

Evaluation of Laryngeal Cancer Cases Treated at Our Clinic From 2000 to 2005

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ABSTRACT

Objective: In this study, we retrospectively analyzed 40 patients who underwent laryngectomy to treat laryngeal carcinomas at our clinic in terms of cancer epidemiology, preoperative indications, treatments, complications, histopathology, prognosis, and survival and we compared our data with those in the literature.

Material and Methods: Between 2000 and 2005, 40 patients with laryngeal carcinoma were included in our study.

Results: All 40 cases were males (100%) and their average age was 55.85 years. The mean duration of disease at the time of the first visit to our clinic was 5.05 months. The most common symptom was dysphonia (95%). The tumor was supraglottic in 20 cases (50%), glottic in 7 cases (17.5%), and transglottic in 13 cases (32.5%). The most common surgical treatment was total laryngectomy with neck dissection (72.5% of patients), the most common early complication was a salivary fistula (5 patients; 12.5%), and the most common late complication stomal stenosis (3 patients, 7.5%). On postoperative histopathological evaluation, squamous cell carcinoma was detected in 39 cases and verrucous carcinoma was detected in 1 case. Also, a postoperative histopathological evaluation showed that 3 of the cases were of stage 1, 9 of the cases (22.5%) were of stage 2, 13 of the cases (32.5%) were of stage 3, and 15 of the cases (37.5%) were of stage 4. The postoperative histopathological grades were grade 1 in 13 patients (32.5%), grade 2 in 24 patients (60%), and grade 3 in 2 patients (5%). Metastatic lymph nodes were histopathologically evident in 8 of the 20 supraglottic cases (40%), in 4 of the 13 transglottic cases (30.8%), and in 2 of the 7 glottic cases (28.6%). Metastatic lymph nodes were found in 4 of 30 clinically staged N0 patients (13.33%). The 1-year, 3-year, and 5-year survival rates of all cases were 97.5%, 92.3%, and 70.5%, respectively.

Conclusion: In our country, total laryngectomy remains the principal surgical choice because many patients are of low socioeconomic status and visit doctors only late in disease progression.

Keywords: laryngeal cancer, epidemiology, surgery, treatment outcome

ÖZ

Kliniğimizde 2000-2005 Yılları Arasında Opere Edilen Larenks Ca. Vakalarının Değerlendirilmesi

Amaç: Bu çalışmada, kliniğimizde larenks kanseri nedeniyle larenjektomi uygulanan 40 hastanın kanser epidemiyolojisi, preoperatif endikasyon, tedavi, komplikasyonlar, histopatoloji, prognoz ve survival açısından retrospektif analizlerini yaptık ve literatürle karşılaştırılarak tartıştık.

Gereç ve Yöntem: 2000-2005 yılları arasında kliniğimizde larenks nedeni ile opere edilen 40 hasta çalışmamıza dahil edildi.

Bulgular: Çalışmaya dahil edilen 40 vakanın tamamı erkek (%100) idi ve yaş ortalaması 55,85 olarak bulundu. Hastaların ilk başvuru süresi ortalama 5,05 ay idi. En sık rastlanan semptom ses ses değişikliği (%95) idi. Tümör 20 olguda (%50) supraglottik yerleşimli, 7 olguda (%17,5) glottik yerleşimli, 13 olguda (%32,5) transglottik yerleşimli idi. En sık %72,5 oranında total larenjektomi+boyun diseksiyonu uygulandı. En sık rastlanan komplikasyon erken dönemde 5 hastada (%12,5) görülen tükürük fistülü, geç dönemde 3 hastada (%7,5) görülen stoma darlığı idi. Postoperatif histopatolojik değerlendirmede 40 vakanın 39'unda yassı hücreli karsinom, 1'inde verrüköz kanser saptandı. Ayrıca olguların postoperatif histopatolojik değerlendirilmesi sonucu 3 olgu (%7,5) evre 1, 9 olgu (%22,5) evre 2, 13 olgu (%32,5) evre 3, 15 olgu (%37,5) evre 4 olarak saptandı. Olguların postoperatif histopatolojik gradlemesi sonucu 13 hasta (%32,5) grade 1, 24 hasta (%60) grade 2, 2 hasta (%5) grade 3 olarak bulundu. 20 supraglottik olgunun 8'inde (%40), 13 transglottik olgunun 4'ünde (%30,8) ve 7 glottik olgunun 2'sinde (%28,6) histopatolojik olarak metastatik lenf nodu saptanmıştır. Klinik olarak 30 N0 olgunun 4'ünde (%13,33) histopatolojik olarak metastatik lenf nodu bulunmuştur. Olguların 1 yıllık, 3 yıllık ve 5 yıllık sağ kalım oranları ise sırasıyla %97,5, %92,3 ve %70,5 olarak bulundu.

