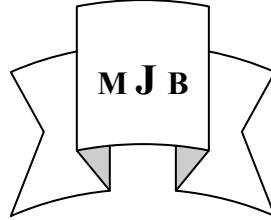


Laryngeal Carcinoma: Prognostic Index and Evaluation of Treatment Results

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Abstract

Carcinoma of the larynx Constitutes 1.5% of all cancers and 25% of head and neck cancer. It is etiologically related to tobacco smoking, alcohol overuse, nutritional deficiency, human papilloma virus infection and environmental pollution. The aims of the present research was to study the Prognostic Index in Laryngeal carcinoma including age, sex, clinical manifestation, histological types, and to evaluation and correlated with treatment results . 165 consecutive patients with laryngeal carcinoma who were diagnosed, treated, and / or followed at Hilla hospitals during the period (1990-2004) were studied. The total number of patient diagnosed with laryngeal Carcinoma were 165 during the fourteen years period, 129(78%)patients were males 36 (22%) were females . M: F ratio was 3.58:1. 52% of patients were between 50 and 60 years of age. There were 3 patients with carcinoma insitu (2%), (13%) in stage1, (35%) in stage 2,(35%) in stage 3 and (15%) stage 4 . Of 165 patients, 102 (62%) were treated surgically followed by radiotherapy (group 1), 35 patients (21%) treated surgically followed by Radiotherapy and chemotherapy (group 2), and 28 patients (17%) were treated by surgery & conservative treatment (group 3). For patient in group (1) the one year survival rate was 68%, the 3 year survival rate was 38% and the 5 year survival rate was 15%, for group 2 the survival rate was 48%, 30% and 14% respectively, and for group 3 the survival rate was 28%, 10% and 4% respectively. We concluded that Laryngeal carcinoma in Babylon occurred at younger age group than the western reported studies and had low one , three & five years survival rate . Further studies are needed to confirm the risk factors involved in laryngeal carcinoma and to improve the health education toward its early detection and treatment.

الخلاصة

سرطان الحنجرة يُشكّل ١,٥ % من كُّل الأمراض السرطانية البشرية و ٢٥ % من سرطان الرقبة والرأس. واهم أسبابه ما يتعلق بتدخين التبغ، إفراط في احتساء الكحول، النقص الغذائي، الإنسان عدوى فيروس البيلوما البشري والتلوث البيئي. أهداف البحث الحالي هو دراسة الدليل التنبؤي لسرطان الحنجرة والذي يتضمن العمر، الجنس، الوضع السريري ، الأنواع النسجية ، وربط التقييم بنتائج المعالجة. تمت دراسة ١٦٥ مريض مصابين بسرطان الحنجرة الذي شُخصوا، وعولجوا في مستشفيات الخلة أثناء الفترة (١٩٩٠-٢٠٠٤). العدد الكلي للمرضى المشخصين بالإصابة بسرطان الحنجرة كانت ١٦٥ أثناء فترة أربعة عشر سنة، ١٢٩ (٧٨ %) مرضى كانوا ذكور ٣٦ (٢٢ %) كانت إناث. نسبة الذكور إلى الإناث كانت ٣,٥٨ : ١ . في ٥٢ % من المرضى كانت الأعمار بين ٥٠ إلى ٦٠ سنة. كان هناك ٣ مرضى مصابين بالسرطنة الموضعية (٢ %) ، (١٣ %) في المرحلة الأولى، (٣٥ %) في المرحلة ٢، (٣٥ %) في مرحلة ٣ و(١٥ %) مرحلة ٤. من ١٦٥ مريض، منهم ١٠٢ (٦٢ %) عولج جراحياً ثم بالعلاج بالأشعة (مجموعة ١)، ٣٥ مريض (٢١ %) عالجوا جراحياً ثم بالعلاج بالأشعة والعلاج الكيماوي (مجموعة ٢)، و ٢٨ مريض (١٧ %) عولجوا بالجراحة والمعالجة المحافظة (مجموعة ٣). بالنسبة للمرضى في المجموعة (١) نسبة بقاء السنّة الواحدة كان ٦٨ %، نسبة البقاء ٣ سنّة كانت ٣٨ % ونسبة بقاء ال ٥ سنّة كانت ١٥ %، بالنسبة للمجموعة الثانية نسبة البقاء كان ٤٨ %، ٣٠ % و ١٤ % على التوالي، وللمجموعة الثالثة نسبة البقاء كان ٢٨ %، ١٠ % و ٤ % على التوالي. استنتجنا بأن سرطان الحنجرة في بابل يحدث في مجموعة العمرية الأصغر من الدراسات الغربية المُخبرة عنها وكان عِدَدنا مستوى نسبة البقاء للسنّة الواحدة، ثلاثة سنوات وخمسة

سنواتٍ مستوىٍ واطئ. نحتاجُ الى دراساتٍ أخرى لتأكيد عواملِ الخطرِ في سرطانِ لحنجرةٍ ولتحسينِ التعليمِ والوعيِ الصحيِّ نحو كشفه المبكرٍ ومعالجته.

