Continuous facial spasm with tumor of the pons

Case report

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Continuous involuntary fibrillary movements with contraction and weakness of the facial muscle ("myokymia") have been described in connection with multiple sclerosis\(^1,5,6,8\) and also in recent years have been noted as a feature of brain stem tumors\(^5,7,10,12\). Reports of the effects of surgery on this unusual form of muscle activity in tumor cases are for the most part not clear, either because of the patients' deaths or the lack of information. A case is described here in which this variety of facial spasm was for a considerable time the presenting feature, and in which surgery abolished the symptoms for a period of a year.

**Case Report**

A 30-year-old mechanic complained of contraction of the right side of the face, with closure of the eye, headaches, and giddiness. The symptoms had begun some 3 years previously with weakness of the right facial muscles which had been diagnosed as Bell’s palsy. Within a year, twitching and spasm of the right face had supervened, ultimately producing a permanent grimace with a closed eye (Fig. 1).

**First Examination.** There were no other abnormal neurological findings. Audiometry and caloric labyrinthine tests were also normal, as was the cerebospinal fluid. Several months later because of the onset of headaches, vertigo, tinnitus and hearing loss on the right side, the patient was readmitted.

![Fig. 1. Patient when first seen with permanent spasm of right face causing eye closure.](image)
Facial spasm in pontine tumor

Second Examination. In addition to the severe continuous fibrillar spasm of the right facial muscles, there was hypesthesia in the ipsilateral trigeminal area with loss of corneal sensation, weakness of the external rectus muscle of the right eye, horizontal nystagmus, considerable hearing loss on the right, and no caloric response. The electroencephalogram was normal except for a continuous muscle artifact from the right orbital muscles. Plain skull films appeared normal. A right vertebral arteriogram demonstrated shift of the basilar artery away from the clivus and elevation of the superior cerebellar artery, signs indicative of lateral pontine mass (Fig. 2). These findings were supported by nonfilling of the right pontocerebellar cistern during pneumoencephalography (Fig. 3).

Operation. With the patient in the sitting position, right suboccipital craniectomy was performed. Grayish-white tumor tissue was seen growing from the pons and enveloping the 7th and 8th cranial nerves. The visible portion of the tumor was removed; the facial and auditory nerves were seen to be preserved and free of tumor material at the end of the procedure. Histological examination showed the tumor to be a Grade III astrocytoma (Fig. 4).

Postoperative Course. There was no longer any contracture and fibrillar spasm, and voluntary eye closure was possible. A tumor dose of radiotherapy (5600 rad, Co-60) was given. Fifteen months later the patient is well and working at his trade, but slight fibrillar contractions have reappeared on the right side of the face.

Discussion

Glioma of the brain stem is a common condition, but persistent facial spasm as one of its symptoms is rare. Bucy and Keplinger did not record its presence in a review of their series of 105 cases, perhaps because most of their patients were children, whereas the symptom under discussion has mostly been described in adults. Facial weakness is

Fig. 2. Right vertebral angiograms. Left: Anteroposterior view showing medial displacement of right superior cerebellar artery. Right: Lateral view showing displacement of the basilar artery away from the clivus, and elevation of the superior cerebellar artery.

Fig. 3. Pneumoencephalogram demonstrating nonfilling of the right cerebellopontine cistern.
of course common in cerebellopontine angle tumors. Facial spasm, too, is not particularly rare but is usually intermittent. The myokymic or continuous variety has been reported in two such patients by Espinosa, et al. An attempt has been made to explain the phenomenon by a physiopathological analogy with the spasm of the arms seen in some cases of spinal tumor and spinal trauma, which has been attributed to cutting of the connections between the anterior horn and Renshaw cells. This leads to persistent firing of the ventral horn cell because it is freed from inhibitory influences. A similar disinhibition of cells of the facial nuclei has been proposed by O'Connor, et al., to account for facial myokymia in brain stem tumors.

However, the phenomenon of hemifacial spasm has been related by Gardner and Sava to various anomalies, most of them vascular, pressing on the facial nerve itself, and believed by them to act by sensory-motor impulses short-circuiting at extraxial locations. In our case, freeing of the nerve from the tumor tissue that enveloped it was followed by complete relief of spasm with cessation of fibrillary movements for a period of over a year. This seems to support the contention that the explanation for the phenomenon is not to be sought in physiopathological changes in or around the facial nucleus but rather in the extramedullary fibers.

This case emphasizes a little-known clinical syndrome only recently recognized as occasionally associated with pontine tumors. Surgical exploration is probably always justified if only to differentiate the tumor from an acoustic neuroma; furthermore, as shown in our patient, it may be possible to relieve one of the most distressing symptoms for a considerable time.

Summary

Continuous facial spasm associated with fibrillary movements of the facial muscle (myokymia) is a rare manifestation of pontine tumors. We have reported a case in which this was the initial and for a long period the only symptom. Satisfactory relief from the spasm was achieved by freeing the facial nerve from the pontine tumor followed by radiotherapy.

References

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Received for publication October 17, 1969.
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