Sonuç: Ülkemiz şartlarında hastaların düşük sosyoekonomik düzeyi ve geç dönemde doktora başvurmaları nedeni ile total larenjektomi, halen ana ameliyat olarak uygulanmaktadır.

Anahtar kelimeler: larenks kanseri, epidemiyoloji, cerrahi, tedavi sonucu

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INTRODUCTION

Laryngeal cancers constitute 2.3% of all malignancies in males and 0.4% of all malignancies in females. It is the second most common cancer of the head-and-neck region (25% of all such cancers) after skin cancer, its prevalence is 5- to 20-fold higher in males than in females, and it ranks no. 11 in terms of all male cancers worldwide. The disease is most common in males aged 50-70 years and is rare in those aged <20 years ⁽¹⁾.

When laryngeal cancer is diagnosed early and treated effectively, the cure rates are much higher than those of other head-and-neck cancers. Today, various curative methods are used in different clinics. Surgery, radiotherapy, and chemotherapy are delivered individually or in combination. It is difficult to define the most appropriate treatment, the choice of which should be based on tumor location; the extents of tumor spread and differentiation; metastasis status; patient age, occupation, social position, and general health status; the morbidity and mortality associated with treatment; and the treatment success rate ⁽¹⁾. Therefore, we retrospectively reviewed the epidemiology, preoperative indications, treatment modalities, complications, tumor histopathology, prognosis, and outcomes of 40 patients treated for laryngeal cancer.

MATERIALS and METHODS

We retrospectively analyzed 40 laryngeal cancer cases treated in the department of otorhinolaryngology at the Ankara Training and Research Hospital from 2000-2005 in terms of their clinical characteristics. This study is the thesis of M.E.D. The work involved only retrospective data assessment; therefore, ethics committee approval was not required. Electronic medical records, pathology reports, and hospital and outpatient medical charts were reviewed.

All patients gave detailed medical histories. The ears, nose, throat, head, and neck were systematically examined. Videolaryngostroboscopy was used to obtain detailed information on all lesions. All patients were biopsied (via suspension microlaryngoscopy under general anesthesia) and lesion locations and types were evaluated. Computed tomography (CT) and magnetic resonance imaging (MRI) were used

to evaluate cartilage invasion, and neck and distant metastases.

Patients were followed-up every month for the first 6 months after operation, every 3 months for the next 6 months, every 6 months in year 2, and annually from year 3.

RESULTS

All 40 included cases were male. The oldest patient was 78 years old and the youngest was 30 years old; the average age was 55.85 years old. The most common decadal age group was 50-59 years (42.5%). Of all patients, 38 smoked cigarettes (95%), 3 (7.5%) both smoked and consumed alcohol, and 2 (5%) had neither habit. The smokers had smoked 20-60 cigarettes daily for 10-45 years.

The time between the onset of complaints and the first visit to a hospital was defined as the "first application period" and ranged from 7 days to 24 months. The average time was 5.05 months. Five of the patients (12.5%) visited the hospital within 1 month and 16 (40%) visited a clinic within 1-3 months. The most common symptom was dysphonia in 38 (95%) cases, followed by dysphagia, dyspnea, weight loss, sore throat, a sensation of something in the throat, cough, hemoptysis, and a mass in the neck. The incidences of these complaints are shown in Table 1.

Table 1. The incidences of the complaints.

Complaints	Cases
Dysphonia	38 (95%)
Dysphagia	17 (42.5%)
Dyspnea	12 (30%)
Weight loss	7 (17.5%)
Sore throat	5 (12.5)
Sensation of something in the throat	4 (10%)
Otalgia	3 (7.5%)
Cough	3 (7.5%)
Hemoptysis	2 (5%)
Mass in the neck	1 (2.5)

The tumors were supraglottic in 20 cases (50%), glottic in 7 (17.5%), and transglottic in 13 (32.5%). There were no subglottic lesions (Table 2). Partial or total laryngectomy was performed and the neck was subjected to radical neck dissection (RND), modified radical neck dissection (MRND),

or selective neck dissection (SND). Partial laryngectomy was performed in two patients, partial laryngectomy+RND+MRND was performed in one, partial laryngectomy+RND+SND was performed in one, partial laryngectomy+MRND+SND was performed in one, partial laryngectomy+SND was performed in three, total laryngectomy was performed in three, total laryngectomy+RND+MRND was performed in eight, total laryngectomy+MRND+MRND was performed in six, total laryngectomy+RND+SND was performed in three, total laryngectomy+SND+SND was performed in two, total laryngectomy+MRND+SND was performed in four, total laryngectomy+RND was performed in four, and total laryngectomy+MRND was performed in two.

