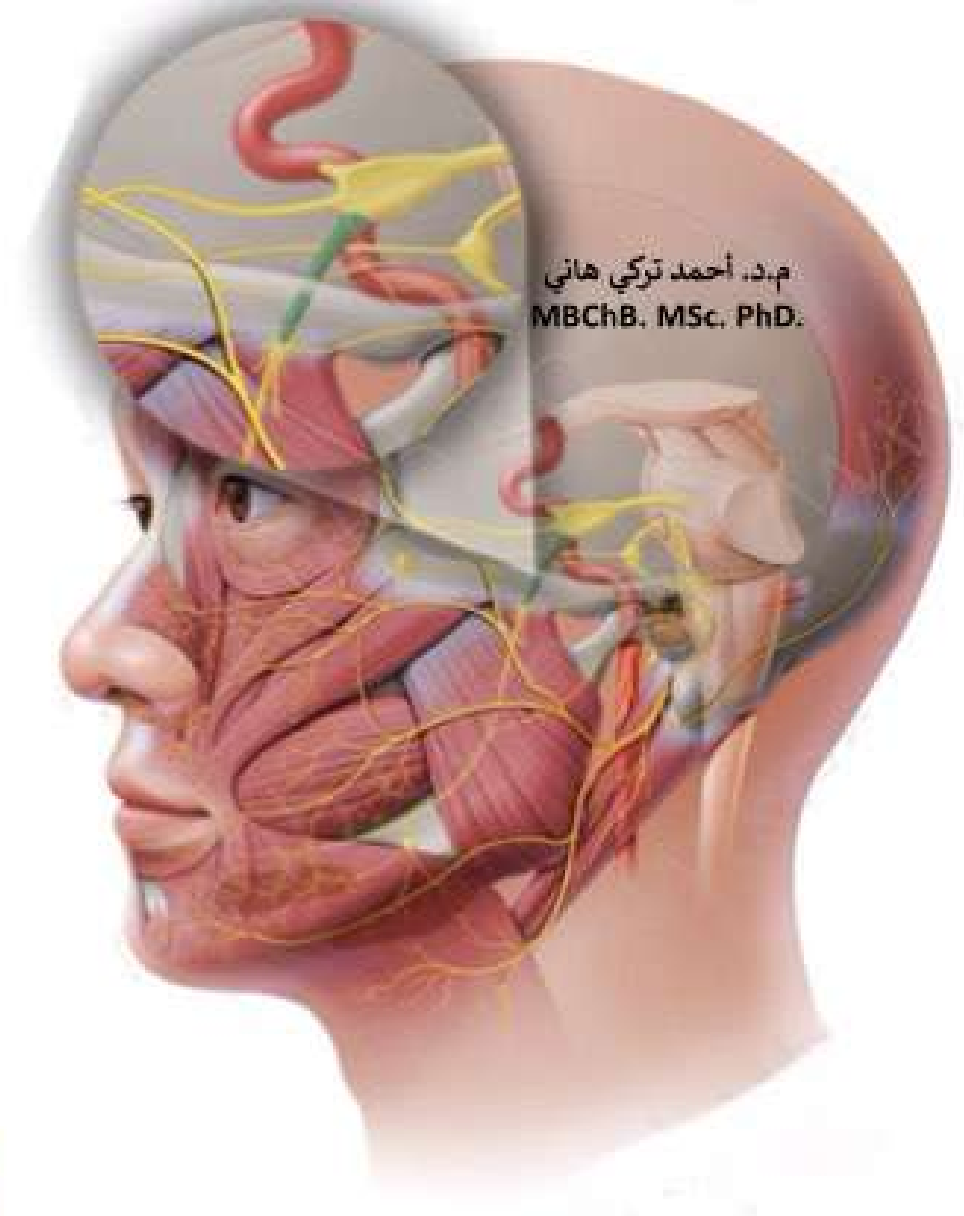
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The **mandibular nerve** is the **third division (V3)** of the **trigeminal nerve (cranial nerve V)**.

It is **both sensory and motor**—unlike the ophthalmic (V1) and maxillary (V2) divisions, which are purely sensory.



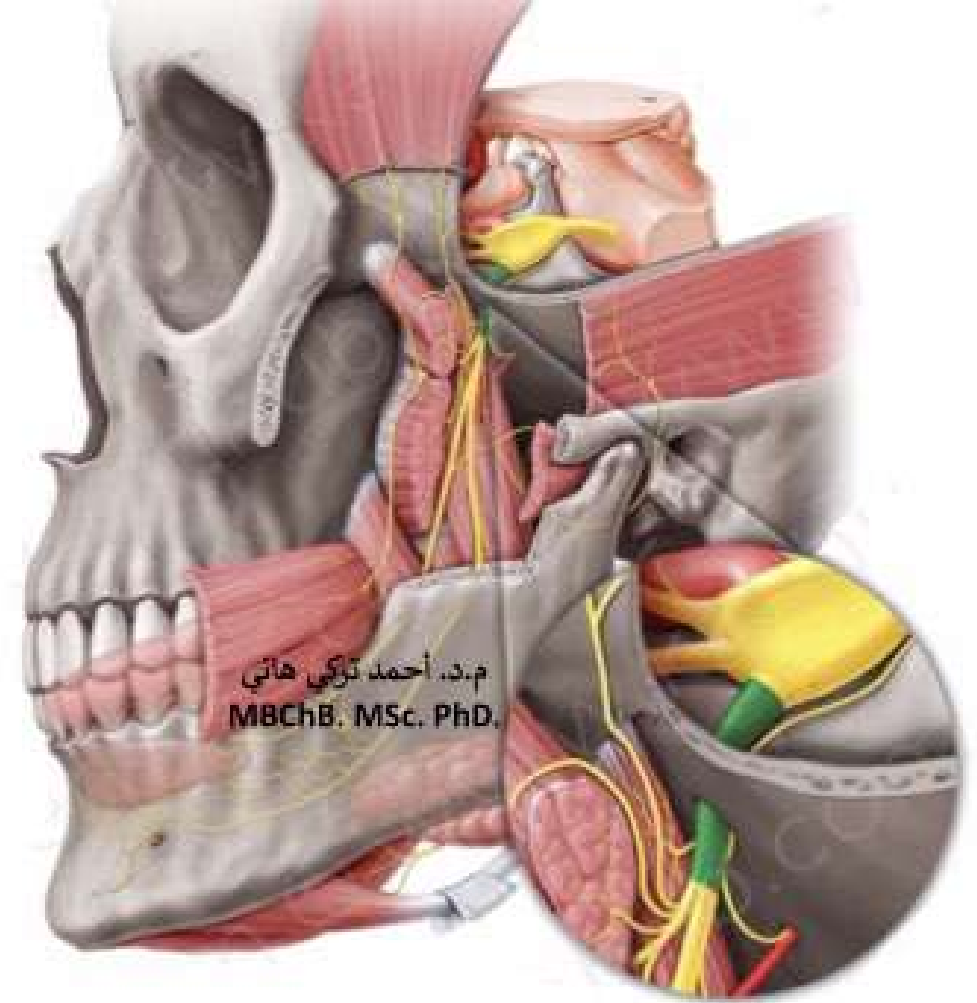
Mandibular n. (V3)



- **Origin:** Arises from the trigeminal ganglion in the middle cranial fossa.
- **Pathway:** Passes through the **foramen ovale** to enter the **infratemporal fossa**.
- **Function:**
 - **Sensory** to the lower face (mandible, lower teeth, tongue, etc.)
 - **Motor** to the muscles of mastication and other small muscles.



Mandibular N. (V3)

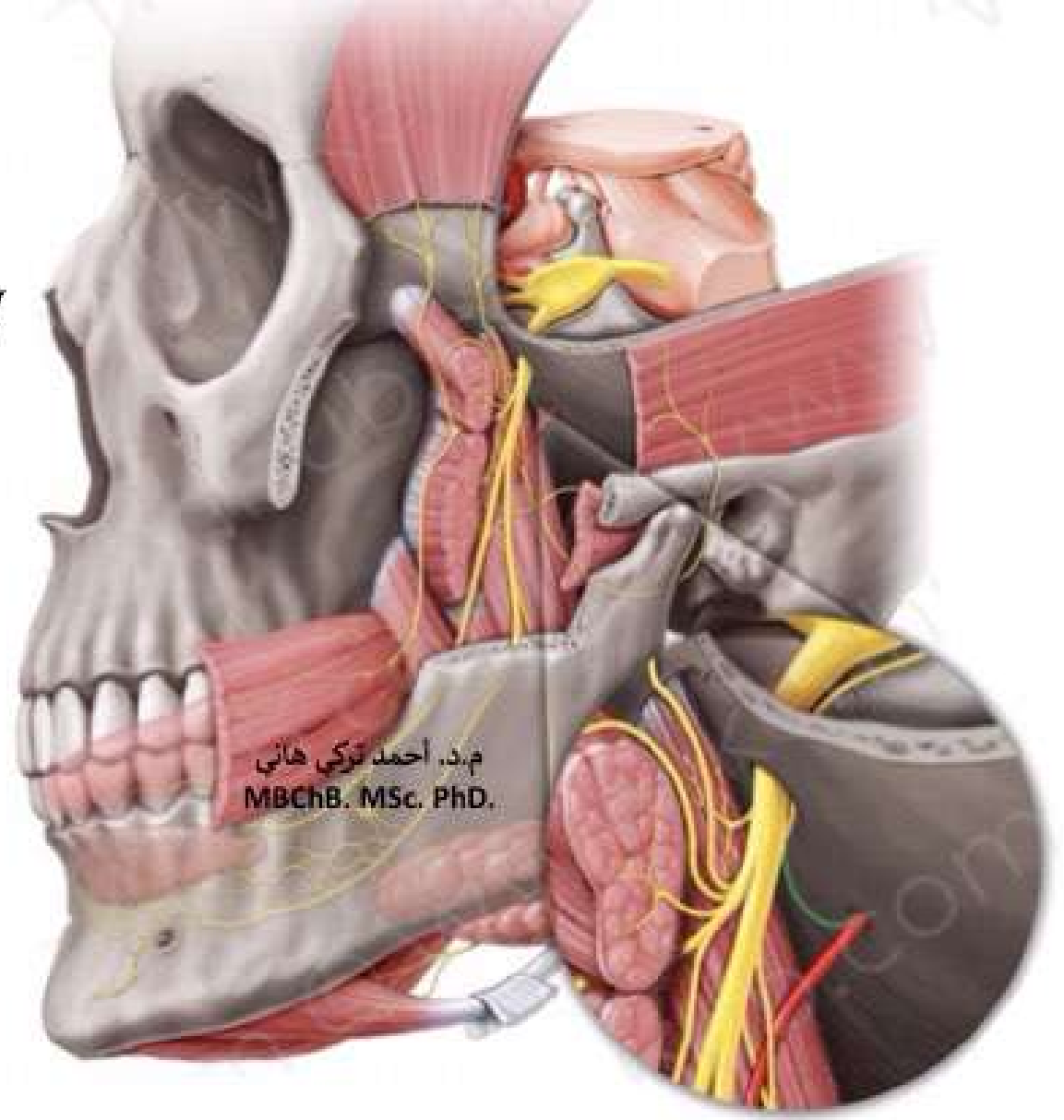


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Branches of the Mandibular Nerve

