

## OLGU BİLDİRİSİ / CASE REPORT

# Herpetic involvement of larynx presenting as a supraglottic mass

A.C. Yumuşakhuylu, M. Sarı, Z.M. Yazıcı, A. Tutkun, S. Bozkurt Uyar

### Supraglottik kitle şeklinde bulgu veren larengeal herpes

Bu yazımızda klinik olarak larenksin yaygın neoplazilerine benzeyen, herpes tutulumu sunuyoruz. İlk değerlendirilmesinde larengeal malignite düşünülen, immun sistemi sağlam olan erişkin hastanın Herpes simpleks virüs tarafından oluşturulan supraglottik kitlesine doğru tanı biyopsi sonucu konuldu. Erken tanı ve doğru değerlendirme, hayatı tehdit edebilen solunum sıkıntılarının ve yanlış cerrahi tekniklerin uygulanmasını önlemede gereklidir. Herpes virüse bağlı supraglottitis olgularına literatürde de oldukça az rastlanmıştır. Herpetik enfeksiyonların larenksi tutma oranları hakkında net rakamlar verilememektedir. Kesin tanı için klinik şüphe ve virüsün varlığını göstermeye yönelik özel metodlar gereklidir.

**Anahtar Sözcükler:** Larenks, *Herpes simpleks*, kitle.

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### Abstract

The goal of this paper is to report an interesting case of laryngeal involvement by herpes virus, showing a clinical aspect very alike to an extense neoplasm of this region. We describe a case of supraglottic mass caused by *Herpes simplex* virus in an immune-competent adult in which the correct diagnosis was not suspected at the first examination. At first we suspected laryngeal malignancy. A biopsy specimen revealed exact diagnosis. Early suspicion and proper evaluation are mandatory to prevent a life-threatening crisis and false surgery technique. Supraglottitis due to *Herpes simplex* virus is especially rare entity with few reported cases in literature. True incidence of herpetic infections of the larynx is unknown. Accurate diagnosis requires clinical suspicion and highly specific method of confirming the presence of the virus.

**Key Words:** Larynx, *Herpes simplex*, mass.

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Ali Cemal Yumuşakhuylu, MD

Department of Otorhinolaryngology, Ümraniye Training and Research Hospital, İstanbul

Murat Sarı, MD; Alper Tutkun, MD

Department of Otorhinolaryngology&Head and Neck Surgery, Marmara University School of Medicine, İstanbul

Zahide Mine Yazıcı, MD

Department of Otorhinolaryngology, Bakırköy Training and Research Hospital, İstanbul

Süheyla Bozkurt Uyar, MD

Department of Pathology, Marmara University School of Medicine, İstanbul

## Introduction

*Herpes simplex* virus (HSV) infections of the larynx are either uncommon or rarely recognized. Herpetic laryngitis was first described by Meyer in 1879.<sup>1</sup> The laryngeal manifestations of herpetic

infections are quite variable. Large spectrum of presentations and polymorphisms can stimulate mucous lesions such as extensive laryngeal neoplasm (supraglottic tumor), laryngeal tuberculosis, fungal infection, syphilis, abscess or nonspecific laryngeal inflammation (granulomatous disease). Because of the difficulty of differential diagnosis, direct laryngoscopy with biopsy is often required.<sup>2</sup>

Confirmation of herpes virus infection is achieved by culturing the virus from laryngeal tissue in appropriate cell lines. The sensitivity of this method is limited because the virus may not recovered from lesions. Herpes virus infection may be detected by the presence of characteristic intranuclear inclusions in histologic sections.<sup>3</sup>

### Case Report

A 32-year-old healthy male presented to emergency department with 5 hours history of sore throat, odynophagia, hoarseness, followed by development of progressive dysphonia and dysphagia. His previous medical history was unremarkable. There was no previous or current history of trauma. He neither smokes, drinks alcohol, nor has contact with bacilliferous sources. The patient had a temperature of 37 °C, a pulse rate of 100 per minute, and a respiratory rate of 28 per minute. Physical examination revealed a muffled voice, drooling saliva and an edematous soft palate and uvula. The tonsils and pharynx are hyperaemic with no enlargement or exudate noted. There was no lymphadenopathy on the neck. There was no skin lesion or vesicle on body, face, lips or oral cavity. The rest of the physical examination was unremarkable.

Patient had indirect laryngoscopy using 90° endoscope. While performing indirect laryngoscopy he deteriorated markedly with worsening

stridor and respiratory distress. He became increasingly cyanosed and bradycardic. An anesthesiologist tried to do endotracheal intubation but he was not able to perform it. Tracheotomy was performed under local anesthesia in emergency room by us. Hydrocortisone at a dose of 250 mg intravenously was initiated immediately. Symptoms had improved and blood specimens for culture and other laboratory investigations were taken.

Contrast-enhanced head and neck computerized tomography (CT) was performed to the patient. CT scans extending from the skull base to the thoracic inlet, were obtained with 3 mm slices with a 2 mm gap. CT findings revealed that 3.5 x 3.5 cm mass which was extending from inferior level of valleculae to the true vocal folds at the right side. Right parapharyngeal and laryngeal spaces were filled with this mass. The lesion compressed the right pyriform sinus at the vestibule level (Figure 1).

