

CASE REPORT

Tentorial meningioma presenting as hemifacial spasm: An unusual clinical scenario

Raghavendra Nayak, Anupkumar Chaudhuri, Aniruddha Chattopadhyay, Samarendranath Ghosh

Department of Neurosurgery, Bangur Institute of Neurosciences, Kolkata, India

ABSTRACT

Hemifacial spasm (HFS), which is a rare clinical entity, occurs most commonly due to vascular structures at facial nerve root entry zone. Tumor as a cause of HFS is rarely described in the literature. Here, we describe an unusual case of HFS which is caused by contralateral tentorial meningioma. The pathology, etiology, and surgical treatment have been discussed.

Key words: Cerebellopontine angle, hemifacial spasm, tentorial meningioma

Introduction

Hemifacial spasm (HFS) is a rare involuntary movement in our clinical practice. It is characterized by unilateral synchronous twitching of muscles supplied by facial nerve, which typically begin in the orbicularis oculi and gradually involve other muscles of facial expression over a period of months to years. Microvascular compression at facial nerve root entry zone (REZ) is found as a most common etiology. Surgical treatment using microvascular decompression (MVD) is performed for the majority of patients. In less than 5% of cases, tumors and other space-occupying lesions are considered. Ipsilateral tentorial meningiomas, and ipsilateral and contralateral cerebellopontine (CP) angle tumors causing HFS have been described in the literature.^[1-4] Here, we report an unusual case of huge tentorial meningioma presenting with contralateral HFS [Video].

Case Report

A 51-year-old female patient presented with involuntary movements involving the left side of face. Symptom started 4 years back, initially affecting the left periorbital region and

gradually spreading to perioral region. Initially she was treated with homeopathic medicines and physiotherapy, but was not relieved of symptom. Gradually, the intensity and frequency of symptom increased, involving complete left half of the face. She also complained of dizziness, headache, and tendency to swaying toward right side, but had no hearing difficulty or dysphagia.

Neurological examination showed left-sided HFS and right side cerebellar signs. Spasm was spontaneous and synchronously involving the left periocular and perioral regions. The spasm used to aggravate by emotional feelings or forced eye closure.

Preoperative brain magnetic resonance imaging (MRI) showed an extra-axial lesion, measuring about 70 × 60 × 65 mm, in the right posterior fossa. The mass was hypointense on both T1-weighted and T2 weighted images. Mass showed homogeneous contrast enhancement [Figure 1] with right tentorium based dural tail [Figure 2]. There was mass effect in the form of supratentorial hydrocephalous with compression of fourth ventricle. Prepontine and cerebellopontine cisterns were obliterated because of anteroinferior displacement of cerebellum and pons [Figure 3]. Left-sided facial–vestibulocochlear nerve complex was kinked over internal meatus compared to right because of gross displacement of brainstem and fourth ventricle toward the opposite side [Figure 1]. Mass was not in direct contact with the cerebellopontine area (CPA). Imaging features were strongly suggestive of right tentorial meningioma.

After doing left side medium pressure ventriculoperitoneal shunt, we planned to resect the tumor through right suboccipital craniotomy. Partial exposure of the tumor showed that it was well demarcated from cerebellar hemisphere and highly vascular. After careful dissection and repeated internal decompression, the tumor was excised out of cerebellar

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Address for correspondence:

Dr. Raghavendra Nayak, Bangur Institute of Neurosciences, Kolkata, India. E-mail: nayakraghu@gmail.com

hemisphere. Near-total excision of the tumor was done, leaving small bits of tissue around the straight sinus and confluence of sinuses to avoid bleeding and venous infarction. Histopathology report confirmed the diagnosis of meningioma [Figure 4].

It was observed that both frequency and intensity of facial spasm were reduced on the first postoperative day, with the total disappearance of HFS by the 3rd postoperative day. Unfortunately, the patient died on the 5th postoperative day due to massive myocardial infarction.

Discussion

Data from Anger and Whisnant's study of Olmsted County, Minnesota, suggest that the prevalence of HFS is 14.5 per 100,000 in women and 7.4 per 100,000 in men. In typical cases, twitching first affects the periorbital muscles, but spreads to other ipsilateral facial muscles over a period of

months to years. The spasms are synchronous in all affected muscles. Although the spasms occur spontaneously, they may be precipitated or exacerbated by facial movements or by anxiety, stress, or fatigue.