Main Trunk

Meningeal branch –
enters the skull to supply
the dura mater.



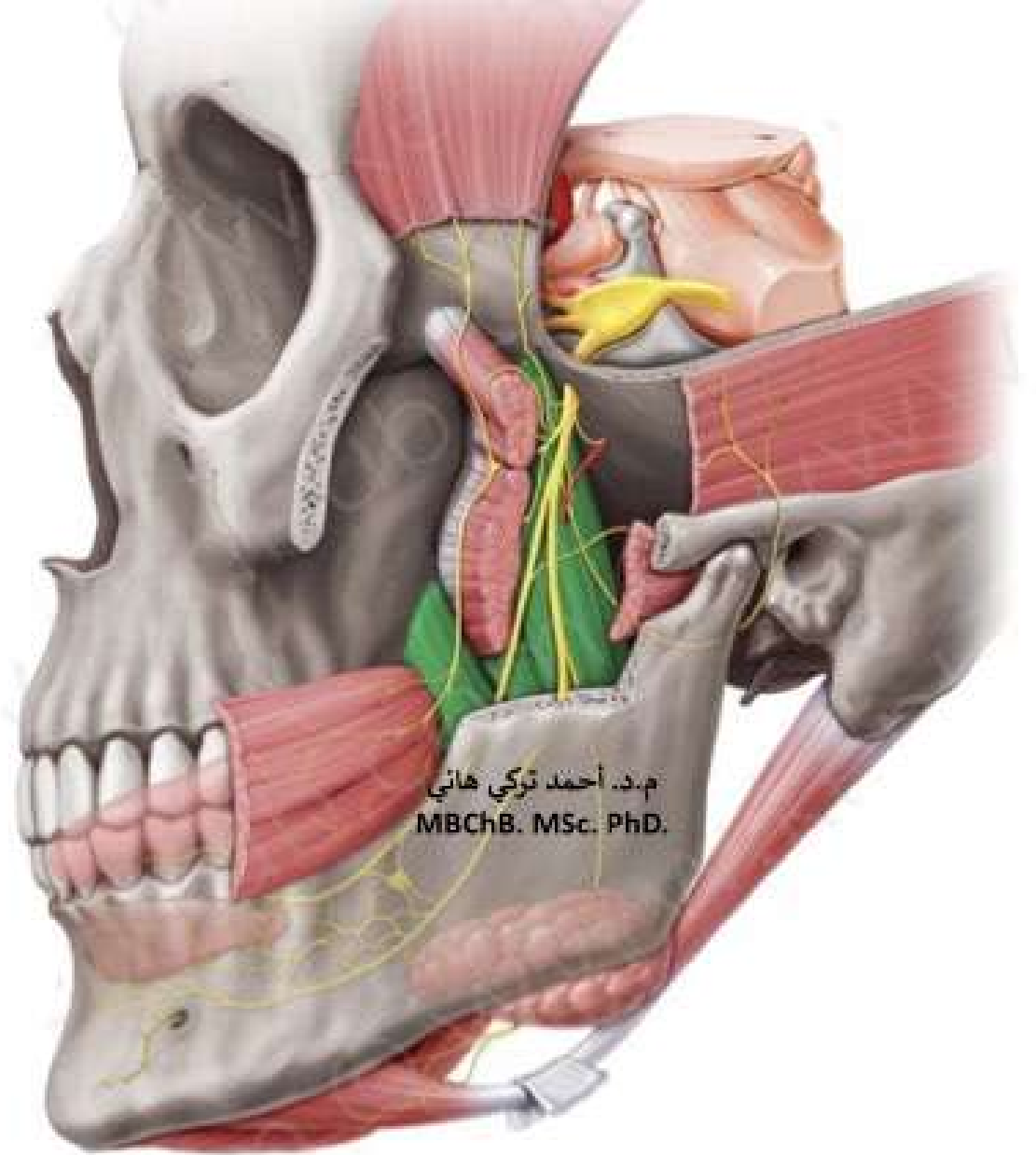
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Meningeal Branch.

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Nerve to medial pterygoid – also gives twigs to tensor tympani and tensor veli palatini.



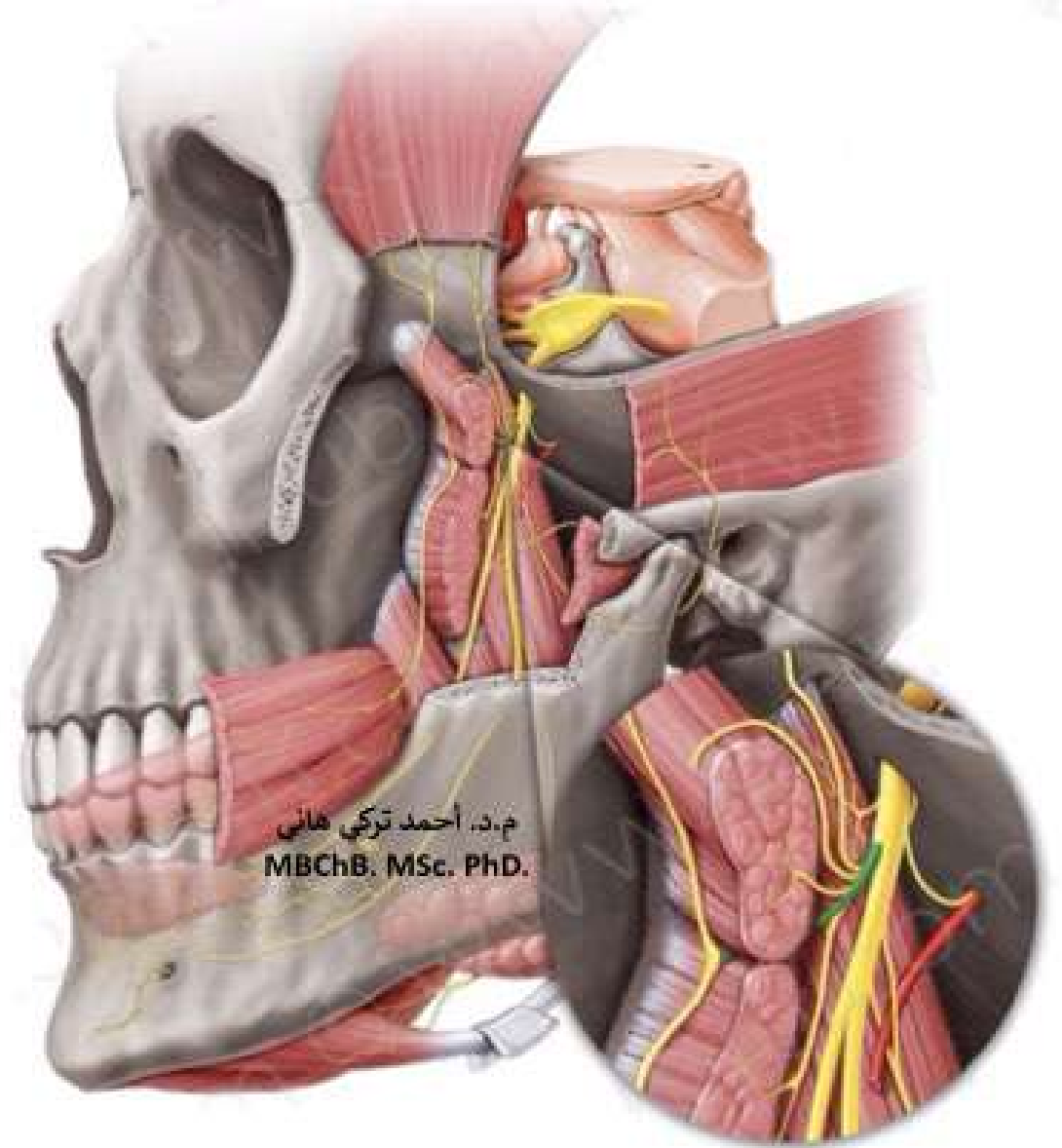
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Medial pterygoid m.

