

# LARINKS KANSERİ CERRAHİ SONUÇLARIMIZ; 10 YILLIK DENEYİMİMİZ

## LARYNGEAL CANCER SURGICAL RESULTS; 10 YEARS OF EXPERIENCE

Abdulkadir BUCAK, Selçuk KUZU, Murat AKIN,  
Erkan YILDIZ, Çağlar GÜNEBAKAN, Orhan Kemal KAHVECİ

Afyonkarahisar Sağlık Bilimleri Üniversitesi Tıp Fakültesi, Kulak Burun Boğaz Ana Bilim Dalı

### ÖZET

**AMAÇ:** Bu çalışmada üçüncü basamak bir kulak burun boğaz kliniğinde açık larenjektomi uygulanan hastaların yaş, cinsiyet, ilk semptom ve süresi, histopatolojik tanı, primer hastalığın lokalizasyonu, boynun durumu ve cerrahi tedavi yaklaşımımız ve sonuçları açısından güncel literatür bilgileri ile sunulması amaçlanmıştır.

**GEREÇ VE YÖNTEM:** Bu çalışmada üçüncü basamak bir kulak burun boğaz kliniğinde 2011 - 2021 yılları arasında laringeal kanser nedeniyle açık cerrahi tedavi uygulanan 70 hastanın dosyalarının retrospektif analizi tartışılmıştır.

**BULGULAR:** Larinks kanseri olgularımızın 68'i (%97,1) erkek, 2'si (%2,9) kadın olup, yaş ortalamaları 64,9 (48-89 yaş) idi. Olgularımızın 34'ü (%48,57) glottik, 23'ü (%32,9) supraglottik ve 11'i (%15,7) transglottik idi. İzole subglottik yerleşimli 2 (%2,85) olgu vardı. 38 (%54,3) olguya total larenjektomi, 32 (%45,7) olguya parsiyel larenjektomi uygulandı. 1 hastaya (%1,42) vertikal larenjektomi, 1 hastaya (%1,42) subtotal larenjektomi, 6 hastaya (%8,57) frontolateral larenjektomi, 10 hastaya (%14,28) supraglottik yatay larenjektomi, 14 hastaya (%20) suprakrikoid larenjektomi uygulandı. Histolojik tanı olarak; 3 (%4,2) vaka bazo-skuamöz karsinom, geri kalan 67 (%95,8) vaka ise skuamöz hücreli karsinom idi.

**SONUÇ:** Larenks kanserlerinin tedavisinde cerrahi önemli yer tutmaktadır ve boyun disseksiyonu da bölgesel kontrol için tamamlayıcıdır. Noninvaziv metodlar kullanılarak servikal bölgedeki occult metastazlar belirlenemez, belirlenebilmesi için boyun disseksiyonu yapmak gerekir. Boyun disseksiyonu sırasında uzaklaştırılan lenf nodlarının detaylı histopatolojik değerlendirilmesi günümüzde lenf nodlarının doğru tanısı için elde edilebilen en güvenilir metoddur.

**ANAHTAR KELİMELER:** Larinks kanseri, Skuamöz hücreli karsinom, Açık cerrahi.

### ABSTRACT

**OBJECTIVE:** In this study, it was aimed to present the patients who underwent open laryngectomy in a tertiary otolaryngology clinic with current literature information in terms of age, gender, first symptom and duration, histopathological diagnosis, localization of the primary disease, neck condition, and our surgical treatment approach and results.

**MATERIAL AND METHODS:** In this study, the retrospective analysis of the files of 70 patients who underwent open surgical treatment for laryngeal cancer between 2011 and 2021 in a tertiary otorhinolaryngology clinic is discussed.

