



Bernard-Von Burrow Flap and Unilateral Webster Modification for Reconstruction of Upper Lip

Üst Dudak Rekonstrüksiyonunda Bernard-Von Burrow Flep ve Tek Taraflı Webster Modifikasyonu

Upper Lip Reconstruction

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Öz

Üst dudak karsinomları, ultraviyole ışınlarının daha az etkisinde kaldığı için, alt dudağa göre daha az görülmektedir. Buna bağlı olarak, üst dudak rekonstrüksiyon yöntemleri ve yöntemlerin uygulandığı hasta sayısı da daha azdır. Üst dudak defektlerinin rekonstrüksiyonunda şimdiye kadar birçok metod tanımlanmıştır. Üst dudak defektlerinin onarımında uygulanan rekonstrüksiyon metodları; transoral rotasyon flepleri (Abbe ve Estlander), sirkumoral ilerletme-rotasyon flepleri (Karapandzic ve Gillies), perialar kresentik eksizyon, ters Yüs flep ve Bernard-Von Burrow flebi ve Bernard-Von Burrow flebi ile birlikte çift taraflı Webster modifikasyonu olarak sıralanabilir. Üst dudak karsinomu nedeniyle tümör eksizyonu yapılan ve rekonstrüksiyonunda Bernard-von Burrow flebin daha önce literatürde çok nadiren vurgulanan tek taraflı Webster modifikasyonu uygulanan olgu, literatür eşliğinde sunuldu.

Anahtar Kelimeler

Üst Dudak; Karsinom; Rekonstrüksiyon

Abstract

Since it is less influenced by ultraviolet rays, upper lip carcinomas are less common than those of the lower lip. Likewise, upper lip reconstruction methods and the number of patients that the methods applied are very limited. Several methods defined in the reconstruction of entire upper lip defects, so far. Reconstruction methods applied to the upper lip defects can be listed as follows: transoral rotation flap (Abbe and Estlander), circumoral advancement-rotation flap (Karapandzic and Gillies), perialar crescentic excision, reverse Yüs flap, Bernard-von Burrow flap, and Bernard-von Burrow flap with double-sided Webster modification. In this article, a 58-year-old male patient who underwent tumor excision due to upper lip carcinoma by the Bernard-von Burrow flap and unilateral Webster modification method, previously very rarely emphasized in the literature is presented.

Keywords

Upper Lip; Carcinoma; Reconstruction

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Introduction

Besides the aesthetic properties of the upper and lower lips, important functional properties such as speech, facial expression, or oral competence are also important. In most series, lip carcinomas are the most common cancer type among the oral cavity cancers, while in some, the most common oral cancer is tongue carcinomas. The vast majority of lip cancers are squamous cell carcinoma. The second most common type of cancer is basal cell carcinoma that is more common in the upper lip [1,2]. The aim of lip reconstruction is to preserve both the aesthetic appearance and function as much as possible. Unlike the reconstruction of the lower lip, the preservation of the nasal base and philtrum in upper lip reconstruction is important [3]. If nasal base anatomy breaks down, then nasal airflow is also disrupted. Reconstruction methods applied to the upper lip defects are: transoral rotation flap (Abbe and Estlander), circumoral advancement-rotation flap (Karapandzic and Gillies), perialar crescentic excision, reverse Yú s flap, Bernard-von Burrow flap and Bernard-von Burrow flap with double-sided Webster modification [4,5]. We present the case of a patient who underwent tumor excision due to upper lip carcinoma with reconstruction with the Bernard-von Burrow flap and unilateral Webster modification method and a review of the current literature.

Case Report

A fifty-eight-year-old male patient was admitted with the complaint of a mass at the upper lip. Clinical examination revealed a crusty lesion at upper lip on the left side, 4 mm exceeding the vermillion border, a distance of 1 cm to the oral commissure, extending through the midline and 2x1.5 cm in diameter. He had an incision scar at lower lip and microstoma due to a previous intervention (Figure 1). There were no palpable lymphadenopathies at the neck. Incisional biopsy from the lesion was reported as squamous cell carcinoma. Under general anesthesia,



Figure 1. Preoperative view of the patient.

tumor excision from the upper lip and reconstruction with the Bernard-von Burrow flap with unilateral Webster modification and left suprahyoid neck dissection operation was performed. Vertical full-thickness incisions were made on each sides of the lesion leaving 1 cm to the lesion as a safety margin combined with horizontal full-thickness incision made 2 mm inferior to nasal base; skin, underlying tissues, and mucosa, together with the lesion, were excised (Figure 2). Burrow's triangles as



Figure 2. Perioperative view of the patient. Tumor at upper lip was excised and skin and subcutaneous tissue excisions were performed at Burrow's triangles.

