Introduction

Auriculotemporal neuralgia is a rare form of facial pain that is scarcely described in the literature. It is characterized by paroxysms of unilateral pain in the distribution of the auriculotemporal nerve, with tenderness over the affected nerve. The pain is abolished by local anesthetic blockade or ablation of the nerve [1]. The condition is currently postulated to be an entrapment neuropathy caused by spasm of the lateral pterygoid muscle in the infratemporal fossa, leading to compression of the auriculotemporal nerve [2].

Neuralgia is classified as post-traumatic neuralgia, if the characteristic neuralgia-type pain begins following an antecedent trauma or surgical procedure. It is frequently seen in the trigeminal distribution following dental extraction and involves the branches of the trigeminal nerve [3]. The aim of this study was to document the case of auriculotemporal neuralgia developing after an endaural incision. In a careful review of the literature (PubMed/Medline search), the present author did not find any previously reported case of auriculotemporal neuralgia after ear surgery.

Case report

A 32-year-old female teacher with bilateral chronic otitis media and bilateral central tympanic membrane perforations underwent a successful right-sided underlay myringoplasty by a standard endaural incision.

Six weeks after the operation, she started to suffer from paroxysms of severe pain in front of the right ear, radiating downwards to the ipsilateral side of the jaws and upwards to the temporal region. The pain was described as analogous to tooth pain and was associated with a burning sensation on the overlying skin during the pain attacks. She did not complain of previous dental caries or temporomandibular joint disorders. There were no identifiable triggering factors for the pain, which would develop nearly daily and would last 1–2 h. There was no rhinorrhea, facial flushing, or ipsilateral lacrimation. She did not suffer from any systemic disease.

On examination, the preauricular wound scar, external auditory canal, and tympanic membrane did not show signs of inflammation. Cranial nerve function was normal, apart from an area of diminished light touch sensation in the infratemporal fossa, leading to compression of the auriculotemporal nerve [2].

The patient was treated with various NSAIDs for 2 weeks, but the pain was still causing great distress. She was then started on carbamazepine (Tegretol), a drug which is commonly administered to patients with trigeminal neuralgia. She obtained marked relief on this medication, and she is currently receiving 200 mg tablets twice a day. At present, she has been on Tegretol for 2 months and her complete blood count is regularly checked.

Discussion

The auriculotemporal nerve is a branch of the posterior division of the mandibular nerve, which carries sensory and autonomic fibers. The terminal fibers innervate the tympanic membrane, the skin of the external auditory canal, the superior auricle, the temporal region, the parotid gland, and the temporomandibular joint capsule [4].
The endaural incision is frequently used by otologists as an approach to the middle-ear cleft [5]. The incision would conceivably cut several terminal sensory fibers of the auriculotemporal nerve. However, as far as the author is aware, no previous case of auriculotemporal neuralgia after an endaural incision has been documented in the literature.

Neuralgia is classified as post-traumatic neuralgia, if the characteristic neuralgia-type pain begins after an antecedent trauma or surgical procedure. The pathogenesis of post-traumatic neuralgia is related to both peripheral and central factors [6]. The peripheral mechanisms include increased sensitivity of nociceptive afferents to endogenous chemical mediators, abnormal firing patterns in the nerve fibers after demyelination, and neuroma formation. The central mechanisms involve morphologic, biochemical, and physiological changes in the central pathways. It is postulated that deafferentation from a corresponding area supplied by a sensory nerve leads to heightened excitability of the central neurons in the nociceptive pathways, a phenomenon known as central neuroplasticity [6].

The treatment of auriculotemporal neuralgia has not been standardized because of the paucity of patients reported with this disorder [1]. Nonopioid analgesics are used initially. Opioid analgesics are very effective; however, the major disadvantage of opioids is dependence and addiction [7]. Carbamazepine is an antiepileptic drug that is effective in reducing the pain of various neuralgias [7]. The patient in this report obtained marked relief on carbamazepine. Auriculotemporal neuralgia blockade is diagnostic and therapeutic. However, recurrence of pain is frequent, and the risks of intravenous injection and facial nerve palsy are real concerns. The material used for blockade is a local anesthetic, with or without a steroid [8,9]. The application of botulinum toxin has been successfully used for various neuralgias [10]. Recently, electrical neurostimulation is being increasingly used for neuromodulation in refractory neuralgias [11].

Conclusion
A case of facial pain after an endaural incision for myringoplasty is presented. The paroxysmal nature of pain in the distribution of the auriculotemporal nerve and good response to carbamazepine therapy provide an evidence for this facial pain to be classified as post-traumatic auriculotemporal neuralgia. As far as the author is aware, this is the first case to be documented in the literature following an endaural incision.

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Conflicts of interest
None declared.

References