Parkinson’s Disease Associated with Myasthenia Gravis: A Case Report and Literature Review

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Introduction

The prevalence of Parkinson’s disease (PD) in the elderly population exceeds 1% according to recent reports, whereas myasthenia gravis (MG) is much rarer [1]. The expected prevalence of the combination of MG and PD can be grossly estimated to 3 cases per 6 million [2]. To our knowledge, since 1987, 12 cases of concurrent PD and MG have been reported [3]. We report a new case of PD associated with MG with update literature review.

Case Report

A 73-year old man with a 20-year history of akineto-hypertonic form of Parkinson’s disease, presented with fluctuating ptosis, diplopia, slurring of speech, dysphagia and general weakness of the neck, trunk and four limbs. These symptoms worsened during the course of the day but were better in the morning and after rest. On admission the patient was alert and orientated. General physical examination was unremarkable. On neurological examination, the strength of the neck extensors was reduced to 2/5 according to the Medical Research Council’s score; the strength of both sternocleidomastoids was 3/5. All the remaining muscles were scored 5/5. Severe camptocormia, bradykinesia and rigidity were also noted. Routine blood and urine exams were unremarkable. Injection of Neostigmine dramatically improved his ptosis, slurred speech, dysphagia and muscle weakness. A typical decremental response was shown in deltoid and bilateral facial muscles on 3 Hz supramaximal stimulation. Serum acetylcholine receptor antibody (AChR Ab) titers were 17.3 nmol/l (normal <0.2 nmol/l) when antibodies to muscle-specific tyrosine kinase (MuSK) and antibodies against presynaptic voltage-gated calcium channels were negative. CT scan of the mediastinum revealed the presence of a thymus gland enlargement of 34 × 22 × 26 mm. On the basis of the above-mentioned clinical, immunological screening and neurophysiological findings a diagnosis of MG was established. The patient was treated only with pyridostigmine (120 mg/day). Remarkable improvement following treatment was reported.

Discussion

Ueno was the first to describe a patient where PD and MG coexisted [4]. However, since then a possible link between PD and MG has been suggested in 11 more published cases [1-8]; their demographic and clinical characteristics are summarized in Table 1. Our patient is the thirteenth to be reported where these two medical entities coexist.
Table 1: Demographic and clinical characteristics of published data of patients suffering from PD and MG.

<table>
<thead>
<tr>
<th>Year</th>
<th>Authors</th>
<th>Type</th>
<th>Gender</th>
<th>Age</th>
<th>Antigens</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Zis et al.</td>
<td>Single case</td>
<td>M</td>
<td>69</td>
<td>AChR(+)</td>
<td>Anti-MuSK(-)</td>
</tr>
<tr>
<td>2014</td>
<td>Leslie et al.</td>
<td>Case #1</td>
<td>F</td>
<td>75</td>
<td>AChR(+)</td>
<td>Weakness of the limbs and neck flexor muscles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Case #2</td>
<td>M</td>
<td>72</td>
<td>AChR(+)</td>
<td>Bilateral ptosis and ophthalmoplegia</td>
</tr>
<tr>
<td>2016</td>
<td>Beyrouti et al.</td>
<td>Single case</td>
<td>M</td>
<td>73</td>
<td>AChR(+)</td>
<td>ptosis, diplopia, slurring of speech, dysphagia and general weakness of the neck, trunk and four limbs</td>
</tr>
</tbody>
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References