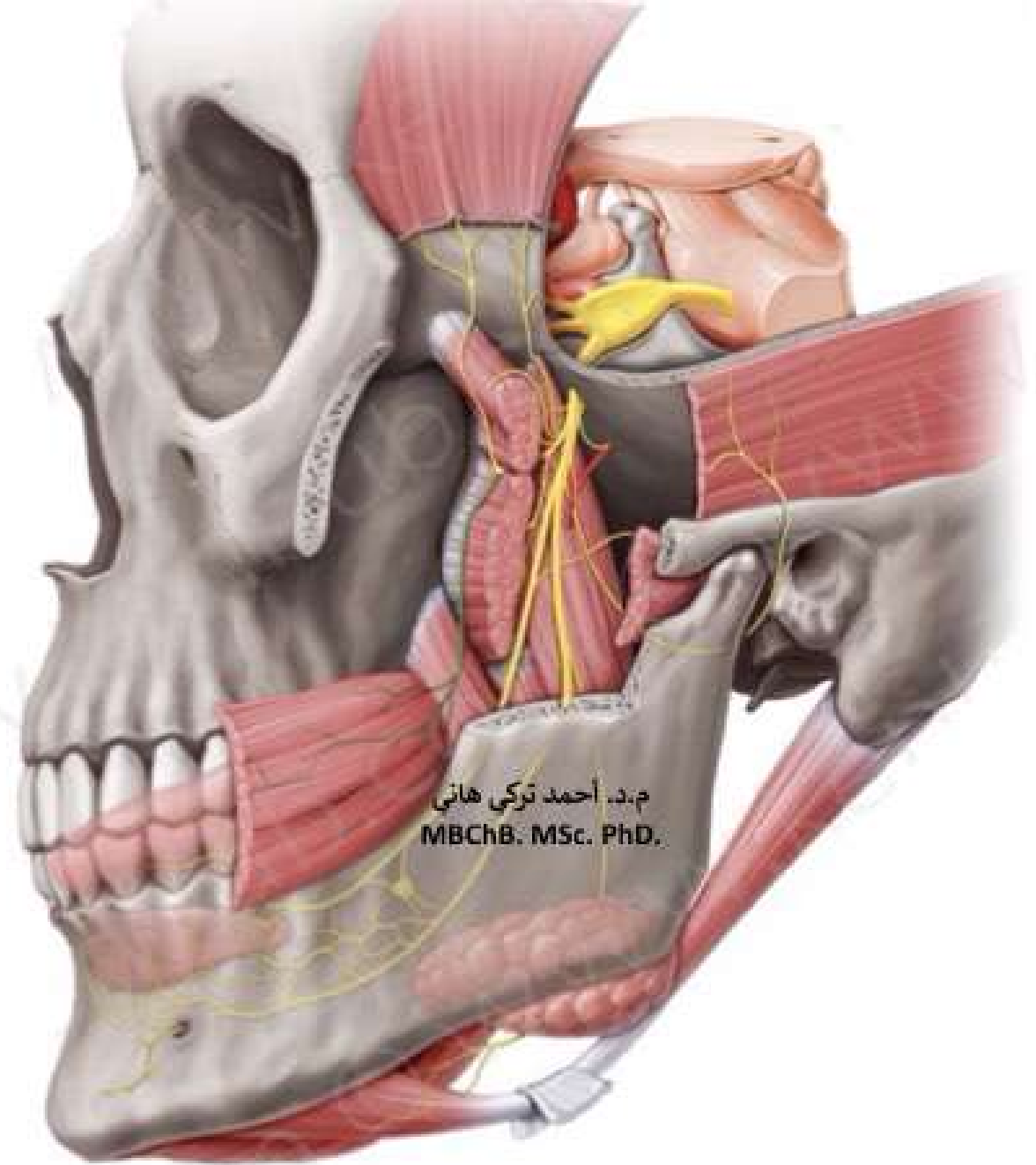
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Anterior Division (mostly motor)



Anterior division of mandibular n.

- **Buccal nerve – sensory**
to cheek mucosa and
skin.



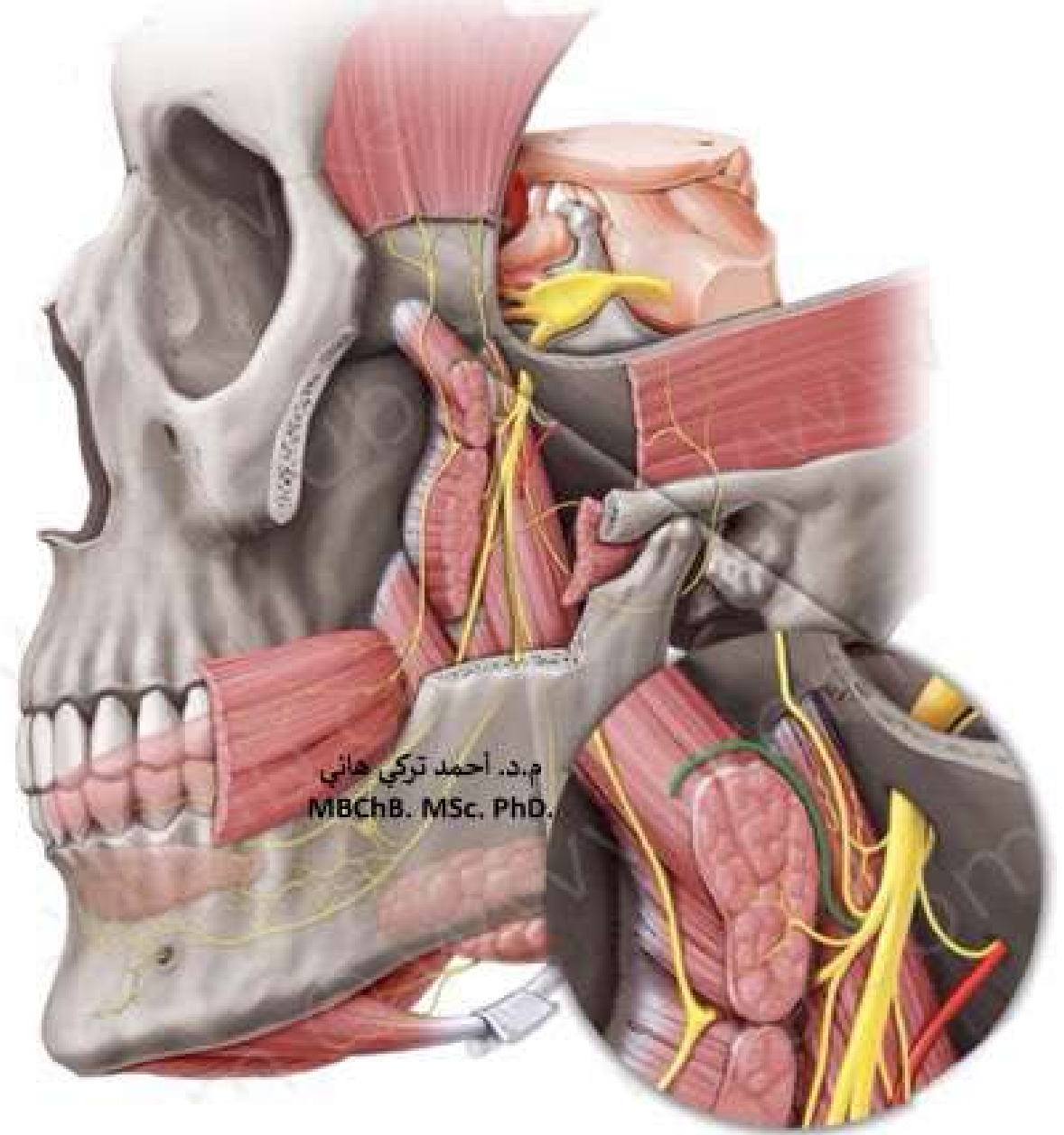
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Buccal n.

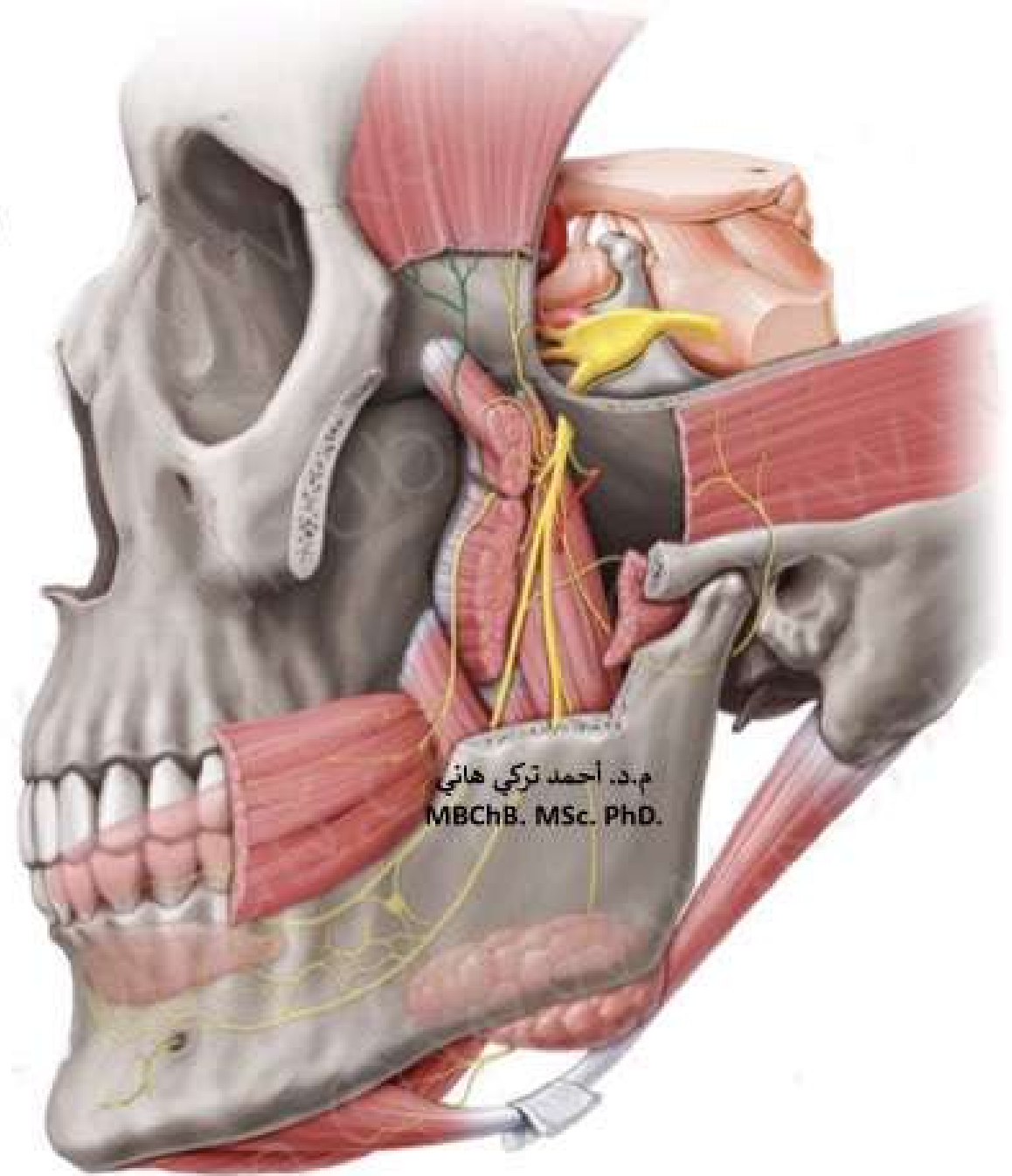
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- **Masseteric nerve**
– to the masseter.



