



Vestibular Schwannoma Presenting with Orofacial Dysesthesia: A Case Report

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Vestibular schwannoma, also known as acoustic neuroma, is a rare benign brainstem tumor surrounding the vestibular division of the 8th cranial nerve. The presenting symptoms are hearing loss, tinnitus, and dizziness. Unabated growth can compress 5th (trigeminal nerve) and 7th (facial nerve) cranial nerve, which can cause nerve dysfunction such as orofacial pain, sensory abnormalities, or trigeminal neuralgia. We report a 51-year-old woman who presented with orofacial dysesthesia on her left side of the face with abnormal findings on 5th cranial nerve and 8th (vestibulocochlear nerve) cranial nerve examination. Brain magnetic resonance imaging scan revealed cerebellopontine angle tumor. She was referred to a neurosurgeon and diagnosed with vestibular schwannoma.

Key Words: Magnetic resonance imaging; Neuroma, Acoustic; Paresthesia

INTRODUCTION

Vestibular schwannoma, also known as acoustic neuroma, is a rare benign brainstem tumor involving the abnormal growth and proliferation of Schwann cells [1]. It represents 8% to 10% of all primary cerebral neoplasms and accounts for approximately 80% to 90% of cerebellopontine angle tumors [2,3]. There is no sex difference, and it is known to occur mainly in 40 to 60 year olds [4].

The presenting symptoms are variable, but initially tinnitus, dizziness, and progressive hearing loss are caused by the pressure of eighth cranial nerve (vestibulocochlear nerve) [5]. When the size of the tumor grows larger, other symptoms such as orofacial pain, facial numbness or weakness, or trigeminal neuralgia due to the compression of nearby cranial nerve (trigeminal nerve, facial nerve) may be observed but those are usually the delayed complication. This implies the extracanal expansion and compression of the adjacent cerebral structures by the tumor [5]. When the

tumor compresses brainstem or cerebellum, ataxia may also appear. According to Ferguson and Burton [6], orofacial anesthesia may be the presenting symptom in about 5% of cases of acoustic neuroma.

In this paper, we present the case of a patient who was diagnosed with vestibular schwannoma presenting orofacial dysesthesia.

CASE REPORT

A 51-year-old woman visited the Department of Orofacial Pain and Oral Medicine, Dental Hospital of Yonsei (Seoul, Korea) with a complaint of dysesthesia on her left upper and lower lips, chin, cheek and zygomatic area (Fig. 1).

Careful history taking revealed that she complained of dizziness, hearing loss on her left ear, balance problem and tinnitus. About 4 years ago, she took a brain magnetic resonance imaging (MRI) scan at the Department of Radiology due to dizziness but there was no abnormal finding (Fig. 2).

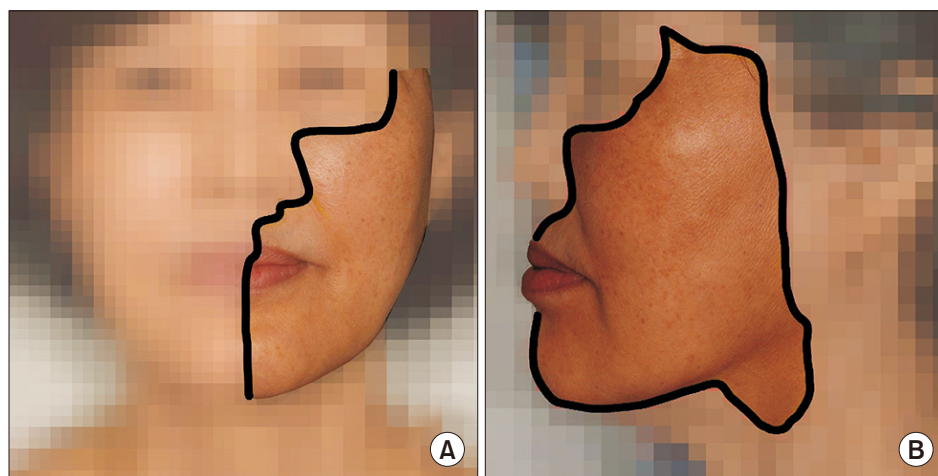


Fig. 1. Mapping of abnormal sensation involving left maxillary and mandibular division of trigeminal nerve. (A) Frontal view. (B) Lateral view.

