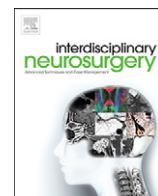




# Interdisciplinary Neurosurgery: Advanced Techniques and Case Management

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## Letter to the Editor

### A 70-year-old man with severe deep paroxysmal ear pain



#### 1. Clinical background

A 70 year-old man was admitted to the orofacial pain clinic with a 6 months history of severe, paroxysmal episodes of stabbing pain in the depth of the left ear canal. According to the patient's self-report, a previous neurological examination had not found abnormalities. Also, three months before, he had been successfully treated for a left external otitis. Nonetheless, the pain persisted. Upon the clinical examination, no signs of peripheral lesions (face and oral mucosa) or scar tissues were identified. However, several attacks of very intense pain (10/10 on the visual analogue scale) on the left ear canal and radiating to the ipsilateral temporal region were observed. The pain was either spontaneous or elicited by light tactile stimulation of the ipsilateral concha but not by pressure stimuli or mandibular movements. Cranial nerve examination was normal, except for a left anacusis, right hypoacusis and a discrete paresis of the left orbicularis. Past medical history included type II diabetes mellitus and a left otosurgery several years later. A head MRI was obtained (Fig. 1) and laboratorial tests were requested.

#### 2. What is the most likely diagnosis?

- A. Symptomatic trigeminal neuralgia.
- B. Postherpetic neuralgia.
- C. *Nervus intermedius* neuralgia due to *malignant otitis externa*.
- D. Ramsay Hunt syndrome.
- E. *Nervus intermedius* neuralgia due to nasopharyngeal tumor.

#### 3. Answer

- C. *Nervus intermedius* neuralgia due to *malignant otitis externa*.

#### 4. Discussion

MRI revealed an infiltrative tissue, with intermediate signal intensity in T1, extending from the left pharyngeal recess to the petrous part of the temporal bone and left internal acoustic meatus. The left facial nerve exhibited contrast-enhancement into the geniculate ganglion, tympanic and mastoid segments. A suspicious area lateral to the nasopharynx was also identified. Blood tests showed increased ESR, high levels of PCR and hyperglycemia. Gallium-67 scintigraphy suggested an ongoing inflammatory/infectious process in the left mastoid process, which as confirmed by an open mastoid biopsy. Such findings led to a diagnosis of *nervus intermedius* neuralgia due to *malignant otitis externa*. Antibiotic therapy with ciprofloxacin was initiated, based on the gram stain and culture results,

collected by a swab of the external acoustic meatus and further confirmed by the biopsy specimens. This treatment was associated with carbamazepine for pain control. The patient improved and became stable after six weeks of the therapy applied. However, the pain recurred after six months. In addition, MRI and 67-gallium scintigraphy revealed that the disease was advancing. Therefore, it was necessary to return to intra-venous antibiotic therapy (piperacillin and tazobactam), based on the biopsy results. The disease is currently under control.

Osteomyelitis affecting the temporal bone (often referred to as *malignant otitis externa*) is not common. Diabetes mellitus is the most frequent predisposing factor [1] and one possible explanation is the presence of a more alkaline pH of the cerumen in the ears of diabetic patients, that could create a favorable environment for bacterial proliferation [2]. Mastoid involvement can produce facial nerve palsy, while the IX, X and XI cranial nerves can be compromised when the lesion spreads to the jugular foramen. Nonetheless, the occurrence of *nervus intermedius* neuralgia as an initial symptom of a *malignant otitis externa* is extremely rare.

#### Conflict of interest/disclosures

The authors declare that they have no financial or other conflicts of interest in relation to this research and its publication.

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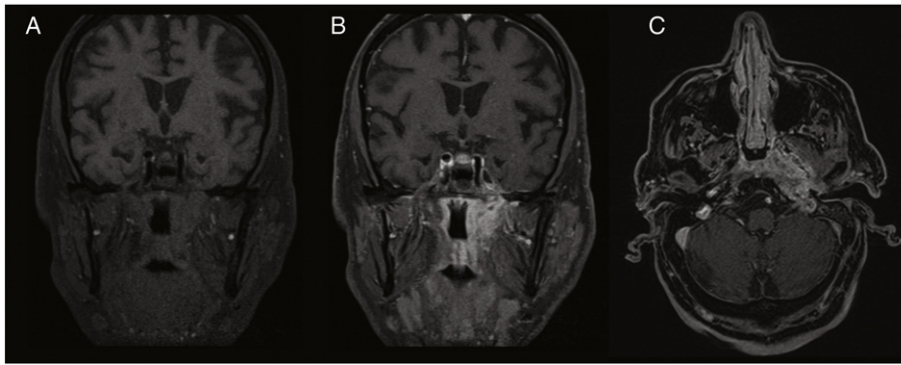
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**Fig. 1.** Sagittal (A), axial (B) and coronal (C) T1-weighted head MRI images.

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