

The sensory nerve supply

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The external ear is supplied by the auriculotemporal branch of the trigeminal nerve (cranial nerve [CN] V) and the greater auricular nerve (C2/3), together with branches of the lesser occipital nerve (C2). CNs VII, IX and X also supply small sensory branches to the external ear. The middle ear is supplied by the glossopharyngeal nerve (CN IX). This complicated and rich sensory innervation means that referred otalgia is common and may originate from the normal area of distribution of any of the above nerves. A classic example is the referred otalgia caused by cancer of the larynx or hypopharynx. Taking a thorough history is the most important part of the assessment; the symptoms that need to be enquired after are listed in Table 51.1 . Friedrich Heinrich Adolf Rinne , 1819–1868, otologist, Göttingen, Germany , described this test in 1855. Friedrich Eugen Weber-Liel , 1832–1891, otologist, University of Berlin and Jena, Germany , described the operation of tenotomy of the tensor tympani used for certain forms of partial deafness. Summary box 51.1 A p p l i e d a n a t o m y /uni25CF - /uni25CF /uni25CF - /uni25CF /uni25CF - /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF -

nerves Organ of Corti Tectorial membrane Figure 51.4 Perilymph pressure wave (adapted from lumenlearning.com; originally taken from Urone PP , Hinrichs R. College Physics , OpenStax, 2012 under <https://creativecommons.org/licenses/by/4.0/>) . The skin on the outer surface of the eardrum migrates outwards so that the ear canal is 'self-cleaning' Infection of the middle ear and mastoid can easily spread to the cranial cavity The facial nerve pursues a tortuous course through the middle ear The ear has a rich sensory innervation so that 'referred otalgia' is common Cancer of the larynx or lower pharynx can present with otalgia TABLE 51.1 History taking. Ask about: Earache, pain and itch Hearing loss Discharge: type, quantity and smell Tinnitus Vertigo Facial weakness Speech and development (in children) Past history: head injury, baro- or noise trauma, ototoxics, family history and previous ear surgery

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