Introduction

Carcinoma of the larynx constitutes (1.5%) of all cancers and (25%) of head and neck cancer [1-5]. It is present in 8.2 of 100000 men and 1.4 of 100000 women [1, 4, 5]. Although the incidence of laryngeal carcinoma has increased, the mortality rate has decreased from 47 % in 1963 to 33 % in 1985[1, 4, 5], due to early diagnosis and aggressive management of those patients.

Etiologically Carcinoma of the larynx is related to tobacco smoking, alcohol drinking nutritional deficiency, human papilloma virus infection occupational and environmental pollution [6 -17]. Precancerous atypical epithelial lesions are also identified.[18]. The tumor may arise from supraglottic, glottic or sub glottic locations[19 - 23].

The aim of the present paper was to study the incidence, age, sex, clinical manifestation, histological type, management and follow up of patients with laryngeal carcinoma.

Patients and Methods

Study analysis was made of 165 consecutive patients with laryngeal carcinoma who were diagnosed, treated, and followed up at Hilla hospitals during the period (1990-2004). The patient charts , outpatient follow-up records , and tumor registry records were studied to determine the following : age ,sex , presenting symptoms , duration of symptoms , and personal habits such as smoking and drinking . Notation also was made of the size and site of the primary tumour ,stage of the tumour ; initial treatment received by the patient ; recurrence of the tumour after treatment ; time lapse between treatment and recurrence ;

treatment of recurrent tumour ; complications after therapy ; presence of a multiple primary ; histologic findings of the tumour and the regional lymph nodes ; and follow-up status at 1 ,3 ,and 5 years.

The patients were divided into three groups according to the type of treatment they received:-

1.Groups 1 were treated surgically followed by Radiotherapy

2.Group 2 treated surgically followed by Radiotherapy and chemotherapy.

3.Group 3 were treated by surgery & conservative treatment.

Tumor classification was according to the protocol set by the American joint Committee on Cancer Staging [24].Patient follow-up was performed periodically in an outpatient clinic setting , and included physical examination (with indirect laryngoscopy) to determine the presence or ,absence of recurrence at primary sites , regional lymph nodes , and distant sites .

Differences between the discrete variables were tested for statistical significance using chi-square analysis. P value of 0.05 or less was regarded as significant.

Results

The total number of patients, diagnosed at Hilla Teaching Hospital between 1990 and 2004 with Laryngeal Carcinoma were 165 patients. 129 (78 %) were male patients and 36 were female patients (22 %) Male – female ratio was 3.6:1 Eighty five patients (52 %) were between 50 and 60 years of age and eight patients (5 %) younger than 40 years of age.

Smoking is the main risk factor,One hundred sixty patients (91%) were cigarette smoking .Seventy

patients (42 %) smoked 20 or less cigarettes daily, whereas 90 patients (58 %) smoked more than 20 cigarettes daily, three patients (2%) smoked Narkela Only two patients (1.2%) were nonsmokers .Eighty five patients (51 %) were alcohol drinkers whereas eighty patients (49%) did not drink alcohol .The total numbers of patients who both drink alcohol and smoked cigarettes was 85 (51.5 %).

Hoarseness of voice was the main presenting symptoms in most of the patients (120 patients, 73 %). Respiratory obstruction and cervical mass appeared in 33 patients (20%) and dysphagia appeared in 20 patients (12%) 64 patients (39%) had been symptomatic for three months or less , whereas 51 patients (31%) reported symptom duration for more than three months .the mean symptom duration before presentation was 5.4 months .

In 143 patients (87 %), a single anatomical location within the larynx was identified as the site of the tumor origin. Of these 143 patients, supraglottic carcinoma was identified in 36 patients (25%) ,glottic carcinoma in 86 patients (60%) , infraglottic carcinoma in one patient (0.7%) , and pyriform sinus tumour in 20 patients (14%).However ,it was difficult to identify the site of tumour origin in 22 patients (13%) due to the extensive involvement of the larynx with the tumour .There were three patients (2%) with carcinoma in situ, 21 patients (13%) in stage I (58) patients (35%) in stage II , 58 patients (35%) in stage III ,and 25 patients (15%) in stage IV, Stages of the tumor in groups I and II are shown in Table(1).

The size of the primary tumor in the larynx was less than 2.0 cm in diameter in 66 patients (40%), 2-5 cm in diameter in 99 patients (60%). Squamous cell carcinoma (Fig 1,2) was found in 157 (95%) patients other histological type was seen in eight

patients (5%) four verrucous carcinoma , two small cell carcinoma , one adenocarcinoma , one basoloid carcinoma .

