Case Report

Meningioma of Foramen Magnum Causing Drop Attacks

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Abstract

A 52-year-old female presented with frequent episodes of falls without loss of consciousness. These episodes lasted for brief period followed by full neurological recovery. Magnetic resonance imaging (MRI) of the brain showed foramen magnum meningioma encasing left vertebral artery. The patient had dramatic improvement after excision of the tumor.

1. Introduction

Meningioma is the commonest tumor in the region of foramen magnum [1]. It often presents with occipitocervical pain, long tract signs, and lower cranial nerve deficits [2, 3]. Drop attack as a presenting symptom of meningioma of foramen magnum has never been reported. We report an adult patient with this unique presentation and discuss the differential diagnosis, diagnostic approach, and a brief review of literature.

2. Case Report

A 52-year-old female, a known case of hypertension, presented with sudden episodes of fall without loss of consciousness for the last 5 months. Each episode used to last for approximately 1 minute followed by full neurological recovery. The frequency of such drop attacks was 1-2 per day. It was associated with giddiness. Neurological examination was normal apart from mild hyperreflexia in all four limbs.

Twenty-four-hour electroencephalography (EEG) was done by a neurologist which was normal. Electromyography (EMG) and nerve conduction velocity (NCV) of all four limbs were also normal. Cardiovascular workup which included echocardiograms (ECG) and Holter monitoring were normal. Magnetic resonance imaging (MRI) revealed anterolaterally placed, homogenously enhancing dural based lesion in the foramen magnum encasing the left vertebral artery suggestive of meningioma (Figures I(a), I(b), and I(c)).

Patient underwent surgery by posterior approach. Total excision of the tumor followed by augmentation duraplasty was performed via midline suboccipital craniectomy and removal of C1 arch. Tumor was arising from anterolateral dura of foramen magnum, firm in consistency, vascular, and nonsuckable. It was excised in piecemeal, baring the left vertebral artery and left posterior inferior cerebellar arteries (PICA). Complete excision was done with coagulation of dural base.

Patient had a dramatic recovery from her symptoms postoperatively. At follow-up of 18 months after the surgery patient is disease-free (Figures I(d) and I(e)).

Histopathological examination showed the lesion to be meningothelial meningioma (Figure 2).

3. Discussion

Fall of sudden onset can be associated with or without loss of consciousness. Falls with loss of consciousness can be
Figure 1: (a) T2 weighted sagittal image; (b) postcontrast T1 weighted sagittal image; (c) postcontrast T1 weighted axial image: magnetic resonance imaging (MRI) showing anterolaterally placed, homogenously enhancing dural based lesion in the foramen magnum encasing the left vertebral artery suggestive of meningioma. (d) T1 weighted sagittal image and (e) T1 weighted axial image: postoperative MRI showing complete excision of tumor.

Figure 2: Photomicrograph (H&E, 10x) showing lobular arrangement of meningothelial cells with syncytial distribution at the periphery suggestive of meningothelial meningioma.

Figure 3: Causes of sudden onset fall.

Due to syncope or nonsyncopal conditions like metabolic disorders including hypoglycaemia, hypoxia, epilepsy, and intoxications. Falls without loss of consciousness can be due to cataplexy, drop attacks, psychogenic "syncope" (somatization disorders), and transient ischaemic attacks (Figure 3). Syncope is defined as a transient, self-limited loss of consciousness, usually leading to fall. The onset of syncope is relatively rapid, and the subsequent recovery is spontaneous, complete, and usually prompt. The underlying mechanism is a transient global cerebral hypoperfusion. The causes...
of syncope include neurally mediated reflex syncopal syndromes, cardiac arrhythmias, orthostatic hypotension, and cerebrovascular conditions [8].

Drop attacks are sudden falls without loss of consciousness that are not precipitated by a specific stimulus, occur with abrupt onset and without warning, and are followed by a rapid return to baseline. A range of localizations for drop attacks is possible, but most commonly lower brainstem or spinal cord structures are implicated. Drop attacks generally indicate transient impairment of bilateral central nervous system structures involved in maintenance of postural muscle tone and balance [9]. Tumarkin otolithic catastrophes (or crises) are drop attacks without associated autonomic tone and balance [9]. Tumarkin otolithic catastrophes (or crises) are drop attacks without associated autonomic

<table>
<thead>
<tr>
<th>Author/year</th>
<th>Number</th>
<th>Age/sex</th>
<th>Site and nature of the tumor</th>
<th>Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lee et al. (1994) [5]</td>
<td>1</td>
<td>—</td>
<td>Posterior fossa arachnoid cyst</td>
<td>—</td>
</tr>
<tr>
<td>George and Laurian (1989) [6]</td>
<td>1 31/M</td>
<td>C2 neurinoma</td>
<td></td>
<td>Vertebral insufficiency</td>
</tr>
<tr>
<td>Pollack et al. (1995) [7]</td>
<td>1 2/Mch</td>
<td>Choroid plexus papilloma third ventricle</td>
<td></td>
<td>Hydrocephalus</td>
</tr>
<tr>
<td>Present case</td>
<td>1</td>
<td>46/F</td>
<td>Foramen magnum meningioma</td>
<td>Vertebral insufficiency and medullary compression</td>
</tr>
</tbody>
</table>

M: male; F: female; and Mch: male child.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.
References