Masseteric n.

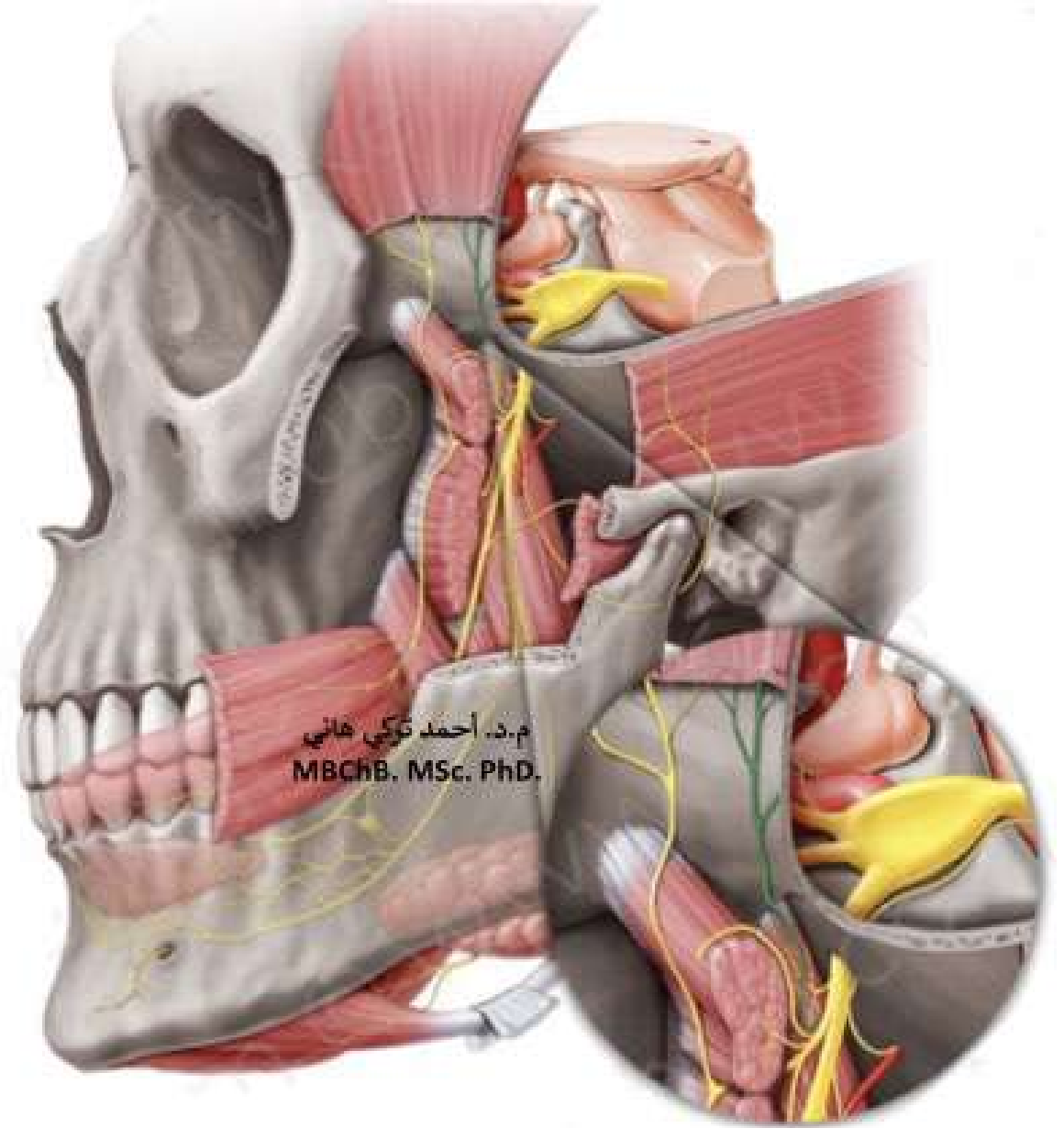
- **Deep temporal nerves**
– to temporalis muscle.



Anterior deep temporal n.

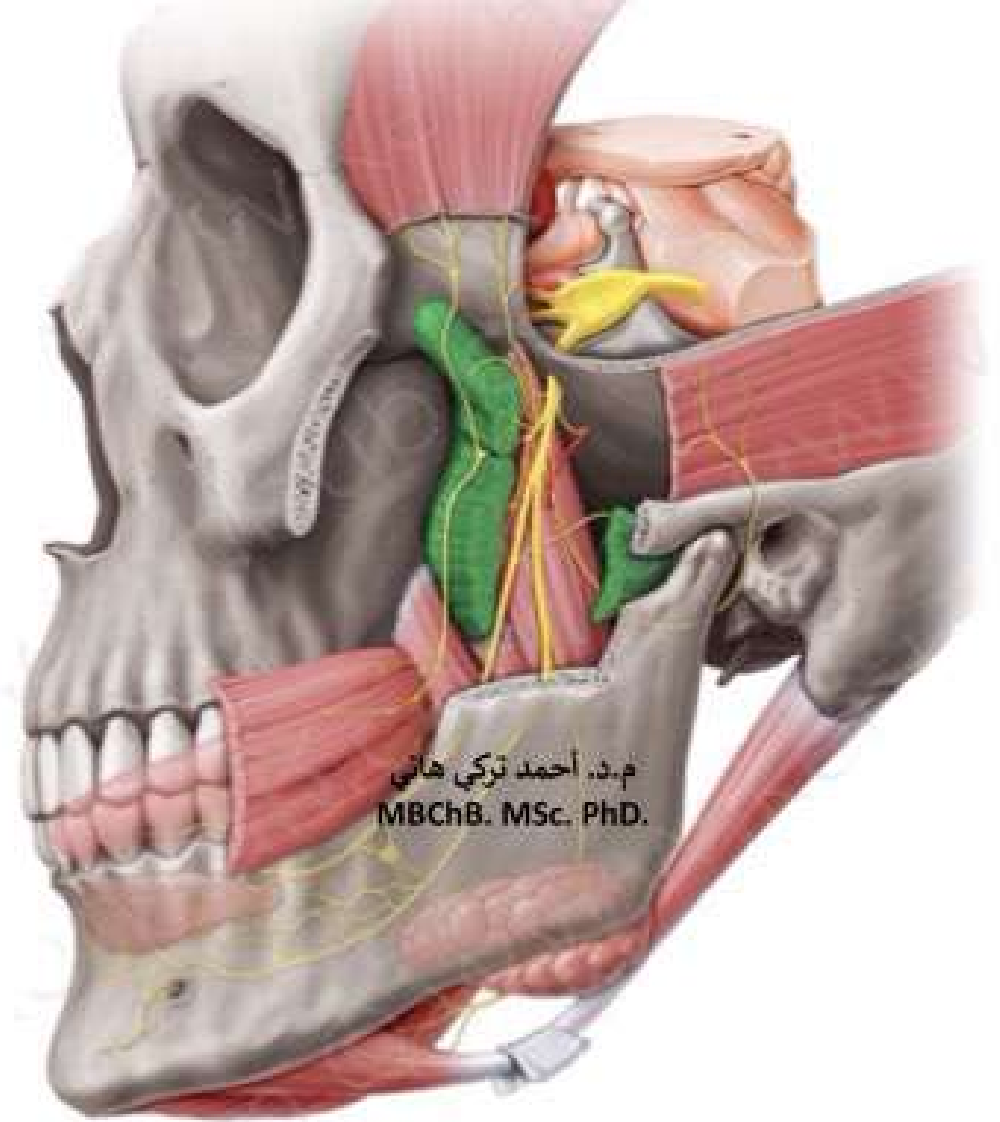
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- **Deep temporal nerves**
– to temporalis muscle.



Posterior deep temporal n.

- **Nerve to lateral pterygoid** – motor.



