Obstructive Sleep Apnea Syndrome Caused by Parapharyngeal Schwannoma

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Abstract

Obstructive Sleep Apnea Syndrome (OSAS) is caused by mechanical obstruction of the upper airway during sleep leading to recurrent episodes of hypopnea and/or apnea. We present a rare case report of a parapharyngeal schwannoma causing severe OSAS requiring surgical resection.

Introduction

OSAS is caused by mechanical obstruction of the upper airway during sleep leading to recurrent episodes of hypopnea and/or apnea. The obstruction can be due to pharyngeal soft tissue collapse during sleep secondary to hypotonia and/or structural abnormalities resulting in a narrowed airway. OSAS resulting from a parapharyngeal mass extrinsically compressing the upper airway is highly uncommon. Fewer than 30 cases have been reported in the literature, and only two were caused by schwannomas. Schwannomas are benign neoplasms originating from Schwann cells and can arise from any peripheral nerve containing these myelinating cells. Schwannomas make up only 0.5% of head and neck tumors, but they are the most common neurogenic tumor occurring in the parapharyngeal space. We present the rare case of OSAS caused by a large parapharyngeal schwannoma. Successful treatment involved a combination transoral robotic and nasal endoscopic resection for complete surgical extirpation.

Methods and Materials

A 33-year-old male with a history of morbid obesity, OSAS, and recent onset dysphonia presented to our clinic for evaluation. He had OSAS diagnosed by polysomnography demonstrating an apnea hypopnea index (AHI) of over 100 and oxygen saturation nadir of less than 60%. His OSAS persisted despite successful laparoscopic gastric banding surgery resulting in a 100 pound weight loss and the use of continuous positive airway pressure (CPAP) therapy for 12 months. He was found to have a large parapharyngeal mass extending from the nasopharynx to hypopharynx, for which he underwent combined transoral robotic surgery (TORS) oropharyngeal and endoscopic transmural resection.

Histopathologic diagnosis revealed the mass to be a schwannoma. The patient reported significant improvement in symptoms following surgery. Post-operative polysomnography demonstrated an improved AHI of 39, with the plan to continue treatment with CPAP titration and weight loss.

Discussion

Parapharyngeal space tumors are most commonly benign and of salivary, neurogenic, or vascular origin. Schwannomas are uncommon neurogenic tumors, but involve the head and neck in nearly half of cases. In the head and neck, they are commonly associated with cranial nerves. Those occurring in the parapharyngeal space often originate from either the sympathetic chain or vagus nerve. Generally slow growing and benign, patients often remain asymptomatic for quite some time. Tumors that grow large enough may compress the pharynx causing OSAS, especially in patients with other risk factors for OSAS. The pathophysiology of OSAS is often multifactorial and varies among individuals. It is important to accurately diagnose the underlying cause in order to provide appropriate treatment. In our case, the patient's OSAS failed to improve despite substantial weight loss and CPAP compliance. Only after a comprehensive head and neck examination, including laryngoscopy, was the underlying cause of his refractory OSAS discovered.

Table 1. Sleep Study Results Preoperative vs Postoperative

<table>
<thead>
<tr>
<th></th>
<th>Preop</th>
<th>Postop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apneophaqy Index</td>
<td>&gt;160</td>
<td>39</td>
</tr>
<tr>
<td>Apnea Index</td>
<td>&gt;100</td>
<td>32</td>
</tr>
<tr>
<td>Hypopnea Index</td>
<td>&gt;60</td>
<td>7</td>
</tr>
<tr>
<td>O2 Nadir</td>
<td>60%</td>
<td>68%</td>
</tr>
<tr>
<td>Epworth</td>
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<td>6</td>
</tr>
<tr>
<td>BMI</td>
<td>57.4</td>
<td>42.9</td>
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</tbody>
</table>

Conclusions

Even in the most classic presentations of OSAS, one must always consider the possibility of an uncommon etiology. Especially when evaluating a patient with refractory symptoms, a thorough evaluation for masses of the aerodigestive tract must be performed. While rare, parapharyngeal masses, such as schwannomas, may cause OSAS.

References