**RESULTS:** Of our laryngeal cancer cases, 68 (97.1%) were male, 2 (2.9%) were female, and their mean age was 64.9 (48-89 years). Thirty-four (48.57%) of our cases were glottic, 23 (32.9%) supraglottic, and 11 (15.7%) transglottic. There were 2 (2.85%) cases with isolated subglottic locations. Total laryngectomy was performed in 38 (54.3%) cases and partial laryngectomy was performed in 32 (45.7%) cases. Vertical laryngectomy in 1 (1.42%) of patients, subtotal laryngectomy in 1 (1.42%), frontolateral laryngectomy in 6 (8.57%), supraglottic horizontal laryngectomy in 10 (14.28%), supracricoid in 14 (20%) patients laryngectomy was performed. As a histopathological diagnosis; 3 (4.2%) cases of baso-squamous carcinoma, and the remaining 67 (95.8%) cases were squamous cell carcinoma.

**CONCLUSIONS:** Surgery has an important place in the treatment of laryngeal cancers and neck dissection is complementary to regional control. Occult metastases in the cervical region cannot be determined using noninvasive methods, neck dissection is required to identify them. Detailed histopathological evaluation of lymph nodes removed during neck dissection is currently the most reliable method available for accurate diagnosis of lymph nodes.

**KEYWORDS:** Larynx cancer, Squamous cell carcinoma, Open surgery.

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**Yazışma Adresi / Correspondence:** Dr. Öğr.Üyesi Selçuk KUZU

Afyonkarahisar Sağlık Bilimleri Üniversitesi Tıp Fakültesi, Kulak Burun Boğaz Ana Bilim Dalı

**E-mail:** mervekarapinar1306@gmail.com

**Orcid No (Sirasıyla):** 0000-0003-3031-3465, 0000-0002-0511-9874, 0000-0001-5311-013X, 0000-0002-4477-6201, 0000-0003-3281-9785, 0000-0002-6159-133X

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## INTRODUCTION

Laryngeal cancer is one of the important causes of morbidity and mortality among head and neck malignant neoplasms. Laryngeal cancer covers 2-5% of all cancers and is the most common cancer among all head and neck cancers after skin cancers. According to the national cancer research statistics, SEER (Surveillance, Epidemiology, and End Results), about 12620 people worldwide were diagnosed with laryngeal cancer in 2021 and 3770 of them died. The age-adjusted incidence of laryngeal death is 0.9 per 100000 (1).

Over 80% of laryngeal cancers occur in the 5th, 6th, and 7th decades of life, most commonly in the 6th decade. Although it varies according to different age groups, the male-female ratio is 5-20/1. Tobacco and alcohol use are the most important etiological factors (2, 3).

Approximately 90% of laryngeal cancers are squamous cell carcinomas (4). Vocal cord cancers are usually well differentiated. Most laryngeal cancers develop from true vocal cords; therefore, early diagnosis is possible (5). Laryngeal cancers are the malignancy with the highest rate of cure among head and neck cancers if diagnosed early and treated with a correct approach. The location of the primary disease and lymph node metastasis are two important points in the survival of the patients (6 - 8). Billroth performed the first laryngectomy in 1873 and total laryngectomy has been applied for over 100 years in the treatment of laryngeal cancers (6 - 11). In this study, we aimed to present the patients who underwent open laryngectomy in terms of age, gender, first symptom and duration, histopathological diagnosis, localization of the primary disease, and surgical treatment approach.

## MATERIAL AND METHODS

In this study, the retrospective analysis of the files of 70 patients who underwent open surgical treatment for laryngeal cancer between 2011 and 2021 in the Department of Otorhinolaryngology, Faculty of Medicine, Afyonkarahisar Health Sciences University is discussed. This study was performed with the approval of the Afyonkarahisar Health Sciences University

Faculty of Medicine Medical Ethics Committee. Patients who underwent total or partial laryngectomy as a primary treatment with neck dissection when necessary were included in the study. Patients who were diagnosed with laryngeal cancer that underwent endoscopic surgery, did not accept surgical treatment, and were administered preoperative CT-RT were not included in the study.

The patients' age, gender, smoking, localization of the tumor, tumor size, histopathological differentiation degree, initial symptom onset time, operations performed, surgical findings, and histopathological evaluation results of the postoperative specimen were analyzed retrospectively.