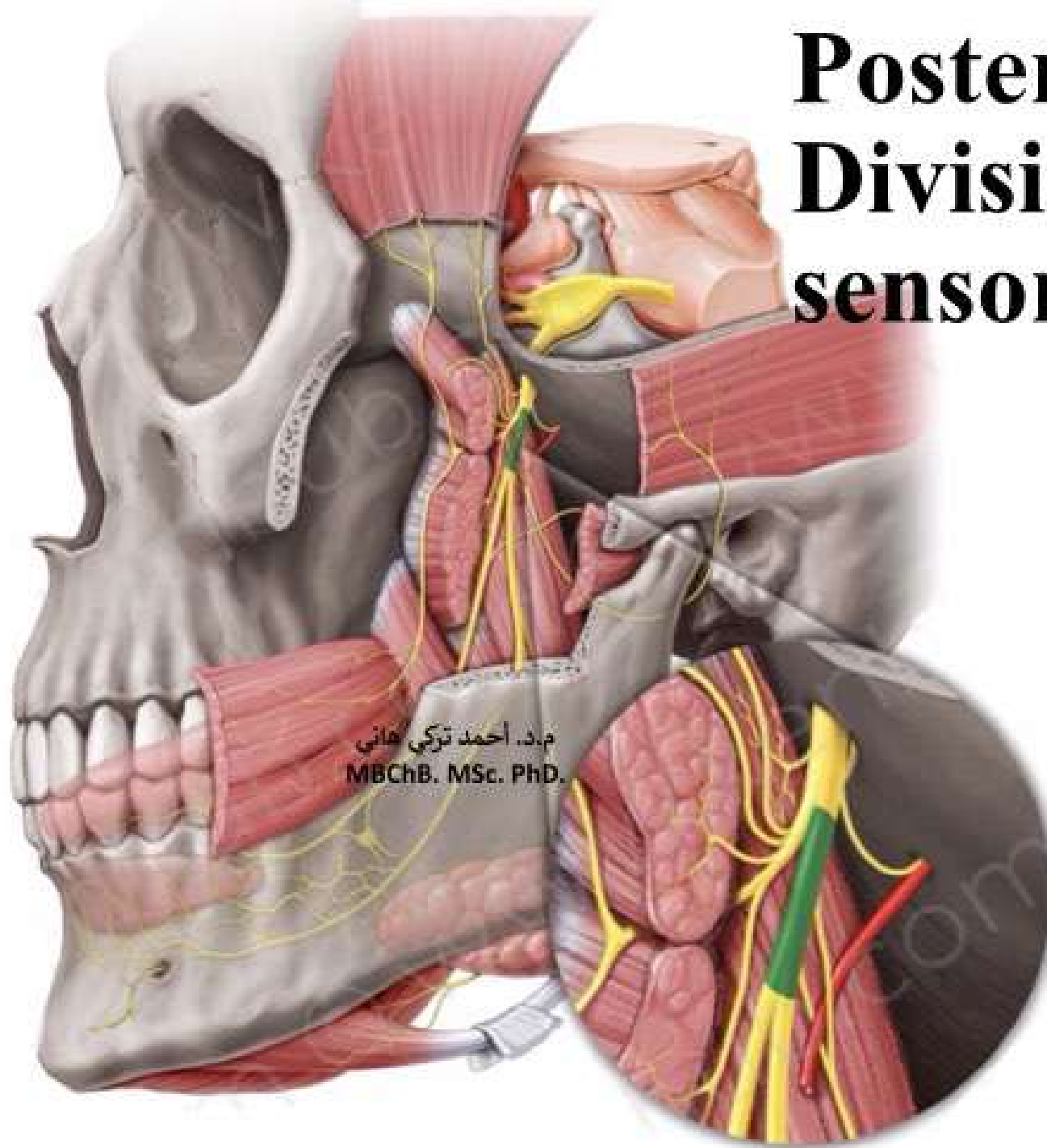
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Lateral pterygoid m.

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Posterior Division (mostly sensory)



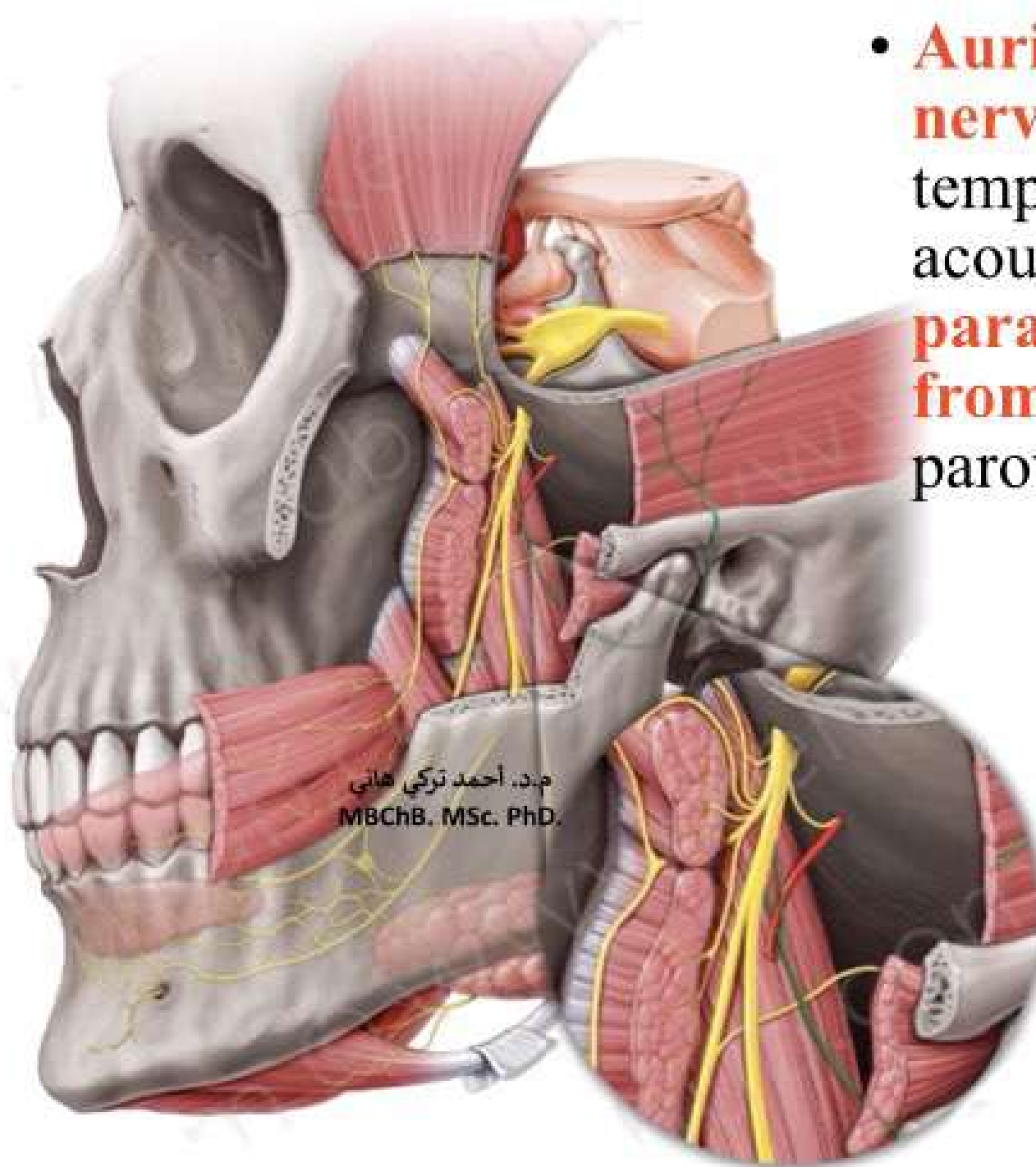
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Posterior division of mandibular n.

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- **Auriculotemporal nerve** – sensory to temple, ear, and external acoustic meatus; carries **parasympathetics from otic ganglion** to parotid gland.

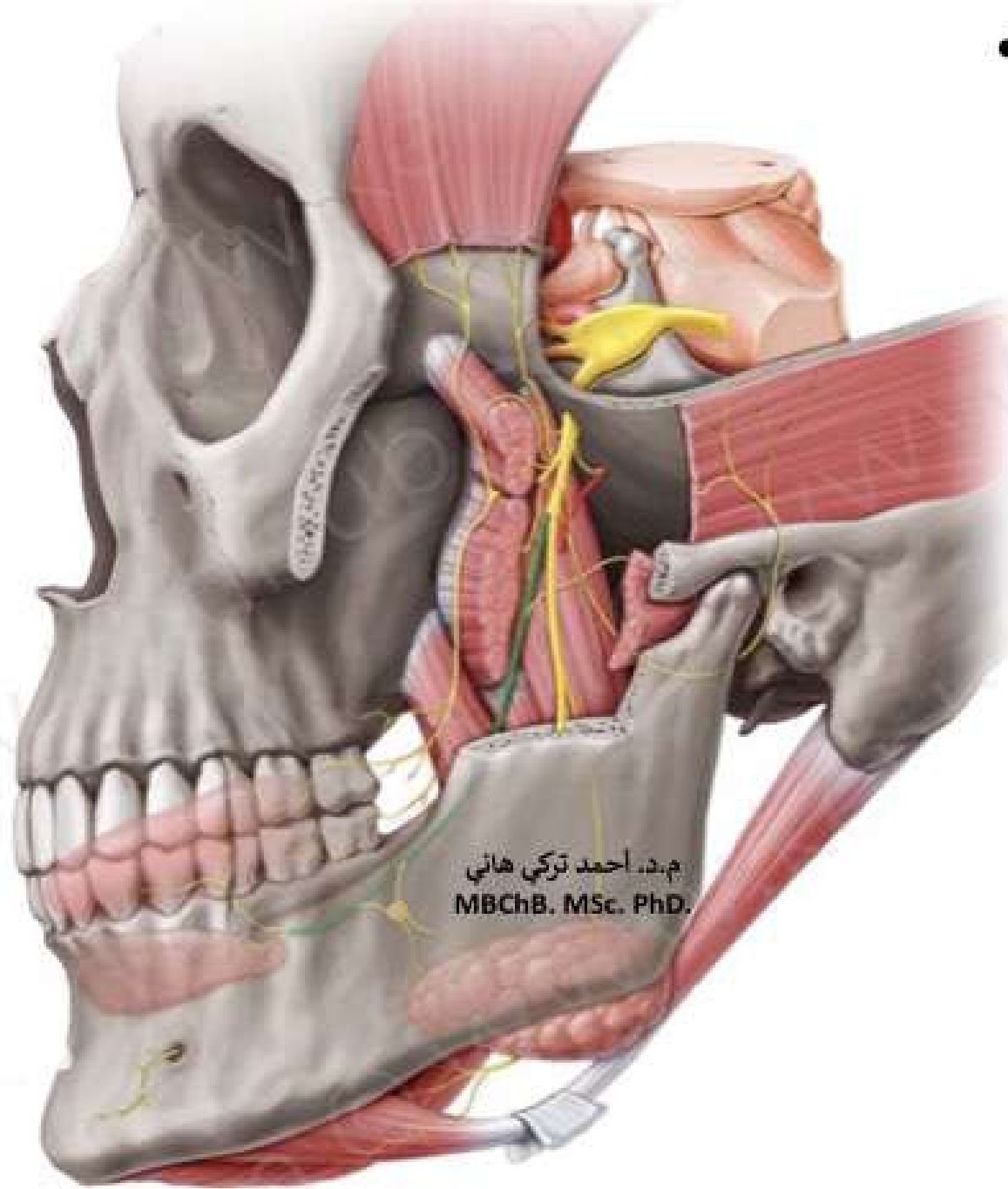


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Auriculotemporal n.

