

Anterior Inferior Cerebellar Artery Loop-Induced Paroxysmal *Otalgia* in a Child

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نوبات الألم الأذني الانتيابي في الشريان المخيخي الأمامي السفلي في طفل

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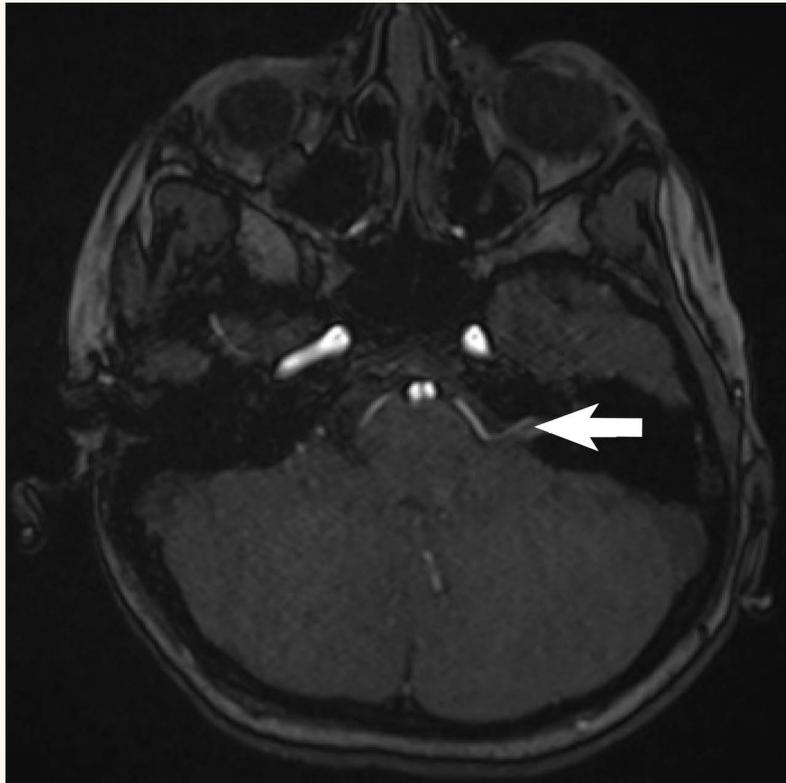


Figure 1: Time-of-flight magnetic resonance angiography image in the axial plane showing an anterior inferior cerebellar artery loop in the left internal auditory meatus (arrow) of a seven-year-old girl with paroxysmal *otalgia*.

A SEVEN-YEAR-OLD GIRL WAS REFERRED TO the child neurology outpatient clinic of Sultan Qaboos University Hospital in Muscat, Oman, in June 2014 by an ear, nose and throat (ENT) specialist from another hospital for an evaluation of pain in her left ear. The pain had started about two and half years previously and was paroxysmal and associated with decreased hearing and tinnitus. The pain typically lasted two to three hours at a time. Initially, the child was only in pain once per month; however, more recently, the frequency had increased

to two to three times a day. During episodes of *otalgia*, the pain was so severe that the girl could do nothing but cry out for help to relieve it. In between these episodes, there were no signs of tinnitus or hearing loss. There were no apparent triggers for the pain, such as swallowing or being touched on the face.

The child had previously undergone routine ENT examinations at two clinics. A computed tomography scan of the brain was performed to identify temporal bone and internal auditory canal lesions, which revealed no abnormalities. A hearing test, tympanometry and

neurological examination were normal. A routine magnetic resonance imaging (MRI) of the brain was reported to show no abnormalities. However, based on the patient's history and the normal ENT work-up, the MRI was reviewed with the radiologist. On reassessment, an arterial loop of the anterior inferior cerebellar artery (AICA) was observed on the left side over the seventh cranial nerve in the internal auditory canal [Figure 1]. The ear pain was likely caused by pressure on the intermediate nerve, a branch of the seventh cranial nerve.

The child was referred to a neurosurgeon for consultation and potential decompression. She was also started on gabapentin. This was prescribed initially as a nightly dose of 25 mg which was increased twice weekly to a maximum nightly dose of 100 mg. Conservative management (500 mg of paracetamol) was recommended for relief of the frequency and severity of her ear pain. A follow-up examination indicated an improvement of approximately 50% in the level of pain.

Comment

Otalgia is uncommon in children and is mainly seen in the sixth and seventh decades of life.¹ There are several mechanisms which can result in ear pain, including lesions of the fifth, seventh, ninth, tenth and auricular temporal nerves.¹ Pain of the inner ear and tympanic membrane is due specifically to lesions of the seventh (intermediate) and ninth nerves. These two types of lesions can be differentiated clinically by their causative factors. Touching the ear or face

triggers pain due to the intermediate nerve, while pain when swallowing is due to the ninth nerve. However, no such triggers were observed for the current patient. An MRI scan revealed that an arterial loop of the AICA was compressing the seventh nerve. Neurosurgical decompression is the definitive treatment for this condition.² This type of pain must be differentiated from that caused by a migraine; this can be difficult in younger patients as they may not be able to explain their pain clearly. For the current patient, the pain began when she was four and a half years old. There was an improvement in the severity of the pain after taking gabapentin. Other causes for recurrent facial pain need to be investigated thoroughly to rule out dental and ophthalmic conditions. Rarely, trigeminal neuralgia may present in a similar way.³ Clinicians should therefore always attempt to determine the underlying cause of unexplained headaches or facial pain in children.

References

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