



Clinical and Pathological Characteristics of Cancer of the Larynx in Jordan

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Abstract

Objective of the study is to carry out a descriptive retrospective analysis of all cases of laryngeal cancer diagnosed and treated in the department of Otolaryngology Head & Neck surgery of the Royal medical services between 2000 and 2010. One hundred and twenty cases of larynx cancer diagnosed clinically and confirmed by laryngoscopic and histological findings during the study period 2000- 2010 were included in this study. Data regarding age, sex, primary tumor localization, symptoms, histopathological type and tumor stage were analyzed. A male preponderance with M: F ratio of 9:1 was observed. The age ranged from 36-81 years (mean \pm SD 52 ± 6.8 years) and majority of the cases were in their 5th decade of life. Change of voice especially hoarseness was the main complaint (100%). 63.3% of the tumors (n=76) were localized in supraglottic region, and 33.3% (n=40) of tumors were localized in glottis. In 4 cases (3.3%) the tumor involved all regions of the larynx and it was impossible to determine actual site of origin. Squamous cell carcinoma was the most common histological type in 97% of cases. The other carcinomas included mucoepidermoid carcinoma, chondrosarcoma, spindle cell carcinoma and adenoid cystic carcinoma. Most of the tumors were diagnosed in advanced stages. There were 94 (78%) patients in stages T3/T4 while only 22% had early stage laryngeal carcinoma (stage 1 or 2). Presentation of neck nodes were most commonly observed as N0 in 64% cases. Laryngeal cancer is considered to be a public health problem; with early detection it is possible to reduce the incidence and mortality of this problem and thus improve and prolong the life of these patients. The clinical and histopathological characteristics of laryngeal cancer in Jordan are similar to those reported in other studies from different countries.

Key words: Laryngeal cancer, Squamous cell carcinoma, Larynx.

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Introduction

Cancer is one of the leading causes of morbidity and mortality in Jordan. It is the second cause of death after cardiovascular disease. Head and neck region, though a relatively small anatomical area,

gives rise to a wide range of neoplastic conditions. Larynx is one of the commonest sites for carcinoma [1]. Carcinoma of the larynx is the most common malignant tumor in the upper aero digestive tract. It represents 2.3% of all malignant tumors in males and 0.4% of all malignant tumors in females, excluding basal and squamous cell carcinoma of the skin. [2, 3] Laryngeal cancer accounts for 1% of all new cancers diagnosed in the United States and approximately 0.73 of all cancer deaths [4, 5]. The histology of most cancers of the larynx is a well-differentiated squamous cell carcinoma. Most are of the keratin-producing variety, rarely other types of tumors are found [6-11]. Laryngeal cancer has a high mortality rate if unattended but the condition is potentially curable if discovered early enough and treated appropriately. [12, 13]

This study comprises a descriptive retrospective analysis of all cases of laryngeal cancer diagnosed and treated in our institute.

Patients and Methods

This descriptive retrospective study was conducted at the department of Otolaryngology Head & Neck surgery in King Hussein medical center and a group of military hospitals of the Royal medical services between 2000 and 2010. These hospitals are distributed all over Jordan and provide medical services for military people and their families, as well as for civilians.

We included all cases of larynx cancer diagnosed clinically and confirmed by laryngoscopic and histological findings during the study period 2000-2010. Exclusion criteria include all benign tumors of the larynx and recurrent cases after surgery or chemo radiotherapy. A detailed history was taken and a thorough physical examination performed on every patient. All patients were underwent laboratory, radiological, laryngoscopic and histological investigations.

Tumors staging was performed according to AJCC-TNM classification. The diagnosis and TNM staging of larynx cancer was based on clinical, laryngoscopic, radiological, and histological assessment. Data regarding age, sex, primary tumor localization, symptoms and tumor stage were recorded. The data were analyzed using SPSS version 14.