Table 2. Tumor location.

Location	Cases
Supraglottic	20 (50%)
Glottic	7 (17.5)
Transglottic	13 (32.5)
Subglottic	-

The most common early postoperative complication was a salivary fistula (five patients; 12.5%). The most common late postoperative complication was stomal stenosis (three patients; 7.5%). Two patients underwent stomal revision. The complications of surgical treatment are listed in Table 3.

Table 3. The complications of surgical treatment.

Salivary fistula	5 (12.5%)
Chylous fistula	1 (2.5%)
Flap failure	-
Subcutaneous emphysema	2 (5%)
Stomal stenosis	3 (7.5)
Nerve-Vascular injury	1 (2.5%)
Cerebral ischemia	1 (2.5%)

When staged postoperatively, 3 cases (7.5%) were of stage 1, 9 (22.5%) were of stage 2, 13 (32.5%) were of stage 3, and 15 (37.5%) were of stage 4 (Table 4).

Table 4. The stages of the patients.

Stage	Cases
Stage 1	3 (7.5%)
Stage 2	9 (22.5%)
Stage 3	13 (32.5%)
Stage 4	15 (37.5%)

The stages of three patients had been clinically misdiagnosed preoperatively. The postoperative histopathological grades were 1 in 13 patients (32.5%), 2 in 24 (60%), and 3 in 2 patients (5%) Table 5.

Table 5. The postoperative histopathological grades.

Grade	Cases
Grade 1	13 (32.5%)
Grade 2	24 (60%)
Grade 3	2 (5%)
*Non squamous cell carcinoma	1 (2.5%)

**Verrucous carcinoma*

Metastatic lymph nodes were histopathologically detected in 8 of the 20 supraglottic cases (40%), 4 of the 13 transglottic cases (30.8%), and 2 of the 7 glottic cases (Table 6). Histopathologically, metastatic lymph nodes were found in 4 (13.3%) of 30 N0 cases.

Table 6. Cases with metastatic lymph nodes according to the tumor location.

Tumor location	Cases
Supraglottic	8 (40%)
Glottic	4 (28.6%)
Transglottic	13 (30.8%)
Subglottic	-

The 1-, 3-, and 5-year survival rates were 97.5%, 92.3%, and 70.5%, respectively.

DISCUSSION

Laryngeal cancers account for approximately 2% of all cancers (2.3% in males and 0.4% in females) ⁽¹⁾. All of our 40 study patients were male, perhaps because more males than females smoke in our country. The published male:female ratios range widely, from 1.2:1 to 32:1.

Laryngeal cancer is most common among males aged 50-70 years old ⁽²⁾. The decadal age group that most commonly had this disease was the 50-59-year group (42.5% of cases). The youngest case was 30 years old and the oldest case was 78 years old.

Smoking is the most important risk factor for laryngeal cancer. There is a close relationship between cigarette smoking and laryngeal carcinoma ⁽³⁾. In our study, 38 patients (95%) had a history of smoking

20-60 cigarettes daily for 10-45 years. Three patients (7.5%) also consumed alcohol.

The time between the onset of complaints and the first visit to our hospital or a clinic for diagnosis and treatment ("the first application period") ranged from 7 days to 24 months (average: 5.05 months). Sixteen patients (40%) visited our clinic 1-3 months after the onset of complaints. In an earlier study conducted at the Faculty of Medicine of Ankara University, this figure was 3.8 months⁽⁴⁾. The low sociocultural status of a significant proportion of the patients may explain their late admission.