All patients underwent oropharyngeal, nasal, laryngeal, neck, and systemic examinations. Video laryngostroboscopy and direct laryngoscopy were used to determine the location and extent of the lesion. After determining the size and extent of the tumor clinically, all patients were supported radiologically by performing neck computed tomography. Biopsy was taken under direct laryngoscopy from all patients before the operation and we made the histopathological diagnosis. According to the results of direct laryngoscopy and neck computed tomography examinations of the patients, clinical and radiological tumor localization and size were determined according to the TNM classification (American Joint Committee on Cancer, 2002).

## Ethical Committee

Afyonkarahisar Health Sciences University Clinical Research Ethics Committee, Meeting date: 03.03.2023 Meeting number: 2023/3 Ethics committee code: 2011-KAEK-2.

## RESULTS

Of our laryngeal cancer cases, 68 (97.1%) were male, 2 (2.9%) were female, and their mean age was 64.9 (48-89 years). 65 of the cases (95.85%) had a history of smoking 1 pack or more per day, and only 1 (1.42%) had no history of smoking in any period of their life. Hoarseness in 51 (72.85%) cases, dysphagia in 10 (14.28%), dyspnea in 4 (5.71%), neck mass in 3 (4.28%), hemoptysis in 1 (1.42%), Sore throat was the first symptom in 1 (1.42%) of them. The initial

symptom onset time was shorter than 1 month in 8 (11.42%) cases, between 1 and 6 months in 34 (48.57%), and longer than 6 months in 28 (40%) cases. Thirty-four (48.57%) of our cases were glottic, 23 (32.9%) supraglottic and 11 (15.7%) transglottic. There were 2 (2.85%) cases with isolated subglottic locations (**Table 1**).

**Table 1:** Tumor localization

Localization	n	(%)
Supraglottic	23	32.9
Glottic	34	48.57
Subglottic	2	2.85
Transglottic	11	15.70

Total laryngectomy was performed in 38 (54.3%) cases and partial laryngectomy was performed in 32 (45.7%) cases. Vertical laryngectomy in 1 (1.42%) of patients, subtotal laryngectomy in 1 (1.42%), frontolateral laryngectomy in 6 (8.57%), supraglottic horizontal laryngectomy in 10 (14.28%), supracricoid in 14 (20%) patients laryngectomy was performed (**Table 2**).

**Table 2:** Distribution by type of laryngectomy performed

Laryngectomy Type	n	(%)
Total	38	54.3
Supracricoid	14	20
Supraglottic	10	14.28
Frontolateral	6	8.57
Subtotal	1	1.42
Vertical	1	1.42

Bilateral neck dissection was performed in 58 of these patients and we performed unilateral neck dissection in 6 of them. We did not perform neck dissection in 6 patients. Of 122 neck dissections, 29 (23.77%) were functional neck dissection (Type III modified radical), 1 (0.81%) extended radical neck dissection, 87 (71.31%) lateral neck dissection, and 5 (%) neck dissection. 4.09) is anterolateral neck dissection (**Table 3**).

**Table 3:** Distribution of neck dissection types

Neck Dissection (ND)	n	(%)
Extended radical ND	1	0.81
Functional ND	29	23.77
Lateral ND	87	71.31
Anterolateral ND	5	4.09
Total	122	100

As a histopathological diagnosis; 3 (4.2%) cases of baso-squamous carcinoma, and the remaining 67 (95.8%) cases were squamous cell carcinoma. According to the histopatho-

logical differentiation grade of the tumor, 18 (25.7%) patients were G1 (well differentiated), 41 (58.6%) patients were G2 (moderately differentiated) and 11 (15.7%) patients were G3 (poorly differentiated). Histopathological examination of neck dissection specimens revealed neck metastases in 26 (21.31%) of them. Cervical metastasis was found in 4 (22.22%) of the well-differentiated patients, we found cervical metastasis in 13 (50%) of the moderately differentiated patients, and in 8 (72.72%) of the poorly differentiated patients. Ipsilateral neck metastasis was detected in 3 (10.8%) of 28 cases with tumor size  $\leq 2$  cm, contralateral cervical metastasis was not detected. Of 24 cases with a tumor size of 2-4 cm, 11 (45.8%) ipsilateral and 1 (4%) contralateral neck metastases were detected. Of 18 cases with tumor size  $\geq 4$  cm, 10 (55.5%) ipsilateral and 4 (22.2%) contralateral metastases were detected. Eighteen of our cases involved anterior commissure, 8 pyriform sinuses, 16 subglottic areas, 6 thyroid cartilage, and 4 tongue root. We also indicated the ipsilateral and contralateral metastasis rates of the tumor according to the anatomical area (**Table 4**).