the base running inferiorly and the apex superiorly were created along both nasolabial groove, triangles were excised, and Bernard flap was created. Another reverse triangle was drawn inferolaterally to the left oral commissure and one-sided Webster's triangle was created by excision of the skin and preserving the underlying mucosa. To form a line to the left upper lip vermillion, two inferiorly running edges of the mucosal triangle were cut and superiorly based mucosal flap was created (Figure 3). Opposing edges of each Bernard flaps were approximated

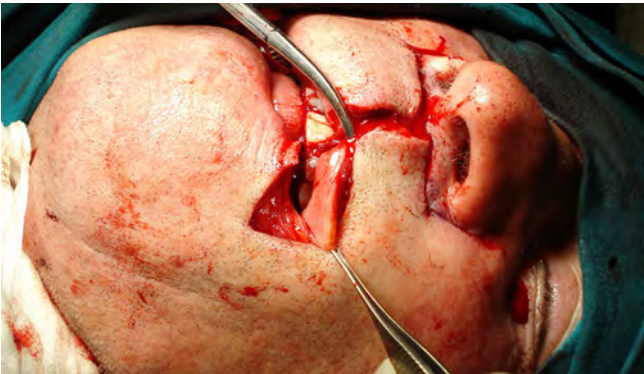


Figure 3. Superior-based mucosal flap created at the base of the Webster's triangle, and new vermillion.

finally and three layers closure was performed. Webster's mucosal flap was sutured as showing continuity with left upper lip and forming vermillion. The two other edges of Webster's triangle were also sutured in three layers. The operation was completed by performing left suprahyoid neck dissection (Figure 4). No metastatic lymphadenopathy was reported at pathological examination of the neck and the surgical margins were tumor free. Aesthetic and functional results were found to be satisfactory at postoperative sixth month control (Figure 5).



Figure 4. The patient's early postoperative appearance.



Figure 5. The patient's postoperative 6th month view.

Discussion

In the mid 19th century, Doctor Bernard and Doctor von Burrow simultaneously described cheek advancement flap for reconstruction of large upper lip defects (Bernard-von Burrow flap). The most important feature of this flap is formed by the triangles excised from the part of cheek proximal to the flap (Burrow's triangle). Excision of excess skin and muscle makes the advancement of flap easier. For upper lip reconstruction, an incision is made through the upper lip on both sides of the tumor with a horizontal connection at the base of the columella. Crescent or triangle-shaped areas are outlined in the nasolabial areas to permit straight horizontal advancement of the sides of the defect. The full-thickness crescent or triangle-shaped areas and the tumor are excised. Mobilization of the lateral flaps is achieved and three layer closure is performed [2,3,6]. Bernard- von Burrow's technique was later modified by Webster. Two lateral cutaneous triangles on each side of the chin at submental area are excised to allow for flap advancement. Mucosal triangles are preserved and tailored to form new vermilion for the reconstructed upper lip. These mucous membranes are then mobilized, preserving their base and new vermilion is formed [2,6]. This modification is applied two-sided and there are no cases in the literature concerning the implementation of this technique as one-sided. In our case, unlike the classic Webster modification, only one-sided reconstruction was performed for creating a new vermilion with an inferior triangle formed at the lesion side. We provided an acceptable mouth opening and function while avoiding microstomia.

Kriet et al. [7] applied the extended Abbe flap for repair of large upper lip defects, but cross lip flaps do not restore oral circumference.

Spinelli et al. [5] reported the utility of the alar crescent flap for partial and full-thickness reconstruction of upper lip defects of varying lengths. The technique provides good functional and aesthetic results, but the loss of philtral anatomic detail is reported as a disadvantage of this procedure.

Rotation flaps such as Gillies and Karapandzic are used for repair of large defects of the upper lip holding major part of the lip, but the disadvantage of these methods is reduction of oral competence in conjunction with microstomia [3].

Belmonte-Caro et al. [4] have modified the Yús technique and performed reverse Yús technique for upper lip reconstruction and they have reported very good aesthetic and functional outcomes for reconstruction of upper half lip defects.

Another technique that is applied to major defects of the upper lip is the Fujimori-Gate flap. A new upper lip is created by forming two inferior-based island flaps from the nasolabial area based on the angular artery and rotating them 90 degrees to the midline. This is reported as a reliable and a safe technique in the repair of large upper lip defects [8].

Chang et al. [9] have applied the technique of free temporal scalp flap for the reconstruction of large upper lip defects. It is a single-staged, relatively simple method of providing hair-bearing skin to the upper lip. They indicated that postoperative motor function and aesthetic results were almost normal at long-term follow-up.

In conclusion, the Bernard-von Burrow and unilateral Webster modification technique that we performed is easy to apply and is a reliable method in appropriate cases, with satisfactory postoperative mouth opening and aesthetic results. .

Competing interests

The authors declare that they have no competing interests.

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