EMERGENCY DEPARTMENT
CLINICAL PRACTICE GUIDELINES

Referred otalgia

DESCRIPTION – Primary otalgia arises from otologic disease and often presents with an abnormal ear examination. Secondary or referred otalgia presents with a normal or subtle ear findings unable to explain otalgia, and pain may be referred from a variety of sites.

HOW TO ASSESS

Red Flags:

- In patients who have severe otalgia and a normal ENT examination, consider
  - Herpes zoster oticus prior to the onset of vesicles
  - Skull base osteomyelitis if they are elderly, diabetic or are immunocompromised
  - Head and neck malignancy (e.g. tongue base tumour)
- Cranial neuropathies e.g. facial nerve palsy
- Oropharyngeal symptoms (dysphagia, dysphonia, odynophagia, haemoptysis)
- Unexplained weight loss
- Neck mass or lymphadenopathy
- Risk factors for malignancy including age >50, smoker, excessive alcohol intake, previous history of head and neck malignancy
- Consider other rare causes include temporal arteritis, myocardial infarction, thoracic aneurysm

On History:

- Full otologic history including otorrhoea, itch, hearing loss, vertigo, aural fullness and tinnitus
- Pain onset, duration, severity, nature and radiation
    - A sharp lancinating pain with unilateral sensory distribution with known trigger zones is suggestive of trigeminal neuralgia
    - A burning electric shock-type pain triggered by swallowing is suggestive of glossopharyngeal neuralgia
    - A unilateral chronic dull boring pain with known risk factors could indicate an underlying malignant lesion in the pharynx (tongue base, tonsil and pyriform fossa)
- Aggravating factors
    - Pain aggravated by biting or chewing is suggestive of temporomandibular joint dysfunction (TMD)
- Dental history
    - Dental disorders (caries, abscess, periodontitis and malocclusion) and procedures (fillings and extractions) are the most common causes of referred otalgia
- Associated symptoms
    - Oral and oropharyngeal symptoms
        - Sore throat or odynophagia can be secondary to acute infections such as tonsillitis, peritonsillar abscess or pharyngitis
        - Dysphagia, hoarse voice or unexplained weight loss is suspicious of malignant lesions in the upper aerodigestive tract or oesophageal pathology
        - Hiatus hernia and gastroeosophageal reflux disease can cause otalgia
    - Nasal and sinus symptoms
        - Co-existing chronic rhinosinusitis can cause otalgia secondary to eustachian tube dysfunction or inflammation of the post nasal space
- Other conditions or previous surgery
    - Post tonsillectomy patients can experience otalgia in the early postoperative period
    - Cervical spine pathology such as osteoarthritis can cause otalgia owing to irritation of C1 and C2 nerve roots.
- Smoking and alcohol intake

On Examination:

- A full otologic examination to rule out pinna or external auditory canal, middle ear disease
- Nasal examination looking for signs of chronic rhinosinusitis such as an inflamed nasal mucosa, polyps, mucopus within the sinus ostia or a primary sinonasal tumour
- Oropharyngeal examination to rule out tonsillitis, peritonsillar abscess or an oro pharyngeal tumor
- Teeth and oral cavity examination including percussion and pulpation to identify dental caries, aphthous ulceration, loose fillings, dental abscess or malocclusion
- Temporaomandibular joint (TMJ)
    - Palpate for TMJ tenderness or grating sounds on mouth opening
    - Palpate the temporalis, masseter and lateral and medial pterygoid muscles for localised tenderness or muscle spasm
- Examine the cranial nerves
    - V_2 disturbance is seen in cancers involving the maxillary antrum, ethmoids and nasopharynx. CN IIIrd, IVth and VIth can also be affected.
    - V_3 disturbance can occur in lesions affecting the anterior tongue and floor of mouth
    - A delayed or absent corneal reflex can be an early sign of retrocochlear pathology such as vestibular schwannoma
    - VIth nerve involvement can occur in lesions involving the cavernous sinus and petrous apex (eg petrous apicitis in Gradenigo's syndrome)
    - A lower motor neuron VIIth nerve palsy can be seen in malignant parotid tumours or any otologic disease
    - Dysfunction of the lower CNs (IX, X, XI and XII) can occur in primary or metastatic tumours of the pharynx, larynx and glomus tumours eroding the skull base
- Neck examination may identify infective or neoplastic lesions of the parotid gland (parotitis and neoplasm), cervical nodes (lymphadenitis and metastatic cancer) or thyroid abnormalities (thyroiditis and neoplasm)
- Examine the cervical spine for focal joint tenderness, limited neck movements or paraspinal muscle spasm. Patients with cervical myofascial pain syndrome demonstrate focal muscle tenderness but normal motor and sensory function
- Flexible nasendoscopy examination by ENT to assess the nasopharynx, hypopharynx and larynx.

On Investigation:

- Consider audiogram to investigate hearing loss and tympanometry to assess tympanic membrane mobility and middle ear function
- Consider barium swallow to rule out oesophageal disorders in patients with otalgia associated with dysphagia and a normal ENT/head and neck examination
- Radiological (including CT or magnetic resonance imaging (MRI)) neck and skull base imaging may be required and can be arranged after senior ENT consultation

Urgent referral to ENT:

- Urgent ENT opinion if red flags present

Follow up:

- In patients who have persistent otalgia >4 weeks without an apparent cause and a normal ENT examination including nasendoscopy, arrange outpatient ENT follow up in 2-4 weeks

Authors:

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Evidence Table

Author/s	Title	Source	Level of Evidence (I – VII)	Comments
Earwood JS, Rogers TS, Rathjen NA	Ear Pain: Diagnosing Common and Uncommon Causes	American family physician. 2018;97(1):20-7		
Harrison E, Cronin M.	Otalgia	Aust Fam Physician. 2016;45(7):493-7		
Finnikin S, Mitchell-Innes A.	Recurrent otalgia in adults	BMJ (Clinical research ed). 2016;354:i3917		
Visvanathan V, Kelly G.	12 minute consultation: an evidence-based management of referred otalgia	Clinical otolaryngology : official journal of ENT-UK ; official journal of Netherlands Society for Oto-Rhino-Laryngology & Cervico-Facial Surgery. 2010;35(5):409-14		
Ely JW, Hansen MR, Clark EC.	Diagnosis of ear pain	American family physician. 2008;77(5):621		

The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case series.

V Evidence obtained from systematic reviews of descriptive and qualitative studies.

VI Evidence obtained from single descriptive and qualitative studies.

VII Expert opinion from clinician, authorities and/or reports of expert committees or based on physiology.