



Obstructive Sleep Apnea Awareness

Case Vignette: OSA and Nasal Blockage

Presenting Complaints

A 58-year-old patient, truck driver by profession, was referred to the ENT clinic by his primary care physician. He complained of a persistent left nasal obstruction for the past few months. He had also been experiencing significant daytime sleepiness that interfered with his daily life. He reported instances of falling asleep while driving.

Past History

His past medical history consisted of an inverted papilloma diagnosed ten years anteriorly, for which he underwent surgery. No recurrences were observed after the end of the treatment. Though he was diagnosed with sleep apnea around the same time, he chose not to follow any treatment (he was prescribed Auto-PAP therapy) because he did not have such disturbing symptoms.

Physical Exam

A flexible nasopharyngoscopy examination revealed the obstruction site. A voluminous papillomatous, yellowish tumor entirely blocked the left nasal fossa extending toward the ipsi- and contralateral choana. An anterior left nasal deviation was also noted. Mucopurulent secretions were visualized in both nasal fossae.

Testing

A CT scan of the head and paranasal sinuses was performed, showing extensive paraf fluid-solid densities completely occupying the left maxillar, ethmoidal, sphenoidal sinuses and the entire left nasal cavity, expanding in the nasopharynx through the left choana.

An ESS was also performed.

The ESS subjectively assesses excessive daytime sleepiness by asking patients to rate their chance of dozing off from 0 (would never doze) to 3 (high chance of dozing) for 8 commonly encountered scenarios, with a total maximal score of 24.



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Would never doze	Slight chance of dozing	Moderate chance of dozing	High chance of dozing	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Sitting and reading
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Watching TV
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Sitting inactive in a public place (e.g. cinema or in a meeting)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Being in a car for an hour as a passenger (without a break)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Lying down to rest in the afternoon (when possible)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Sitting and chatting to someone
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Sitting quietly after lunch (not having had alcohol)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	In a car when you stop in traffic for a few minutes
<input type="button" value="Calculate Score"/>				
Your Score				
				24

Figure 1. Results of Epworth Sleepiness Score

The ESS score generated was 24/24 (Figure 1). ESS scores of 16-24 represent a “Severe Excessive Daytime Sleepiness. [[About the ESS](#)]

Test results:

A polysomnographic study showed severe obstructive sleep apnea syndrome (AHI = 67.8) with the most prolonged apnea episode duration of 1 min and 55 s. Most episodes were represented by obstructive apneas (oA = 73%), while central and mixed apneas represented 1% and 12%, respectively. The rest of the 13% were hypopneas. There was a desaturation index of 90.0, with a mean O2 saturation of 74% and a minimum saturation of 50% during sleep. The SpO2 reading on the pulse oximeter was 86% during the day, with a pulse range of 65 to 111.



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Blood tests were performed, revealing modified complete blood count parameters: hemoglobin 17.9 g/dL, hematocrit 56.2%, MCV 103.5 fL, and RDW 15.7%.

Discussion of Treatment Plan

With the patient's informed consent, surgical intervention was proposed. A sinonasal videoendoscopic surgery was performed which consisted of the excision of the tumoral mass from the nasal cavity and nasopharynx with subsequently left maxillary sinus antrostomy, anterior ethmoidectomy, and sphenoidotomy.

The postoperative care consisted of intravenous antibiotics, hemostatic agents, and analgesics for pain management. The patient was asked to come for a follow-up after 1 week. At this visit, histopathological result had come in and it was suggestive of inverted papilloma.

Outcome of Case

At the one-month F/U visit, the symptoms of nasal obstruction and daytime somnolence diminished substantially. Considering that the patient had multi-level obstruction determining sleep apnea (anteroposterior diminished pharyngeal diameter, elongated uvula, increased neck circumference), an auto-PAP mask was recommended. The polysomnography showed a residual AHI of only 5.4/h and PAP therapy prescription.

Daytime SaO₂ increased from 84% before surgery to 93%. But because pulse oximetry parameters did not reach the levels of desired therapeutic success, Auto-PAP treatment was completed with 4 L of oxygen supplementation during sleep to better manage desaturation episodes. This measure resulted in a very favorable outcome with an ODI of only 18.6 (vs. 90 at first presentation), mean O₂ saturation of 91%, and a minimum saturation of 76%. Secondary to nocturnal oxygen supplementation, the daytime SaO₂ reached 96%.

The patient was very compliant to night-time ventilation therapy, with a mean usage time of 87% three months after the surgery. The patient completed the ESS revealing a score of 0 points, compared to a score of 24 before the treatment. The hematocrit also decreased by almost 10% (from 56.2 to 47.2%) and hemoglobin by approximately 2 g/d (from 17.9 to 16 g/dL). He described that his quality of life improved significantly.

Teaching Points

The nose accounts for over 50% of the total upper airway resistance. Nasal obstruction as an independent risk factor for obstructive sleep apnea (OSA) plays a critical role in its pathogenesis. An obstruction determined by the nasal tumor and subsequent severe daytime



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sleepiness were clearly the main factors that motivated the patient to visit his primary care physician. Nasal breathing is the preferred breathing route during sleep, and the switch to mouth breathing secondary to nasal blockage causes poor blood oxygenation. This in turn is detrimental leading to an increased OSA severity and worse oximetric variables. A surgical excision of the tumor improves subjective symptoms of daytime somnolence and is considered to have an important role in CPAP compliance and efficiency. The combination of nasal surgery and CPAP use led to a significant improvement in the patient.

This report illustrates that restoring nasal breathing in patients with sleep apnea is indispensable in optimizing OSA treatment outcomes. Integrative management of obstructive sleep apnea enhanced the quality of life and resulted in an indirect reduction of health consequences through correct CPAP utilization.

Adapted from: Vlad AM, Stefanescu CD, Voiosu C, Hainarosie R. [The Role of Inverted Papilloma Surgical Removal for Sleep Apnea Treatment Success-A Case Report](#). *Medicina (Kaunas)*. 2023 Feb 23;59(3):444. doi: 10.3390/medicina59030444. PMID: 36984444; PMCID: PMC10052586.

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Additional Reading

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