Complete Nasopharyngeal Stenosis: Presentation of a Rare Case
Komplet Nazofarengyal Stenoz: Nadir Bir Olgu Sunumu

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Abstract
A sixty-eight years old female patient with complete nasopharyngeal stenosis without any determined etiology is presented. She had complete nasal obstruction as well as obstructive sleep apnea syndrome. She was operated and dense, thick, avascular fibrotic tissues were excised and reconstructed with local flaps and skin graft. Only partial opening was achieved in the long term follow-up.

Key Words: Nasopharyngeal stenosis, Sleep apnea, Surgery

Introduction
Complete nasopharyngeal stenosis (NPS) is a very rare condition that is characterized by the obstruction of the nasopharynx by submucosal fibrotic tissue from the soft palate and posterior pharynx [1]. NPS has recently been reported as a complication of infectious diseases, such as rhinoscleroma, diphtheria, syphilis and tuberculosis. However, NPS is frequently iatrogenic and caused by oropharyngeal surgeries such as uvulopalatopharyngoplasty and aggressive tonsillectomy, which are generally discouraged procedures. Here, we present the clinical findings and treatment of a patient with NPS.

Case Report
A sixty-eight-year-old female patient arrived at our clinic with complaints of nasal obstruction, shortness of breath, swallowing difficulty, sleeping with an open mouth, snoring and a 30-year history of sleep apnea. A physical examination demonstrated that the uvula and the velopharyngeal opening were absent and her teeth were anomalous (Figure 1). The patient did not have a history of pharyngeal surgery or trauma. Computerized tomography (CT) of the paranasal sinuses and nasopharynx revealed a 2 cm-thick soft tissue mass obstructing the nasopharynx (Figure 2) [2]. There were widespread infectious mucosal changes in the sinonasal cavity. CT of the thorax demonstrated cylindrical bronchiectasis on the mediobasal and posterobasal segments of the lower lobe of the right lung. The patient underwent polysomnography. Her apnea hypopnea index was 32.8, and her oxygen desaturation index was 30.4. O₂ saturation less than 90% was 17.7%. All autoimmune markers, PPD and VDRL tests were negative. A pure tone audiogram identified severe mixed hearing loss in both ears. With a tympanogram, the middle ear pressures were measured as -200 and -400 in the right and left ears, respectively.

The patient underwent opening surgery for nasopharyngeal stenosis under general anesthesia with orotracheal intubation. The peroperative findings were consistent with the preoperative findings, and the soft palate was adhered to the posterior pharyngeal wall by thick fibrotic tissue. An incision was made horizontally through the lateral folds at the posterior wall by electrocoagulation (Figure 3). The stenotic tissue was determined to be approximately 1 cm thick, avascular and very dense. With the help of a surgical elevator advanced from the nasal cavity, an opening was provided between the dissection plane and the nasal cavity. The opening was widened laterally on both sides. An approximately 4x6 cm...
split-thickness skin graft taken from the right anterolateral thigh was sutured to the posterior pharyngeal wall. The anterior and posterior walls of the soft palate mucosae were sutured together, and a 3x2 cm nasopharyngeal opening was obtained. A Foley tube was advanced from the left nasal passage, and the cuff was inflated with saline at the level of the new opening. The postsurgical period was uneventful, and the Foley tube was removed on the 7th postoperative day. During the long-term follow up (12 months), partial stenosis recurred, but a limited passage (1x1 cm) was developed. The patient did not consent to the second surgery.

Discussion

Acquired NPS is most often observed after palatal surgeries and radiation therapy to the nasopharynx. However, in the past, it was mostly due to complications of infectious diseases, such as rhinoscleroma, diphtheria, syphilis and tuberculosis [1, 3]. In childhood, NPS can also be observed after adenotonsillectomy, but the incidence of this complication in both adults and children is very rare [4-6].

Nasopharyngeal stenosis and complete obstruction have been presented in very few reports. Nasopharyngeal stenosis can also be caused by the autoimmune disease cicatricial pemphigoid. Therefore, the patient was tested for autoimmune markers but was negative. Additionally, PDD and VDRL were found to be within normal limits. We were unable to determine any etiologic factor to explain the acquired NPS. Similarly, Shevas et al. [7] also reported a case of nasopharyngeal stenosis with undetermined etiology.

Nasopharyngeal stenosis patients can have several disorders that affect the upper aerodigestive system, including nasal obstruction, sleep apnea, swallowing difficulty, voice dysresonance, and eustachian tube and middle ear problems [5]. Our
patient had almost all of these complaints. Similar to other NPS patients, our patient also had chronic sinonasal problems and infections. Middle ear effusions and rhinosinusitis can also occur.

The most effective diagnostic and therapeutic planning approach is transnasal fiberoptic examination. The first reconstruction attempt in nasopharyngeal stenosis was performed by Nichols in 1896. If nasopharyngeal stenosis originates in the soft palate, the use of a laterally based pharyngeal flap is another currently used method of reconstruction. The success of a laterally based pharyngeal flap depends on the use of healthy pharyngeal tissue in the area of the stenosis [5]. Prosthetic nasopharyngeal stents have also been successfully used in some patients [2]. Chheda et al. [8] performed balloon dilatation in three patients with nasopharyngeal stenosis that occurred after radiotherapy. Van Duyne et al. [9] reported the successful opening of nasopharyngeal stenosis using a carbon dioxide laser. Radial forearm free flaps and microvascular approaches are also other surgical options.

In summary, NPS is a very rare condition, and its surgical treatment can be very challenging. The comorbidities can be severe in patients who undergo treatment. There is no standard surgical technique used to treat NPS, but several alternatives can be used in sequence in these patients or simply “but several alternatives can be used in these patients.

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References