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- **Lingual nerve** – sensory to anterior 2/3 of tongue, floor of mouth. Joined (at the infratemporal fossa) by:

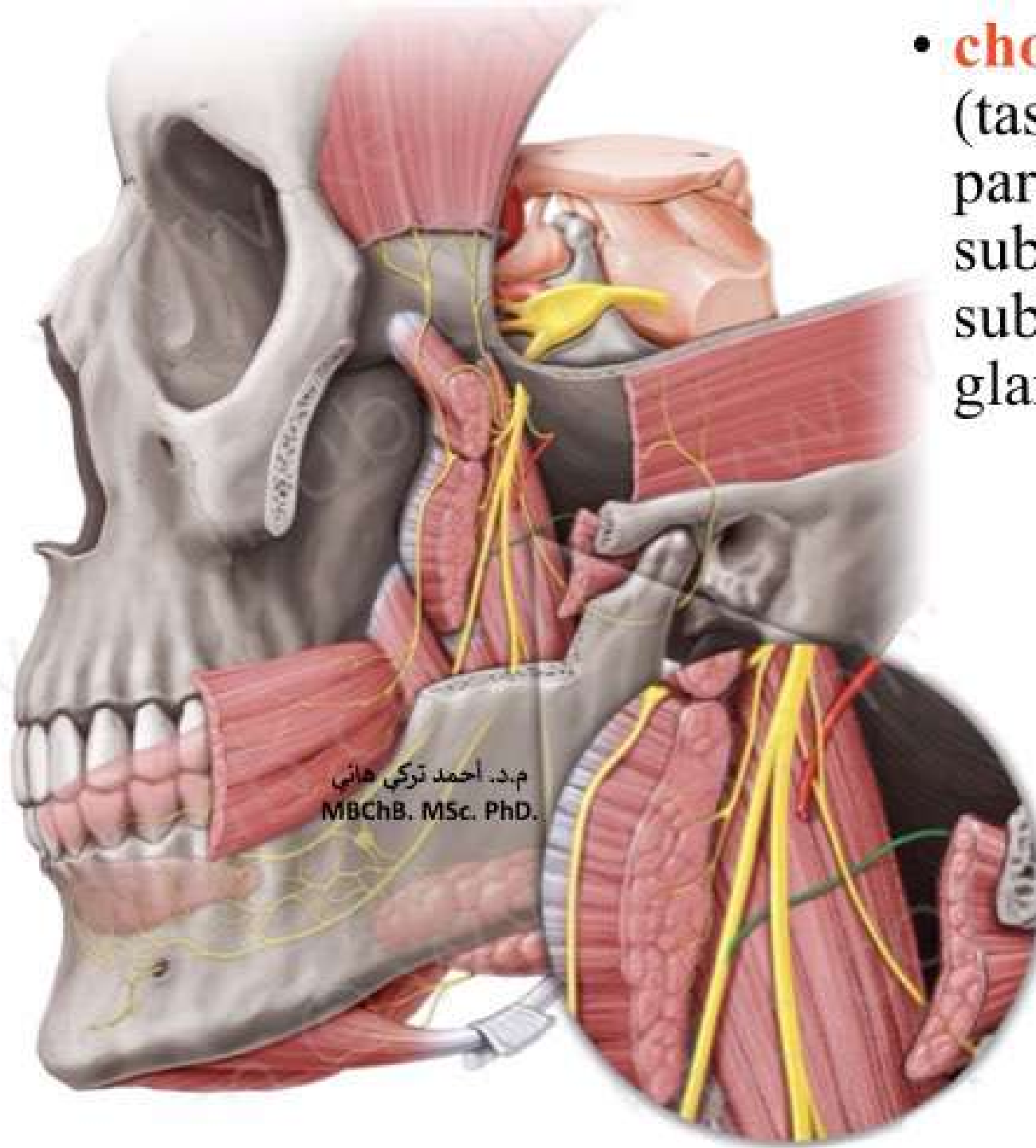
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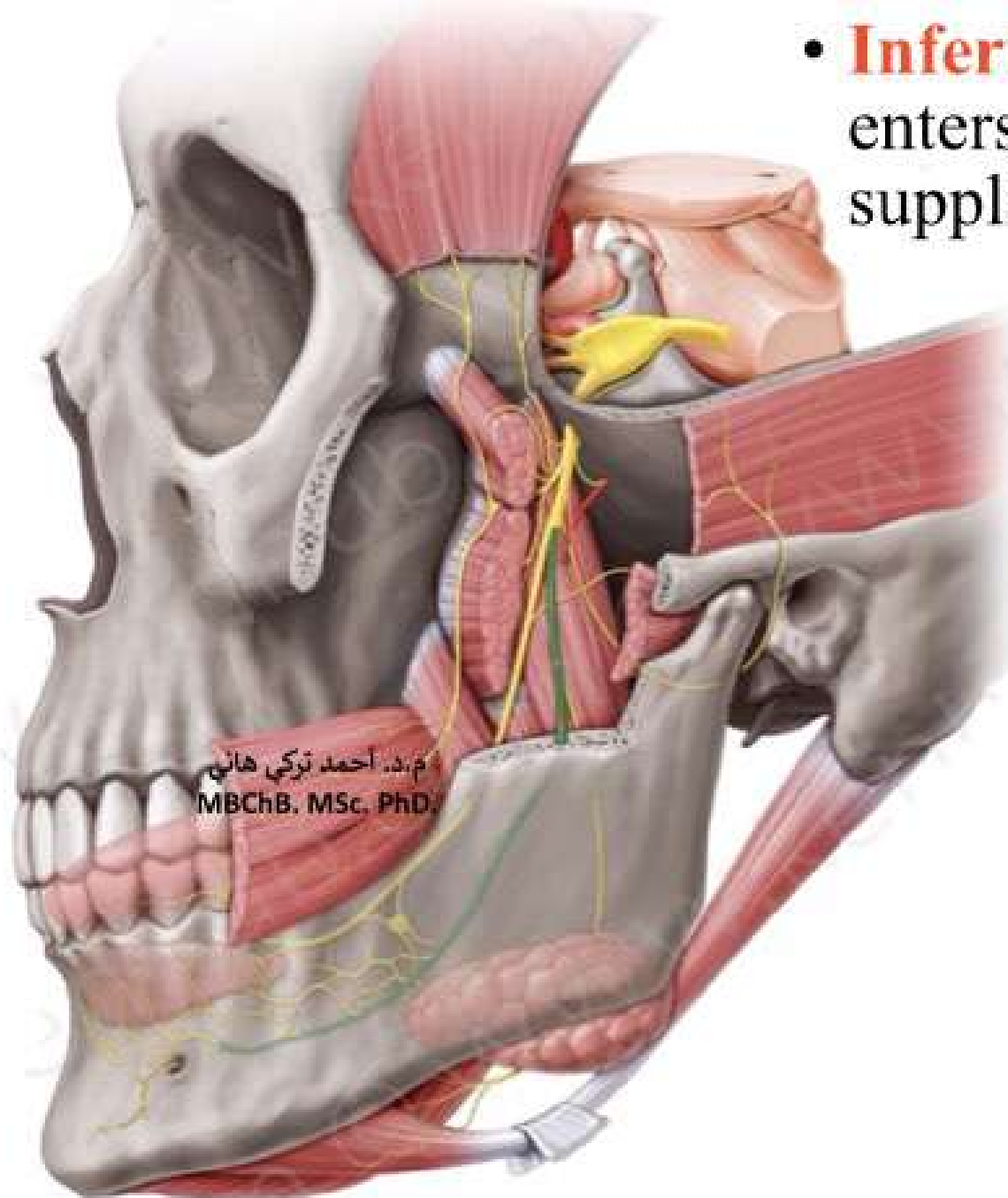
Lingual n.

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- **chorda tympani**
(taste +
parasympathetics to
submandibular/
sublingual salivary
glands).