**Table 4:** Cervical metastasis with the area where the tumor is involved

Involved Anatomical Region	n	Ipsilateral Cervical Metastasis n(%)	Contralateral Cervical Metastasis n(%)
Front commissura	18	6(33.3)	0(0)
Pyriform Sinus	8	5(62.5)	1(12.5)
Subglottic Region	16	7(43.8)	1(6.3)
Thyroid Cartilage	6	3(50)	1(16.7)
Tongue root	4	3(75)	2(50)

## DISCUSSION

Laryngeal cancer makes up 2-5% of all body malignancies and 25% of head and neck malignancies. Studies have reported that laryngeal cancer is the second most common cancer among men in Turkey and is responsible for 7% of all deaths in men. Laryngeal cancer is the most common in the 5th-7th decades. In epidemiological studies (4 - 6) conducted in our country, the mean age was found to be between 55 and 59 years. In our study, the mean age was found to be 64.9.

In the study of Gök et al. (12), 95.9% of the cases were male and 4% were female. Our cases were

97.1% male and 2.9% female. Although it varies according to different age groups, the male-female ratio is 5-20/1. Tobacco and alcohol use are the most important etiological factors (2 - 3). 97% of patients with laryngeal cancer are smokers. In the study of Canbay et al. (13) as the smoking rate, 83.8% was found in patients with laryngeal cancer 95.85% of our cases, there was a history of smoking 1 pack or more per day. The most common presenting symptom in laryngeal cancer patients is hoarseness. Other prominent symptoms are dysphagia, odynophagia, reflected ear pain, neck mass, dyspnea, and aspiration problem. In our study, the prominent complaint in 72.85% of the patients was hoarseness. Surgery is the first option in the treatment of laryngeal cancers. Among the surgical treatment options, conservative approaches that protect the respiratory, swallowing and voice functions of the larynx and allow adequate oncological treatment are more prominent than before (3-14, 15). İnal et al. performed total laryngectomy in 113 cases in a study of 155 cases, and applied different functional laryngeal surgery methods to the remaining 42 cases (16). In our clinic, surgical treatment is primarily preferred in laryngeal cancers and in our study, total laryngectomy was performed in 54.3% and partial laryngectomy was performed in 45.7% of the cases.

Approximately 90% of laryngeal cancers are squamous cell carcinomas. Vocal cord cancers are usually well differentiated. The vast majority of laryngeal cancers develop from true vocal cords; therefore, early diagnosis is possible. Similarly, in our study, 95.8% were squamous cell carcinomas and 48.57% were of glottic origin.

One factor claimed to be significantly associated with the presence of metastases is the degree of histopathological differentiation of the tumor. Squamous cell carcinomas are histologically, according to cellular pleomorphism, differentiation, and mitotic activities; are graded as well, moderately, and poorly differentiated (17). In their study on 103 patients, Kowalski et al. showed that the degree of histological differentiation of the tumor is one of the most important markers of neck metastasis (18). In our study, it was 72.72% in poorly differentiated tumors and 50% in moderately differentiated tu-

mors. It was found that cervical metastasis was found at 22.22% in well-differentiated tumors.

Laryngeal cancer is a disease of advanced age and is more common in men. Smoking plays a serious role in the development of cancer. Surgery has an important place in the treatment of laryngeal cancers, and neck dissection is complementary to regional control. In laryngeal squamous cell cancers, the degree of histopathological differentiation of the tumor and the presence of cervical metastases are interrelated, and neck treatment should be considered in poorly differentiated cancers.

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