The most common symptom was hoarseness or voice changes in the vast majority of patients (38; 95%) followed by dysphagia, dyspnea, weight loss, sore throat, cough, hemoptysis, and a mass in the neck. About 24-42% of laryngeal cancers are supraglottic, 55-75% are glottic, and 1-5% are subglottic. However, the reported tumor sites have varied in different series studied in different countries⁽⁵⁾. Supraglottic tumors are more common in our country. In an earlier Turkish study, the proportion of supraglottic tumors was 68%, that of glottic tumors was 24%, and that of subglottic tumors was 1.3%⁽⁴⁾. We encountered no subglottic lesions.

Squamous cell carcinoma is the most common laryngeal carcinoma (95-98% of all cases); verrucous carcinoma, pseudosarcoma, anaplastic carcinoma, adenocarcinoma, and sarcoma are all much rarer. Of our 40 patients, 39 had squamous cell carcinoma and 1 had a verrucous carcinoma. Most of the squamous cell carcinomas were moderately to well-differentiated. Olofsson et al.⁽⁶⁾ reported that 8.1% of all cases were of grade 1, 79% were of grade 2, 10.9% were of grade 3, and 2.7% were of grade 4. In our study, the figures were grade 1 in 24 patients (32.5%), grade 2 in 24 (60.0%), and grade 3 in 2 (5%).

The neck metastasis rates are 24-50% in those with supraglottic tumors, >30% in those with transglottic tumors, and <10% in those with glottic tumors^(7,8). Of our 40 cases, 8 of the 20 supraglottic cases (40%) exhibited pathological lymphadenopathy, as did 4 of the 13 transglottic cases (30.76%), and 2 of the 7 glottic cases (28.57%). Metastasis may not be histopathologically evident in the neck dissection material of 20-

25% of patients with clinically palpable lymph nodes⁽⁹⁾. Histopathological examination revealed tumor metastasis in 4 of 30 clinically N0 patients (13.33%). Tumor location, size, the incidence of histopathological metastases, and the differentiation grade are the most important factors affecting survival^(9,10).

Preoperative tumor staging is very important for proper treatment planning. When staged postoperatively, 3 cases (7.5%) were of stage 1, 9 (22.5%) were of stage 2, 13 (32.5%) were of stage 3, and 15 (37.5%) were of stage 4. The stages of three patients had been clinically misdiagnosed preoperatively.

Total laryngectomy was performed on 32 patients (80%) and partial laryngectomy was performed on 8 (20%). Most patients who came to our clinic had advanced disease. The most important prognostic factor is cervical metastasis. If the tumor is of stage $\geq T2$, the histological metastasis rate increases and prognosis worsens, although no consensus treatment plan for the N0 neck is yet available. The histological metastasis rates range from 27% to 50.9%⁽¹¹⁾. A previous study reported an occult metastasis rate of 20%, which suggests that many patients are treated unnecessarily⁽¹⁴⁾. Elective neck dissection is recommended, particularly of supraglottic lesions, if the primary disease progresses and occult metastasis is evident⁽⁷⁾. Postoperatively, metastatic lymph nodes were detected in 14 of our 40 patients and occult metastases was found in 4 of 30 of the N0 cases. Our occult metastasis rate was thus 13.33%. Despite the fact that most of our cases had supraglottic and transglottic tumors, the occult metastasis rate was low, attributable to the small sample size.

Pharyngocutaneous fistulae are the most common complications in the early postoperative period in patients who undergo total laryngectomy. Fistulation rates range from 4% to 44%⁽¹³⁻¹⁵⁾. This was the most common early complication in our study (five patients; 12.5%). Three were fed via nasogastric catheters and sterile local dressings were applied. Two patients underwent fistula repair. The most common late postoperative complication was stomal stenosis (three patients; 13.2%); all patients underwent stomal revision.

The 5-year survival rates of those with early-stage (1 and 2) supraglottic tumors were 68-85% and those of

patients with advanced-stage tumors were 38-60%⁽¹¹⁾. A previous study reported that the 5-year survival rates of those with T1, T2, and T3/T4 supraglottic tumors were 85%, 82%, and 60%, respectively⁽¹⁶⁾. The 5-year survival rates of those with T1, T2, T3, and T4 glottic tumors were 85-93%, 69-88%, 49-87%, and 35-57%, respectively. In another study, these rates were 87%, 75%, 73%, and 57%, respectively⁽¹⁷⁾. A Chinese study with a large sample size yielded figures of 94%, 89%, 83%, and 66%, respectively⁽¹¹⁾. In our study, the 1-, 3, and 5-year survival rates were 97.5%, 92.3%, and 70.5%, respectively.

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