- **Inferior alveolar nerve** – enters mandibular foramen, supplies teeth; terminates as:

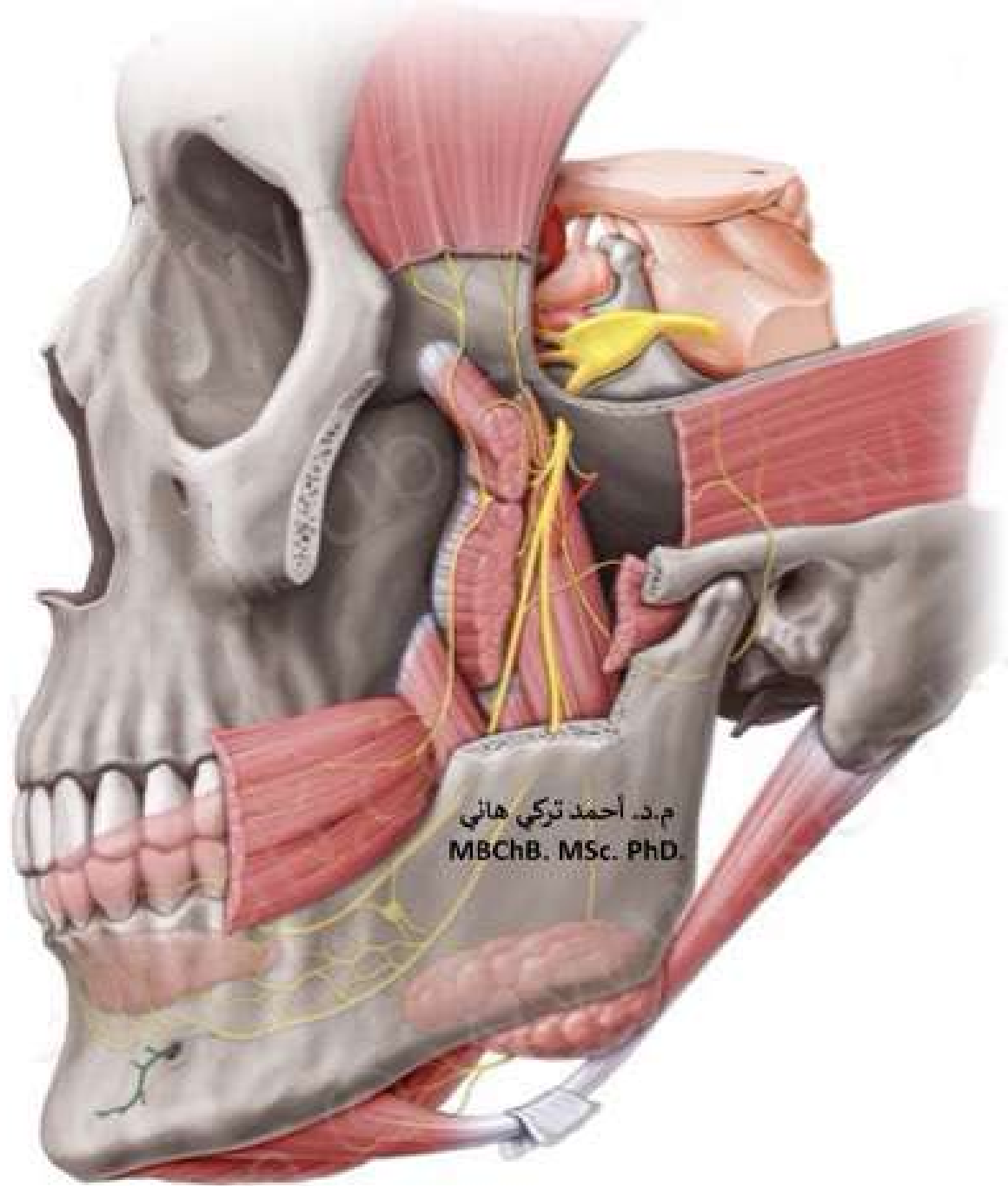


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Inferior alveolar n.

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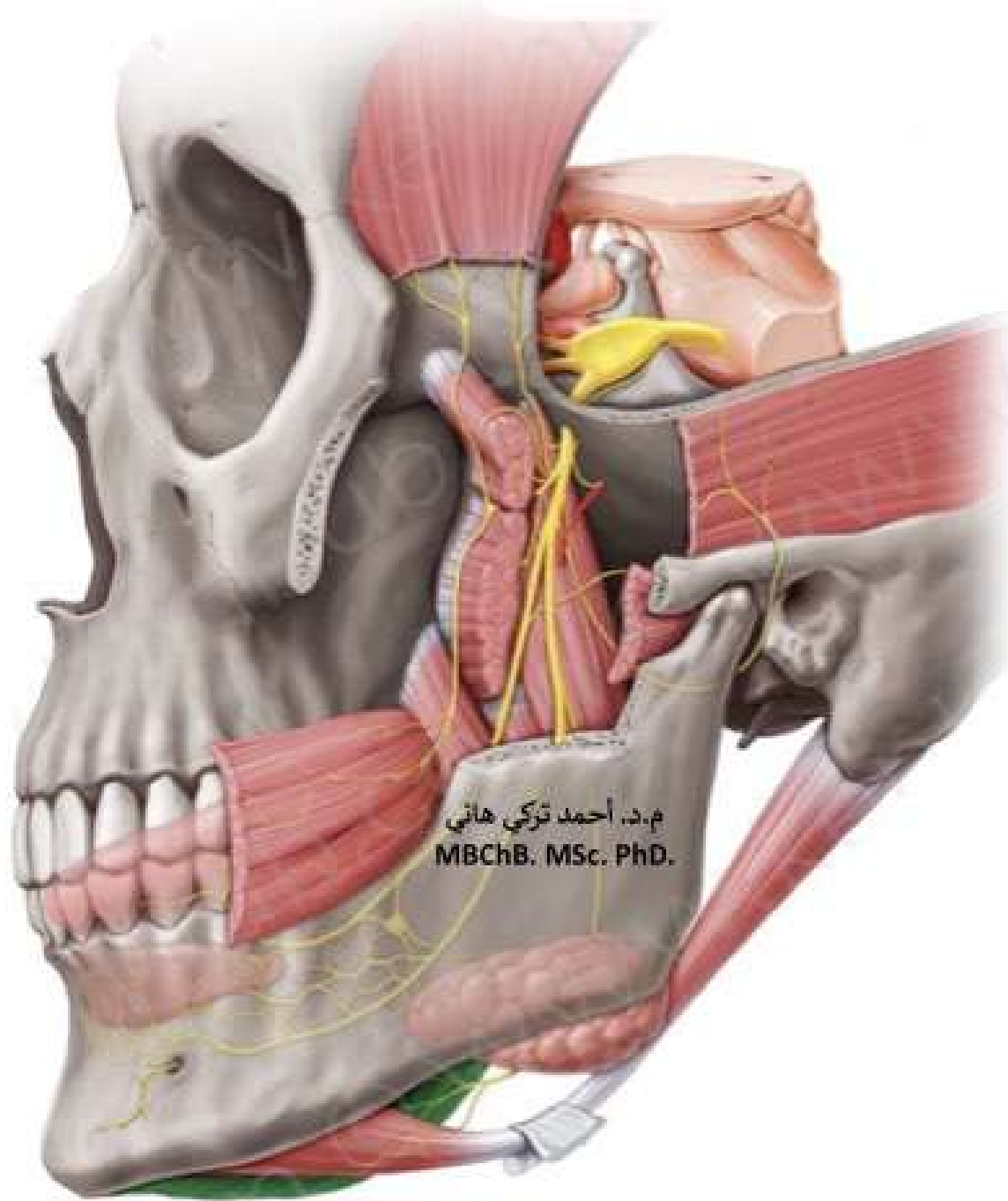
- **Mental nerve**
(sensory to chin/
lower lip)



Mental n.

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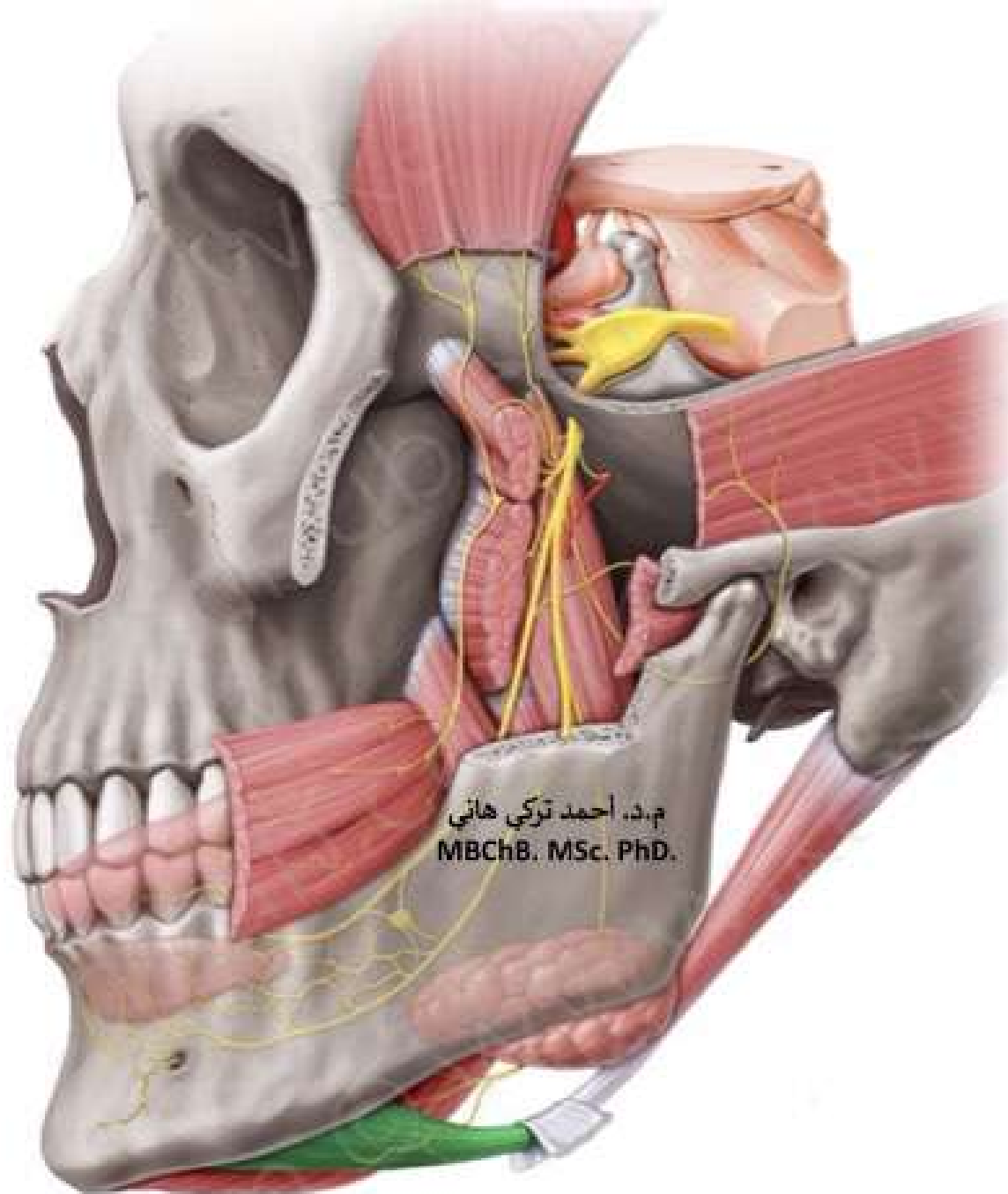
- **Mylohyoid nerve**
(motor to
mylohyoid and



Mylohyoid m.