Results

One hundred and twenty patients were included in this study, 108 males and 12 females, with a male to female ratio of 9:1. The age ranged from 36-81 years (mean \pm SD 52 \pm 6.8 years) and majority of the cases were in their 5th decade of life. All patients had change of voice especially hoarseness (100%), other symptoms include Odynophagia (64%), Sore throat (32%), Dysphagia (16.7%), Dyspnoea or Stridor (12.5%) and referred otalgia (7.5%). The localization of the tumors was classified according to the actual site of involvement. 63.3% of the tumors (n =76) were localized in supraglottic region, and 33.3% (n =40) of tumors were localized in glottis. In 4 cases (3.3%) the tumor involved all regions of the larynx and it was impossible to determine actual site of origin. The most frequent histological type of laryngeal cancer reported in this study was squamous

cell carcinoma which was revealed in 97% of cases. The other carcinomas included spindle cell carcinoma, mucoepidermoid carcinoma, chondrosarcoma and adenoid cystic carcinoma. Most of the tumors were diagnosed in advanced stages. There were 94 (78%) patients in stages T3/T4 while only 22% had early stage laryngeal carcinoma (stage 1 or 2). Presentation of neck nodes were most commonly observed as N0 in 64% cases. Tumor staging was shown in table I.

Different treatment modalities were employed for these patients and these included surgery, chemo-radiotherapy combination, surgery and subsequent radiotherapy and palliative chemotherapy.

Table I. Tumor staging

TNM	Patients (N=120) (%)
T1	10 (8.3%)
T2	16 (13.3%)
T3	60 (50%)
T4	34 (28.3%)
N0	77 (64.2%)
N1	17 (14.2%)
N2	5 (4.2%)
N3	21 (17.5%)
M0	112 (93.3%)
M1	8 (6.7%)

Discussion

The larynx is the most common primary tumor localization among all squamous cell carcinomas of the head and neck region. Geographical variation was reported with regard to the region affected by the laryngeal cancer for this reason we studied the laryngeal cancer in Jordan as an example of Middle East countries.

Hoarseness or change of voice was the most common presenting symptom of laryngeal cancer in our study and presented in all patients. This was reported by other studies from different countries. [14-18]

In the present study, most tumors were noted in the patients between 36-81 years old, the mean age of patients in our study group was a 52 ± 6.8 year which is almost similar to other published series. [15,16,18]. Cancer of the larynx was rare in the young age group, the youngest age in our study was 36 years, other studies had also reported laryngeal cancer in young age groups, Harris [19] found an incidence of 2% of laryngeal neoplasms in individuals less than 40 years old while Weber [20] had found a 3% incidence in patients less than 35 years old.

A significant difference in the number of laryngeal cancer cases with regard to sex was observed in this study, males were most commonly affected with a male to female ratio of 9:1. This ratio is higher than those reported in western countries and may be explained by the lower percent of smoking women in our area. [21, 22]

However, this ratio had changed over the last decade worldwide and the proportion of women afflicted by the disease is projected to increase in years to come. These changes are likely the result of differences in behavior changes related to tobacco smoking which is considered the primary risk factors for laryngeal cancer [23, 24] with women smoking more in recent years.

In our study, supraglottic localization was the most common among laryngeal cancers accounts for 63.3% of the tumors followed by glottic cancer 33.3% and in 3.3% of cases the tumor involved all regions of the larynx and it was impossible to determine actual site of origin.

The site distribution of neoplasm within the larynx varies in different parts of the world. [1, 2, 6]

Supraglottic cancer has been found more prevalent in parts of Italy, France, Finland, Netherlands, Turkey and Yugoslavia. On other hand, reports from United States and Japan [25, 26] has demonstrated glottic predominate over Supraglottic cancer while another report from Germany recorded a similar incidence of glottic and supraglottic carcinoma. [27]

The most frequent histological type of laryngeal cancer reported in our study was squamous cell carcinoma revealed in 97% of cases which reflects the common histopathology pattern of this disease. Previous reports from different regions of the world suggest that squamous cell carcinoma continues to be the most frequent histological type of cancer affecting the larynx [6, 7, 19].

Other histological types of malignancies may derive from all cell types present in the larynx, this was reported in 3% of our study group and this include

spindle cell carcinoma, mucoepidermoid carcinoma, chondrosarcoma and adenoid cystic carcinoma. The reported incidence of laryngeal non-squamous carcinomas ranges from 0.1 to 1% in the literature. [7, 8, 22, 28]

In our study, most of the cases were diagnosed in advanced stages. There were 94 (78%) patients in stages T3/T4 while only 22% had early stage laryngeal carcinoma (stage 1 or 2).

Conclusion

Laryngeal cancer is considered to be a public health problem; with early detection it is possible to reduce the incidence and mortality of this problem and thus improve and prolong the life of these patients. The clinical and histopathological characteristics of laryngeal cancer in Jordan are similar to those reported in other studies from different countries.

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