HFS is thought to result from compression of facial nerve at REZ by vascular structures.^[5] Facial nerve REZ generally shows axonal demyelination and nerve degeneration. Ectopic excitation and ephaptic transmission due to mechanical irritation and axonal demyelination are the important pathological factors in idiopathic HFS. It was also shown by Nielson and Jannet that ephaptic transmission disappears after MVD.^[6]

In 0.3-0.6% of the reported cases, masses adjacent or close to REZ of facial nerve cause HFS, including epidermoid tumors, neuromas, meningiomas, astrocytomas, and cysts.^[2,3] CPA tumors resulting in HFS are well reported, but the possible mechanism behind this is not well explained. The standard surgical treatment for this tumor and associated HFS is microsurgical removal of tumor first, with MVD added selectively according to the anatomy of CPA.^[3]

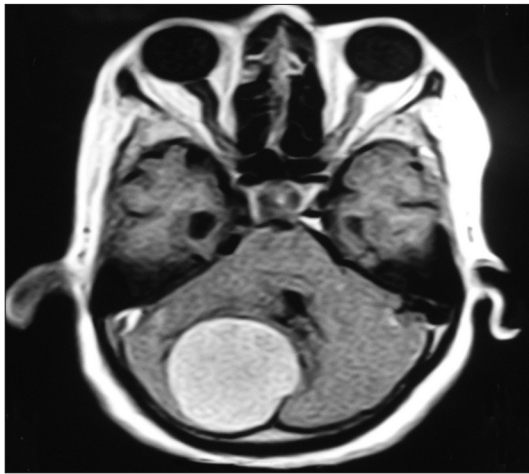


Figure 1: Preoperative MRI image. Axial T1-weighted contrast image shows a huge homogeneously enhancing mass in the right cerebellar hemisphere. The left facial-vestibular nerve complex is kinked and stretched over the internal acoustic meatus

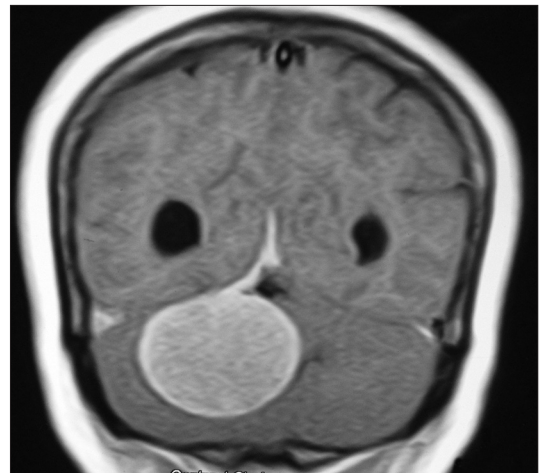


Figure 2: Preoperative MRI coronal cut T1-weighted contrast image shows tentorial dural tail sign

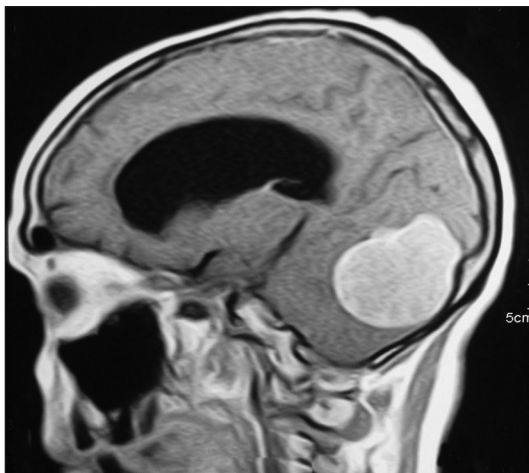


Figure 3: Preoperative MRI axial cut T1-weighted contrast image shows ventroinferior displacement of cerebellum and brainstem