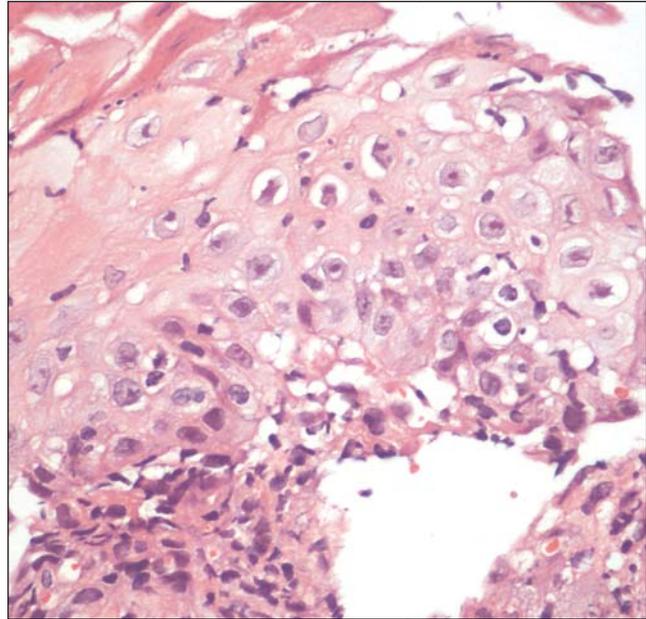


Figure 1. Contrast-enhanced head and neck computed tomography.

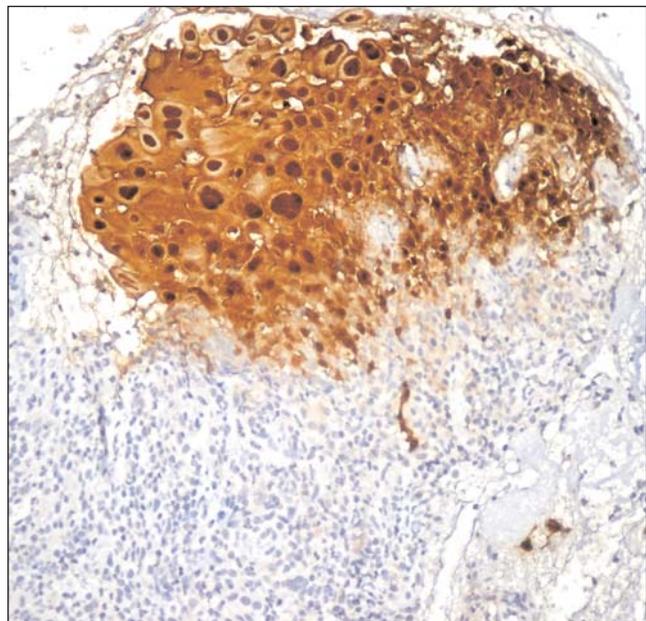
Laboratory findings included white blood cell count of  $27.8 \times 10^9/L$ , hemoglobin level of 15.2 g/dL and normal serum chemistry analysis. Cultures of the oropharynx and nasopharynx grew oropharyngeal flora and blood cultures were negative. The test for HIV was negative. His arterial blood gas values, cardiogram, and chest x-ray were normal. Medical treatment with ampicillin-sulbactam 1000 mg intravenous was administered four times a day. On the second day of hospitalization, repeat indirect laryngoscopy with a laryngoscope revealed smooth polypoid mass in right part of vallecula. In sequence a direct laryngoscopy was carried out and biopsies were taken from smooth polypoid suspicious mass. No vesicles or ulcerations were noted.

The biopsy specimens were fixed in 10% buffered formalin, embedded in paraffin, sectioned to 5  $\mu\text{m}$  thickness and stained with H&E. Histopathological examination revealed ulceration and acute inflammatory reaction in the squamous epithelium. Epithelial layer adjacent to the ulceration showed that discohesive epithelial cells containing prominent ground-glass nuclei and large, intranuclear, eosinophilic inclusions (Figure 2). Some of the epithelial cells had multinucleation with molded nuclei. An immunohistochemical reaction for HSV was positive in these inflamed epithelial cells (Figure 3). In the subepithelial area adjacent to inflamed epithelium, there were aggregates of large histiocytic cells which were immunohistochemically CD-68 positive.