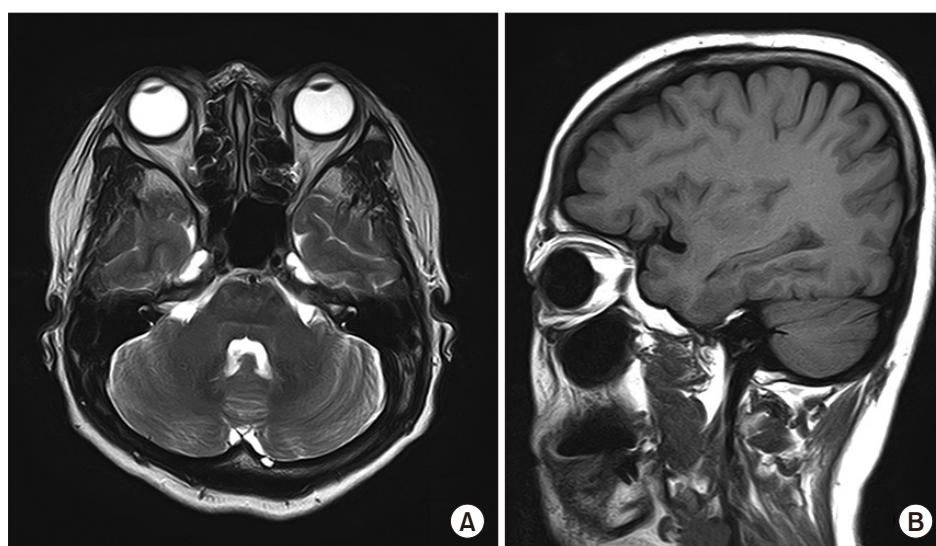


Fig. 2. Brain magnetic resonance images taken 4 years ago. They reveal no remarkable lesion. (A) Axial view. (B) Sagittal view.

And she visited local otolaryngology clinic due to hearing loss on her left ear but was only diagnosed with a cochlear problem. About 3 years ago, she experienced a falling accident caused by losing balance, and the abnormal sensation on her left tongue occurred after the ear injection by otolaryngologist due to tinnitus. About 3 months ago, dysesthesia on her left lip and chin occurred, and the left zygoma and cheek area was also involved in half month.

On clinical examination, her maximum mouth opening range was about 54 mm without pain. There were no restriction of both condylar movement, no marked palpable tenderness in any masticatory muscle and no muscular dysfunction. Occlusal condition was stable.

On cranial nerve examination, diminished pin-prick and light-touch sensation was noted over maxillary division (V_2), and the mandibular division (V_3) of the left trigeminal

nerve. Gross hearing (finger rub test) and balance (heel-to-toe walk) test results were abnormal. All other cranial nerves were intact (Table 1).

A MRI scan of the brain revealed a 2.9 cm heterogeneous enhancing mass in left cerebellopontine angle compressing the cerebellum (Fig. 3). She was referred to a neurosurgeon for evaluation and treatment.

DISCUSSION

Vestibular schwannoma is a benign and slowly growing nerve sheath tumor of Schwann cell, and patients are reported to experience clinical symptoms for long periods of time before seeking medical treatment (0.5 to 5 years) [7]. In this case, despite the previous ear, nose, and throat evaluation and MRI taking, there was a delay of 3 years to being

Table 1. Cranial nerve examination

	Right	Left
III. Oculomotor nerve IV. Trochlea nerve VI. Abducent nerve		
Pupillary reaction to light (II, III)	Normal	Normal
Look at down into your nose (IV)	Normal	Normal
Move the eye away from the midline (VI)	Normal	Normal
All other eye movement (III)	Normal	Normal
Ptosis	Absent	Absent
Nystagmus	Absent	Absent
Diplopia	Absent	Absent
V. Trigeminal nerve		
<Sensory>		
Light touch		
V ₁	100	100
V ₂	100	80
V ₃	100	50
Pin prick		
V ₁	100	100
V ₂	100	60
V ₃	100	50
<Motor>		
Clenching	Normal	Normal
VII. Facial nerve		
Forehead (wrinkle)	Normal	Normal
Close eye tight	Normal	Normal
Smile	Normal	Normal
VIII. Vestibulocochlear nerve		
Gross hearing (finger)	Normal	Abnormal
Balance (heel-to-toe walk)	Abnormal	
IX. Glossopharyngeal nerve X. Vagus nerve		
Palatal elevation	Normal	Normal
Gag reflex	Normal	Normal
XI. Accessory nerve		
Elevated shoulders (trapezius)	Normal	Normal
Turn head (SCM)	Normal	Normal
XII. Hypoglossal nerve		
Protrude the tongue	Normal	Normal
Push laterally against a tongue blade	Normal	Normal

