Regain Somatosensory Evoked Potential after decompression of foramen magnum meningioma

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Introduction

• The meningiomas are the most common primary intracranial tumors. They are usually low growing, extra-axial tumor, circumscribed, benign lesions. Actually arise from arachnoid cap cells. May occur anywhere that arachnoid cells are found.

• Foramen magnum meningiomas related neurologic symptoms and signs can be very confusing and often don’t initially suggest a tumor in this location. 31% arose from the anterior lip, 56% were lateral and 13% arose from the posterior lip of foramen magnum.

• Most are intradural, but they can be extradural or a combination. They may be above, below or on both sides of the vertebral artery.
• This is a 74-year-old female with underlying disease of hypertension.

• She has chronic throbbing pain over right frontal part almost everyday for over 20 years controlled with medication. She has memory disturbance since 1-2 years ago, especially intermediate memory, referred to clinic.

• In clinic, unsteady gait, right side trunk numbness were noted. The Romber test was positive with right side limbs dysmetria. The further image evaluation was arranged.
Image data
• There was lobulated, well defined, mostly intermediate signal intensity lesion on T1W and T2W images at right dorsolateral aspect of medulla oblongata that extends into the hypoglossal canal (between occipital condyle and jugular tubercle).

• Post-gadolinium enhanced axial and coronal images yield uniform enhancement.

• The spectroscopy revealed elevated intratumoral Ch/Cr and decreased NAA/Cr ratios.

• The 3D TOF MR angiography demonstrated normal configuration of the great cerebral vessels.

• The CT without enhancement revealed the high density lesion, suspect calcification.
An intradural calcified meningioma at right dorsolateral aspect of medulla oblongata.

The surgical intervention was suggested and the operation was performed.
1. Before the operation. The neuromonitoring were settled with SSEP.

2. The patient is placed in the lateral position and the head is held in three-point pin fixation with the neck slightly flexed, the vertex angled slightly down, and the face rotated slightly ventrally, so that the ipsilateral external auditory meatus and the mastoid bone are at the highest point.

3. The hockey stick incision was made. three layers of muscle are identified during the dissection.

4. The C-1 lamina and VA will then become more apparent. The VA is covered by a venous plexus, sometimes referred to as the suboccipital cavernous sinus and exposure of the extradural VA.

5. A lateral suboccipital craniotomy is initially performed. Suboccipital Craniectomy and C-1 hemilaminectomy was done, too. Partial transcondylar Resection was performed.

6. Then Open the dura. The tumor was noted. The firm content and encarced with right side VA was noted. Preserve the low cranial nerve and perform the Simpson grade II operation.
• Before the operation, the poor SSEP single were noted. According to the clinical complaint, mild limbs numbness without obvious weakness were noted.

• After craniectomy over occipital cervical junction and the C1 hemilaminectomy, regain SSEP single without the latency. During operation, the SSEP wave was stable without decreased or delayed.

• After operation, the patient recovery well and no neurologic deficit or CSF leakage.
Summary

• The SSEP was improved after adequate decompression, opening the foramen magnum.
• The Simpson grade II operation was complete and the followed up image revealed the well result.
• The VA was preserved during operation.