

Otalgia (EARACHE)

Otalgia refers to pain in and around the ear.

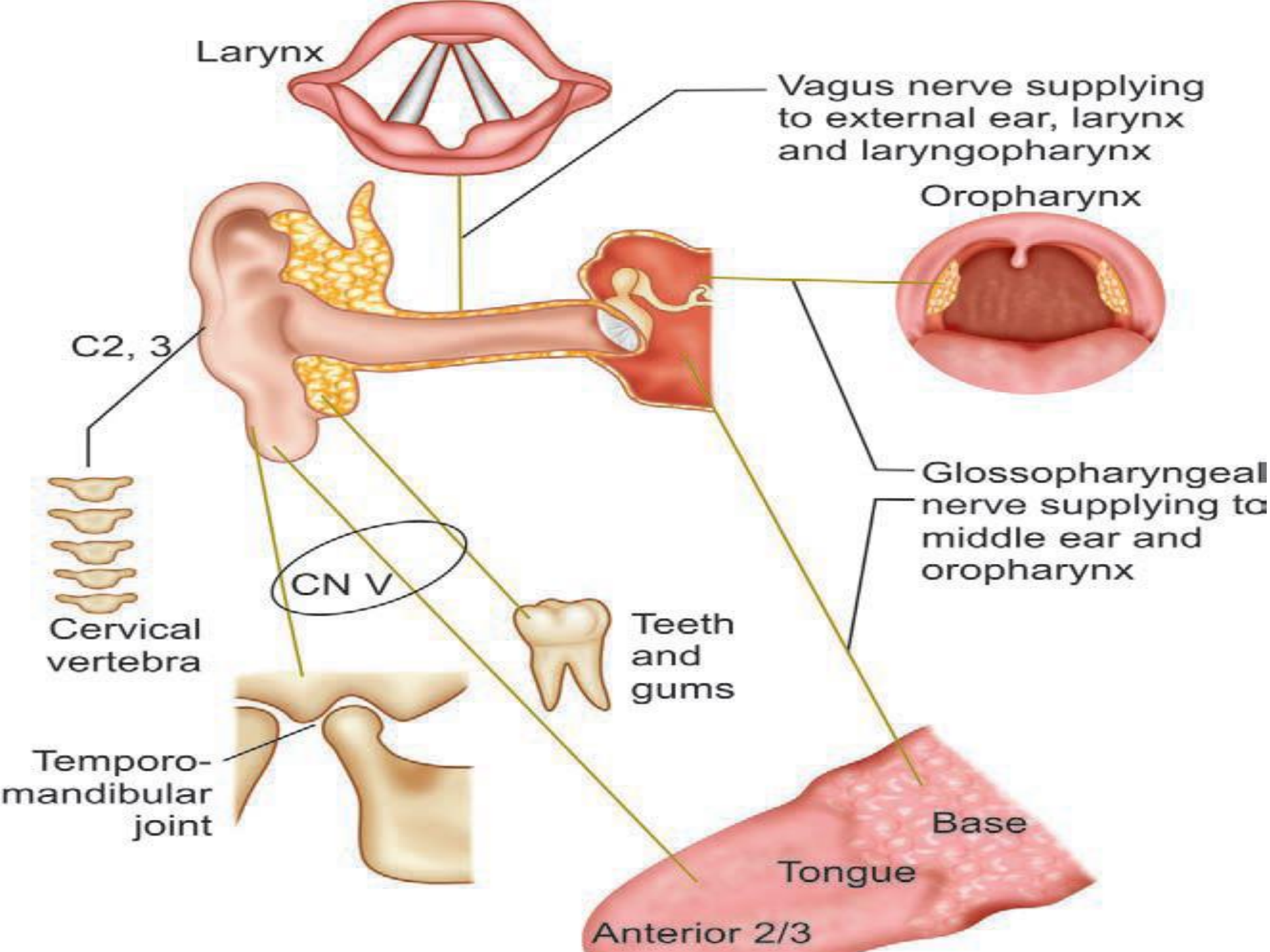
Etiology

▣ **Primary otalgia:** Pain in and around ear can be caused by inflammatory, traumatic, and neoplastic conditions of the ear (primary otalgia).