Mass-like lesions resembling pseudopolyps which on histopathology proved to be herpetic. Serologic tests were requested at this stage. Serological tests were reported as negative for toxoplasma (Ig M), CMV (Ig M), HBsAg, anti-HIV, anti-rubella (Ig M), HSV 1-2 (Ig M). Antistreptolysin-O titre was  $<54.4$  IU/ml, VDRL-RPR, RF, CRP, monospot, coombs tests were negative. Valacyclovir



**Figure 2.** Epithelial cells showing ground-glass nuclei and intranuclear eosinophilic inclusions (HE x400). [Color figure can be viewed in the online issue, which is available at [www.turkarchotolaryngol.org](http://www.turkarchotolaryngol.org)]



**Figure 3.** Diffuse, cytoplasmic immunoreactivity in the inflamed epithelial cells (HSV immunohistochemical staining x400). [Color figure can be viewed in the online issue, which is available at [www.turkarchotolaryngol.org](http://www.turkarchotolaryngol.org)]

(500 mg, po, twice daily for 10 days) was added to his medical management and antibiotic was stopped. On the seventh day of hospitalization, repeated indirect laryngoscopy revealed regression at the supraglottic mass. After this laryngoscopy patient was successfully decannulated. He was discharged on tenth day of hospitalization. Control indirect laryngoscopy revealed smooth polypoid mass was disappeared in right part of vallecula at 3 months. One year clinical follow-up, the patient was healthy.

## Discussion

Primary infection with and reactivation of HSV are uncommon in immune-competent patients also herpetic supraglottitis is an extremely rare complication. A severe rapidly progressive infection of the epiglottitis and surrounding tissues may be quickly fatal because of sudden respiratory obstruction by the inflamed structures.

The term supraglottitis refers to a disease in adults that may involve the prevertebral soft tissues, valleculae, uvula, base of tongue and soft palate.<sup>4</sup> Supraglottitis in adults remains an unusual occurrence; only 10 cases per 1 million individuals are reported.<sup>5</sup> Also the association of viral aetiology and supraglottitis is extremely rare.

The clinical presentation of our case reflects the seriousness of supraglottitis and need for prompt management. But the diagnosis of adult supraglottitis is often delayed. In a study, it was found that 29% of patients had been previously seen by a primary care specialist.<sup>6</sup> To reduce the possibility of delayed diagnosis, the clinician should suspect supraglottitis in patients with severe sore throat and odynophagia. All laryngoscopies were performed by otolaryngologists and adequate equipment to establish an airway if necessary. Viral etiology especially HSV should be important to prevent misdiagnosis and false treatment in immune-competent adults.

Laryngeal infection may occur in isolation, in conjunction with other cranial nerve dysfunction, or as part of wide spread infection of the respiratory tract. *Herpes simplex* viruses 1 and 2 (HSV 1, HSV 2) and *Varicella zoster* virus (VZV) infections have all been reported to cause laryngeal inflammation. The presence of mucosal lesions in the larynx and associated cranial nerve findings establishes VZV as a potential cause. Laryngeal infection due to HSV is less commonly recognized, possibly because the mucosal lesions are more transient and the associated cranial nerve dysfunction is less common. Isolated laryngeal lesions occur in both immune-competent and immune-compromised individuals. This entity may be under reported because of the difficulty in establishing the diagnosis. So the true incidence of herpetic infections of larynx unknown.<sup>3</sup> In this report a case of HSV supraglottitis occurred in isolation infection of upper respiratory tract without cranial nerve dysfunction which can be confused supraglottic larynx malignancy. We suspected a malignancy but histopathology of biopsy specimens revealed that the mass exhibited the classic signs of the HSV cytopathic effect. In both children and adults the infectious aetiology in supraglottitis is predominantly bacterial while viruses are rare, especially HSV. Laryngeal involvement of herpes virus is a clinical infrequent entity but as its wide onset forms range from a acute laryngitis until a severe airway obstruction, it seems mandatory to perform an exact diagnosis in order to manage a treatment.

The biopsy of laryngeal lesions must always be carried out, especially for discarding any neoplasm. The histology shows multiple intranuclear inclusions, and the material must be sent for immunohistochemistry analysis to confirm the diagnosis. Also laryngeal infection due to HSV is less commonly recognized. Serological tests would not be positive in early stages of the infection. For this reason in the case of unilat-

eral mucosal lesions of either the oral cavity, pharynx or larynx, associated with cranial nerves paralysis, it is always necessary to consider the hypothesis of herpetic infection, and in some cases even to start empiric treatment.<sup>7</sup> Acyclovir is a virostatic drug, developed especially for herpes simplex infections. It has the advantage of exclusively acting in the infected cells and it is well tolerated by the patients.<sup>2</sup> It acts by incorporation and interruption of viral DNA synthesis after activation by viral thymidine kinase. Valacyclovir converts to acyclovir in the body. The duration of valacyclovir is longer than acyclovir which means that it does not need to be taken as often.

The clinical presentation of our case reflects the severity of supraglottitis and the need for prompt management. A high index of suspicion is necessary for diagnosis of herpetic infection involving larynx. Controversy exists regarding the most appropriate

therapy. Maintaining an adequate airway remains the mainstay of therapy. Early suspicion and diagnosis are needed to avoid life-threatening consequences.<sup>8</sup>

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#### Conflict of interest statement:

No conflicts declared.

**Correspondence: Zahide Mine Yazıcı, MD**  
Bakırköy Training and Research Hospital  
Teşfik Sağlam Cad.  
Zuhuratbaba 34147 İSTANBUL  
Phone: +90 212 414 72 99  
Fax: +90 212 549 07 09  
e-mail: minealmaz@yahoo.com