

EARACHE

The ear is made up of the pinna, external acoustic meatus (canal), tympanic membrane (eardrum), malleus, incus, stapes, semicircular enclosing ducts (canals), cochlea, tensor tympani muscle, and the auditory (Eustachian) tube. The vestibular, facial, and cochlear nerves innervate the various ear structures.

The causes of *earache* include soft tissue swelling and inflammation resulting from infection of the external auditory meatus or the middle ear, mild inflammation in the external auditory meatus, perichondritis of the pinna, Eustachian tube obstruction or abrupt changes in middle ear pressure causing painful retraction of the tympanic membrane, and acute otitis media (the most common cause of *juvenile earache*). Additionally, inflammation of the middle ear mucous membrane, besides being painful by itself, may also produce

pain by increasing pressure in the middle ear and causing the tympanic membrane to bulge.

Pain may also be referred to the ear from trigger point formations found in the musculature of the head, neck, and shoulders. Pain may also be referred to the ear from the tongue, palatine tonsils, pharynx, hypo pharynx, larynx, trachea, and esophagus (especially if occult neoplasms are present). Abnormal pressure in the temporomandibular joint may refer pain into the ear, as may toothache and infections of the sinuses, maxilla, or mandible.

Sternocleidomastoideus area should be evaluated for inflammation through a DSR survey. Quite frequently, an inflammation will appear as a discrete zone of high skin resistance, along the line of the sternocleidomastoideus, usually proximal of the midway point.



The high skin resistance pattern associated with the Sternocleidomastoideus Trigger Point responsible for referred pain into the ear

Treatment

Referred pain from the mandibular joint into the ear may result from osteoarthritis, bursitis, or abnormal joint pressure arising from extrafusal muscle imbalance. Each of these possibilities should be explored during evaluation and existent components should be treated appropriately. Often, an earache may come from a trigger point in the sternocleidomastoideus muscle.

Application:

- Preset an ultrasound unit to deliver a 1 MHz pulsed waveform at 1.5 W/cm². Ultrasound the inflamed zone for a six-minute period utilizing an effective non-steroidal anti-inflammatory as the coupling agent.

- Following the ultrasound treatment, manipulate the inflamed zone to eliminate any adhesions that may have formed.

This treatment has been known to relieve some cases of vertigo that have not responded well to medications designed to control dizziness.

Referred pain from jaw and neck musculature originates from trigger point formations within that musculature. Trigger point formations should be treated as such; the ultimate effect of such treatment will be relief of the earache pain.

Trigger Points

The following trigger point formations may, singly or in combination, imitate or contribute to the pain associated with the *earache syndrome*: Masseter (deep), Medial pterygoid, Lateral pterygoid, Posterior digastric, Splenius capitis [A], and Sternocleidomastoideus (deep fibers).