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- anterior belly of digastric)



Anterior belly of digastric m.

Otic Ganglion

Otic Ganglion

- **Location:** Just below the foramen ovale, **medial to the mandibular nerve**, in the **infratemporal fossa**.
- **Type:** Parasympathetic ganglion.
- **Function:** Relay for parasympathetic fibers from the **glossopharyngeal nerve (CN IX)** via the **lesser petrosal nerve**.
- **Postganglionic fibers** join the **auriculotemporal nerve** to innervate the **parotid gland**.

Clinical Notes

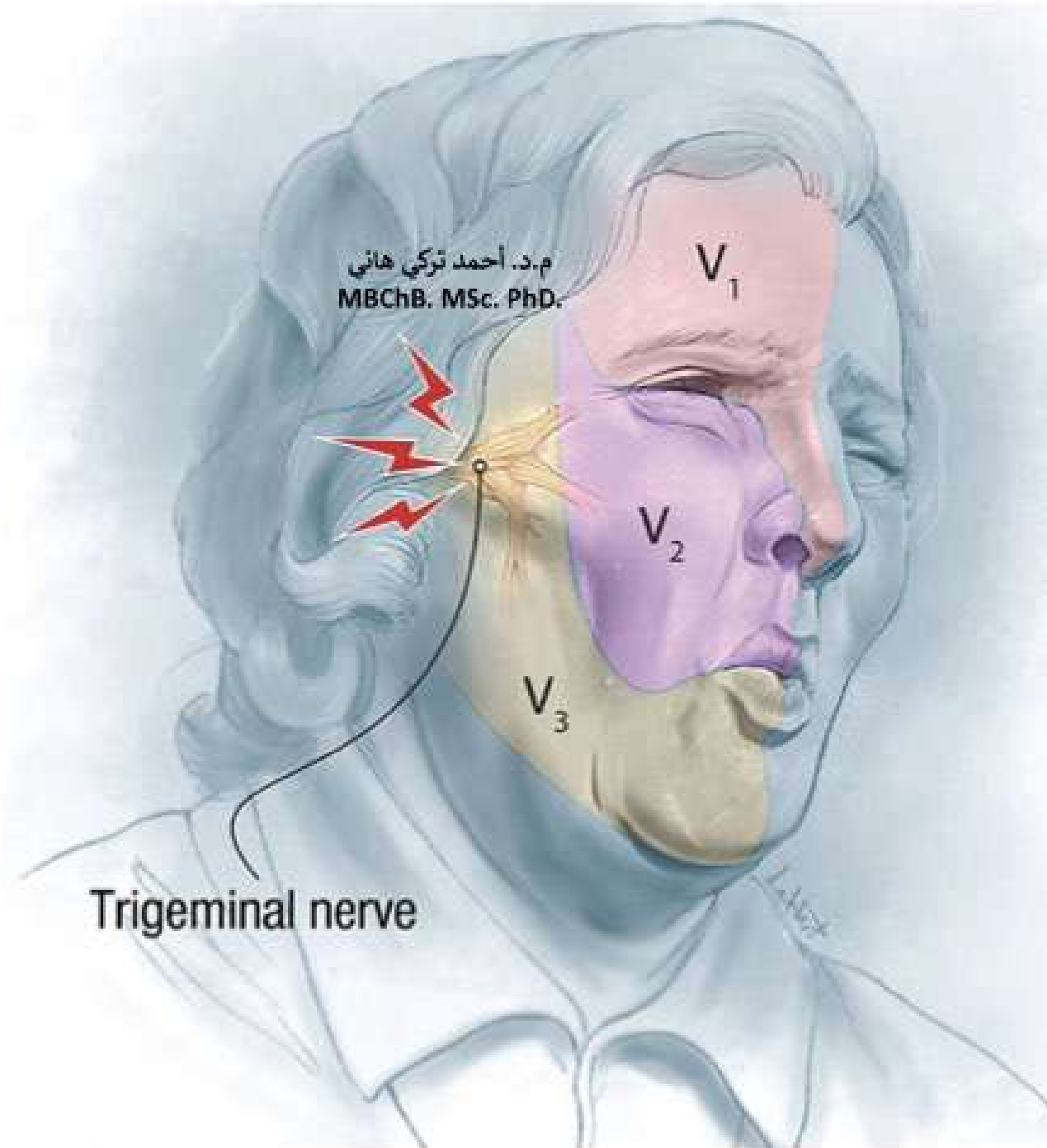
Mandibular Nerve Block

- Used for dental procedures.
- Injection near the **mandibular foramen** blocks inferior alveolar nerve → anaesthetise lower teeth and chin.

Trigeminal Neuralgia (Tic Douloureux)

- Severe, **stabbing pain** along trigeminal branches, especially V2 and V3.
- May be treated with medications, nerve blocks, or surgical intervention.

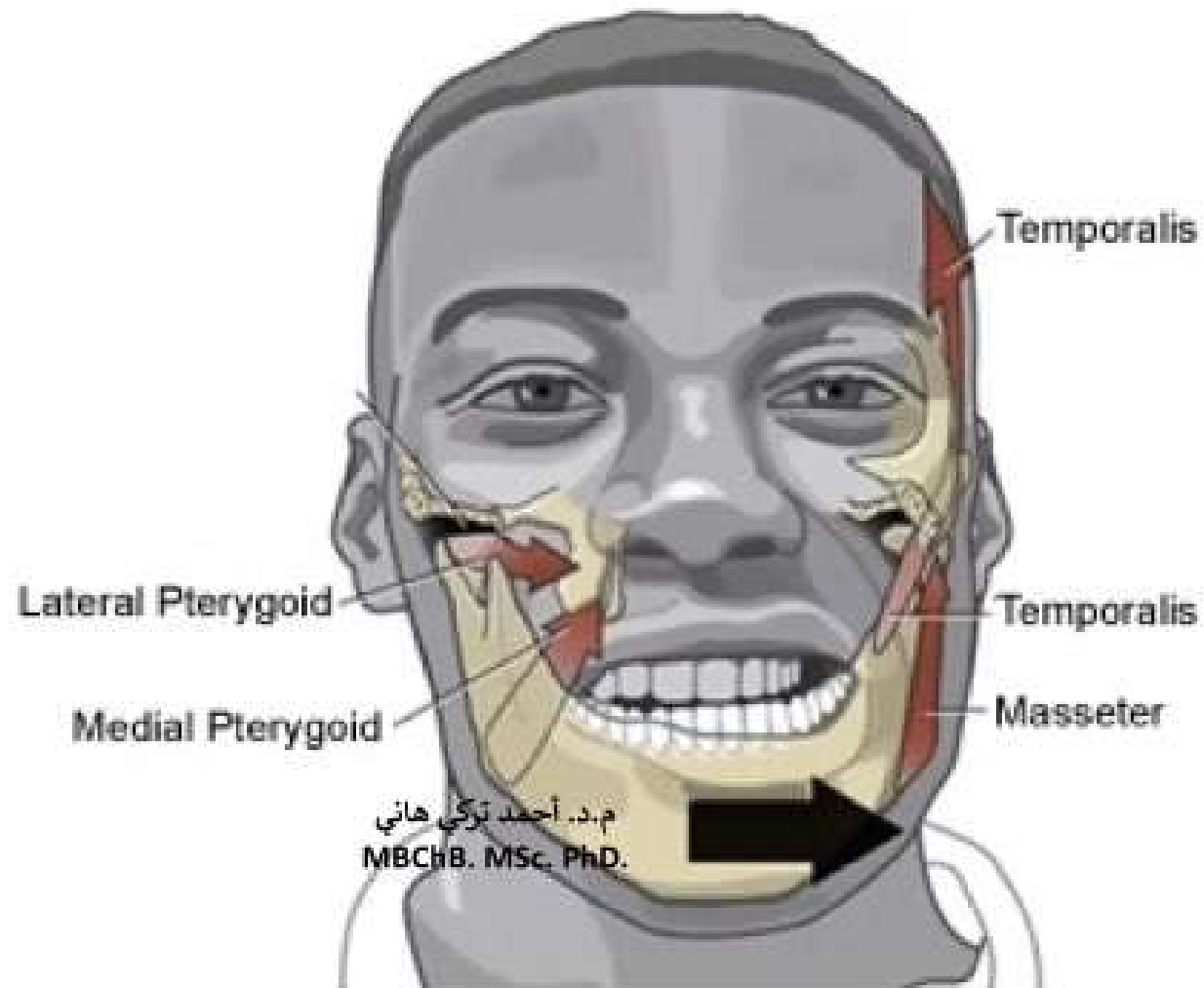
Trigeminal Neuralgia (Tic Douloureux)



Lesions

- **Damage** to the mandibular nerve can result in:
 - **Loss of sensation** in mandibular region and tongue (anterior 2/3).
 - Weakness of mastication muscles.
 - **Deviation of jaw** toward affected side (due to unopposed action of healthy pterygoid muscle).

Deviation of jaw



Summary

- Mandibular nerve (V3) is both sensory and motor.
- Exits skull via **foramen ovale**, divides into branches that serve face, mouth, and muscles.
- Linked to **otic ganglion** for parasympathetic innervation of the **parotid gland**.
- Clinically relevant in dentistry and neurological disorders like trigeminal neuralgia.