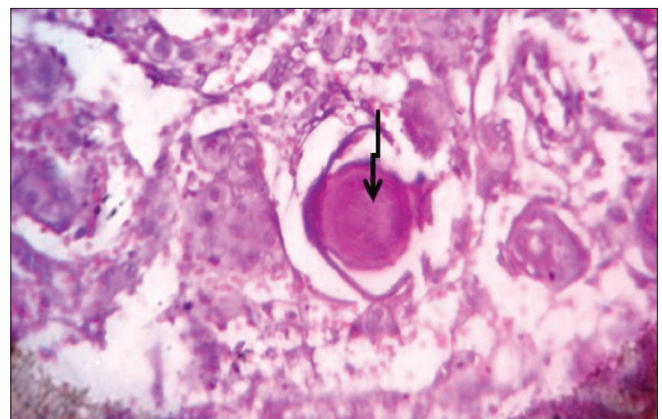


Figure 4: Histopathology section shows meningioma with psammoma bodies (arrow)

Tumors remote to the CPA causing HFS are rarely reported. These include tentorial meningiomas,^[7] tumors in the fourth ventricle, occipital falx meningioma, contralateral CPA meningioma,^[8] and acoustic neuroma.^[9] Cancelli *et al.*^[7] reported HFS due to a tentorial paramedian meningioma and explained four mechanisms: (1) distortion and/or compression of the seventh nerve root; (2) accentuation of the pre-existing subclinical neurovascular conflict; (3) compression of the facial nucleus; and (4) venous outflow obstruction due to the dislocation of anatomical structures by the tumor mass or transverse sinus invasion.

Huge tentorial meningioma causing HFS at contralateral face, seen in our case, is a rare entity. Preoperative MRI showed significant displacement of the brain stem to the opposite side, causing compression and distortion at the opposite facial-vestibular complex. After complete excision of the tumor, the frequency and intensity of spasm decreased on the 1st postoperative day only and there was complete disappearance on the 3rd postoperative day. So, depending on the radiological and clinical evaluation, we can assume two etiological mechanisms. First is the significant displacement of brain stem to the opposite side, which brought the left-sided facial nerve into contact with vascular structures. Second is the reduced threshold of the facial nerve to vascular structures due to stretching of nerve. Complete disappearance of HFS after total excision of the tumor without MVD indicates that HFS is caused by distant tumors that do not involve the ipsilateral CPA.^[10]

Conclusion

HFS can be present in posterior fossa tumor other than CPA tumor. Though the exact pathophysiology is difficult

to explain, total removal of the tumor can completely cure HFS.

References

1. Iwai Y, Yamanaka K, Nakajima H. Hemifacial spasm due to cerebellopontine angle meningiomas—two case reports. *Neurol Med Chir (Tokyo)* 2001;41:87-9.
2. Jannetta PJ, Abbasy M, Maroon JC, Ramos FM, Albin MS. Etiology and definitive microsurgical treatment of hemifacial spasm. Operative techniques and results in 47 patients. *J Neurosurg* 1977;47:321-28.
3. Nagata S, Matsushima T, Fujii K, Fukui M, Kuromatsu C. Hemifacial spasm due to tumor, aneurysm, or arteriovenous malformation. *Surg Neurol* 1992;38:204-9.
4. Shenouda EF, Moss TH, Coakham HB. Cryptic cerebellopontine angle neuroglial cyst presenting with hemifacial spasm. *Acta Neurochir (Wien)* 2005;147:787-89;discussion 789.
5. Colosimo C, Bologna M, Lamberti S, Avanzino L, Marinelli L, Fabbri G, *et al.* A comparative study of primary and secondary hemifacial spasm. *Arch Neurol* 2006;63:441-4.
6. Nielsen VK, Jannetta PJ. Pathophysiology of hemifacial spasm. Effects of facial nerve decompression. *Neurology* 1984;34:891-7.
7. Cancelli I, Cecotti L, Valentini L, Bergonzi P, Gigli GL. Hemifacial spasm due to a tentorial paramedian meningioma. *Neurol Sci* 2005;26:46-9.
8. Rhee BA, Kim TS, Kim GK, Leem WL. Hemifacial spasm caused by contralateral cerebellopontine angle meningioma. *Neurosurgery* 1995;36:393-95.
9. Nishi T, Matsukado Y, Nagahiro S, Fukushima M, Koga K. Hemifacial spasm due to contralateral acoustic neuroma. *Neurology* 1987;37:339-42.
10. Park H, Hwang SC, Kim BT, Shin WH. Hemifacial spasm caused by huge tentorial meningioma. *J Korean Neurosurg Soc* 2009;46:269-72.

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