▣ **Secondary otalgia:** The secondary otalgia is referred from the head and neck regions, which are innervated by the nerves that also supply to ear (Box 1

These nerves are as following (Fig

1. Cranial nerve V (trigeminal nerve): The auriculotemporal nerve, which is a branch of posterior division of mandibular division of trigeminal nerve supply to the external ear (tragus, anterior pinna, anterior lateral surface of tympanic membrane, anterosuperior wall of external auditory canal). Trigeminal nerve also supplies to face, temporomandibular joint (TMJ), oral cavity (lips, cheeks, anterior two third tongue, floor of mouth, palate), salivary glands, nose and paranasal sinuses and nasopharynx.



2. Cranial nerve VII (facial nerve): It innervates the skin of lateral concha and antihelix, lobule, mastoid, posterior EAC, and posterior portion of TM.

3. Cranial nerve IX (glossopharyngeal nerve): Its tympanic branch (Jacobson's nerve) carries preganglionic secretomotor fibers to parotid gland. It goes into middle ear and forms tympanic plexus (supplies to medial surface of TM, mucosa of middle ear, eustachian tube, and mastoid air cells). Glossopharyngeal nerve also supplies to oropharynx, which include tonsil, soft palate, posterior pharyngeal wall and base of tongue

4. Cranial nerve X (vagus nerve): Its auricular branch (Arnold's nerve) supplies to external ear (concha, inferoposterior EAC and TM) and postauricular skin. The vagus nerve also supplies to vallecula, epiglottis, larynx or laryngopharynx, trachea, esophagus, and thyroid gland and cardiopulmonary system.

5. C2 and C3 spinal nerves: The lesser occipital and greater auricular nerves of cervical plexus supply to the postauricular region of the ear and cervical spines.

Box 1: Causes of otalgia

A. Local causes (Primary otalgia)

- Auricle: Skin lesion, perichondritis/chondritis, trauma
- External auditory canal: Furuncle*, impacted wax*, otitis externa*, trauma*, foreign bodies especially live insects*, otomycosis*, myringitis bullosa, herpes zoster oticus (Ramsay Hunt Syndrome), and malignant neoplasms
- Middle ear: Acute otitis media*, Eustachian tube obstruction*, cholesteatoma*, mastoiditis*, Barotrauma, and malignancy
- Intracranial complications of otitis media: Extradural abscess

B. Referred causes (Secondary otalgia)

1. Area supplied by CN V (trigeminal nerve)

- Dental and periodontal diseases*: Caries tooth, apical abscess, impacted 3rd molar, malocclusion. Erupting dentition in children.
- Oral cavity: Infection, trauma, aphthous* or malignant ulcers of oral cavity*
- Salivary glands: Parotid and submandibular inflammatory and malignant diseases
- Periauricular lymphadenopathy from scalp or neck infections
- Temporomandibular joint*: Myofascial pain dysfunction. bruxism, osteoarthritis, recurrent dislocation, ill-fitting denture, malocclusion, Costen's syndrome
- Nose and paranasal sinuses: Trauma, infection, tumors and contact points between turbinates and septal spur

- Nasopharynx: Infection and tumors and after adenoidectomy*
 - Sphenopalatine (Sluder's) neuralgia
 - Trigeminal neuralgia
 - Headache: Tension type, traction and inflammatory headaches
 - Atypical facial pain
2. Area supplied by CN IX (glossopharyngeal nerve)
- Oropharynx*: Acute tonsillitis, peritonsillar abscess, Post tonsillectomy, Benign and malignant ulcers of soft palate, tonsil and its pillars and base of tongue. Tuberculosis
 - Elongated styloid process (Eagle's syndrome)
 - Glossopharyngeal neuralgia

3. Area supplied by CN X (vagus nerve)

- Vallecula, larynx, laryngopharynx, esophagus:

Malignancy* or ulcerative lesions

- Thyroid: Thyroiditis

- Cardiac/pulmonary: Coronary Artery Disease (CAD), aneurysmal dilation of great vessels

- Esophagus: Hiatus hernia with gastroesophageal reflux

4. Area supplied by C2 and C3 spinal nerves

- Cervical arthritis/disc disease

- Cervical spondylosis*, injuries of cervical spine, caries spine

5. Facial nerve: Geniculate neuralgia, Bell's palsy*, and herpes

zoster oticus

6. Psychogenic