V₁, ophthalmic division; V₂, maxillary division; V₃, mandibular division; SCM, sternocleidomastoid.

diagnosed with vestibular schwannoma.

This case suggests several important issues when a patient complains unilateral orofacial dysesthesia. It is necessary to make a complete assessment: thorough history taking and a neurologic examination [8]. A thorough neurologic assessment should be carried out routinely to assess hearing loss, tinnitus and balance disorder related to 8th cranial nerve (vestibulocochlear nerve) or taste disorders and facial nerve paralysis related to 7th cranial nerve (facial nerve), which are the clinical symptoms of acoustic neuromas [9-11].

The sensory distribution of the trigeminal nerve is located along the dermatome: the ophthalmic division (V₁), the

maxillary division (V₂), and the mandibular division (V₃). In this case, she complained of a reduced sensation of touch and pain on left V₂ and V₃ area. And she also complained of the astringent taste on her left half of the tongue, which is dominated by the chorda tympani nerve that innervates a special sensation in the anterior 2/3 of the tongue. On the 8th cranial nerve examination, the hearing loss was found on her left ear and the heel-to-toe walk test was abnormal. Brain MRI was read to be normal 4 years ago, but we ordered brain MRI again because cranial nerve examinations revealed neurologic deficits on trigeminal and vestibulocochlear nerves.

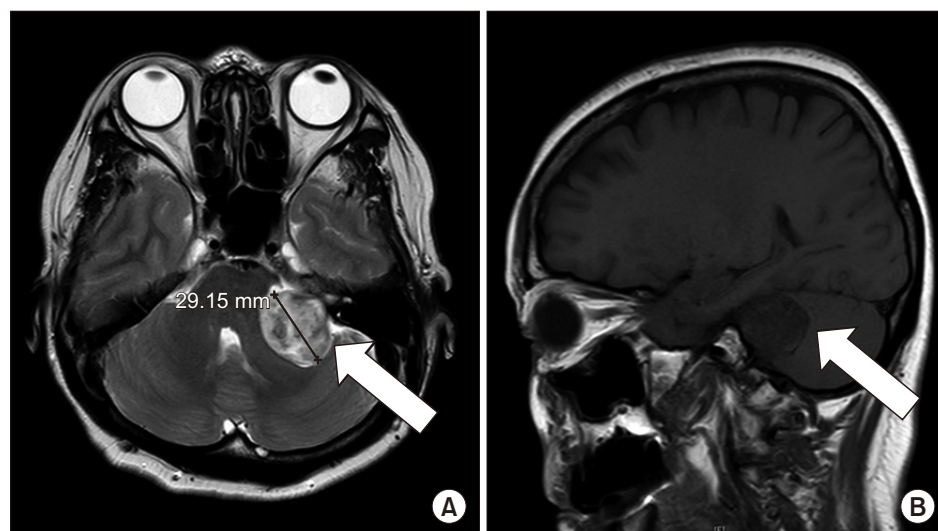


Fig. 3. Brain magnetic resonance images on first visit, they show 2.9 cm mass (white arrows) in the left cerebellopontine angle. (A) Axial view. (B) Sagittal view.

It is very important to take a careful history taking for the accurate diagnosis. If there are other neurologic symptoms besides dysesthesia, we should suspect brain tumors. Symptoms of suspected vestibular schwannoma include hearing loss, tinnitus and dizziness.

Although previous imagings and examinations were normal, the clinicians should re-evaluate the patient if symptoms are getting worse or the new symptoms appear. Also if there are neurologic deficits on 5th, 7th, and 8th cranial nerves, brain MRI must be taken.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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