Of 165 patients, 102 patients (62%) were treated surgically followed by radiotherapy (group I). 35 patients (21%) were treated surgically followed by radiotherapy and chemotherapy (group II); and 28 patients (17%) were treated by surgery & conservative treatment. (Group III)

In the 137 patient treated initially by surgery or radiotherapy, recurrence appeared in 55 patient (40%). 39 of these patient were in group 1 and 16 in group 2. The recurrence appeared at the primary site in 16 patients (12%), at the primary site and the neck in 12 patient(9%), and in the neck only in 8 patient(6%). Distant metastases were evident in 19 patient (14%). the mean duration of time between the initial treatment and the appearance of the recurrence was 14 months (range, 10 to 76 months). In group 1(102 patients), 42 patients (41%) had recurrence during the follow-up period ,21 patient in the first year of follow-up; 16 patients between the first and second year ; and 5 patients 3 years or more after treatment . In group 2 (35 patients), there were nine patients (8%) with recurrence: seven patients in the first year and second year.

In group 1, complications occurred in 19 patient (19%): stomal stenosis in 9 patients (9%); postoperative bleeding in 4 patient (4%); esophageal stricture in 3 patients (3%); In group 2, post radiation laryngitis occurred in 2 patient(6%).

In the 165 patients studied, a second primary tumor developed subsequently in 13 patients (8%): Five were in the lung; three in the gastrointestinal tract; 2 in the genitourinary tract, two in the liver; and one in the soft tissue.

For patient in group 1 the one year survival rate was 68%, the 3 year survival rate was 38% and the 5 year survival rate was 15%, for group 2 the survival rate was 48%, 30% and 14% respectively, and for group 3 the survival rate was 28%, 10% and 4% respectively.

Discussion

It is reported that the incidence of laryngeal carcinoma has recently increased enormously [1-5]. Although some of the increase is due to better reporting and documentation, the incidence is so high that it cannot be explained by this alone. The increase is true for both men and women. This change in incidence reflects various observed factors. Although several occupational factors have been suggested, few have been confirmed [6 - 17].

The result of our study showed that as many as 52% of patients were between 50 and 60 years of age, and increased the incidence of malignancy in younger age group raised the question of the role of environmental factors pollution in the early development of laryngeal carcinoma in our country.

The male – female ratio in this study was 3.5:1. However, the high incidence of laryngeal carcinoma in woman in recent years probably reflects the increased use of tobacco by women (88% of these female patients were smokers), more accurate reporting, and a higher number of woman now being exposed to the same environmental factors as the men.

The strong association between smoking, alcohol, and cancer of the larynx is well documented [6-12]. However, it is the synergism between alcohol & smoking that increases the risk of laryngeal cancer developing by as much as 50%. A high percentage of these patients (82%) fall into that category [13, 15,17].

Most of the patients were anemic, undernourished, and had multiple associated illnesses, which were factors found previously to associate with laryngeal cancer [7, 9].

The mean symptom duration before the therapy is relatively high (5.2 months) considering that most laryngeal cancers are glottic and presented as a hoarseness of voice at an early stage.

With the exception of carcinoma in situ, Stage 1, and beyond surgical ameliorations, we treated all cases of laryngeal carcinoma surgically followed by radiotherapy in those with histopathologically documented positive lymph nodes and / or a positive margin of resection. In the majority of those patients treated by radiotherapy solely, either the patient refused surgery or the lesion was beyond surgical excision.

Many authors advocated preoperative radiation in treatment of laryngeal carcinoma [25-26]. However, we were not encouraged by the results of this modality due to the development of stomal stenosis.

The large number of patients in this study who both drink alcohol and smoked may have contributed to the incidence of multiple primary cancer development, similar results were reported by others [6, 15-17].

The alarming low survival rate of patients in this study can be attributed to various cases. First, about half of these patients (48%) presented late for treatment, at stage 3 and 4, which takes therapeutic cure very unlikely. Second, regardless tumor stage and location, the survival rate was lower than reported previously [27-29], which may indicate the presence of dietary, environmental, and socioeconomic factors. Third, there was a loss of contact with as many as 20% of the patients who had been observed for 5 years or less. These were considered in

survivors, although some of them may be alive.

Women were found to have a low survival rate. Although the number of patients studied is small for definite conclusions to be drawn at this stage, it should be noted that the survival of men in the first year was about 50% higher than that of the women.

Conclusion

We concluded that laryngeal carcinoma in Babylon occurred at a younger age, and had a low 1- year, 3- years and 5- years survival rate .Further studies are needed to confirm the risk factors involved in laryngeal carcinoma and to improve health education toward its early detection and treatment.

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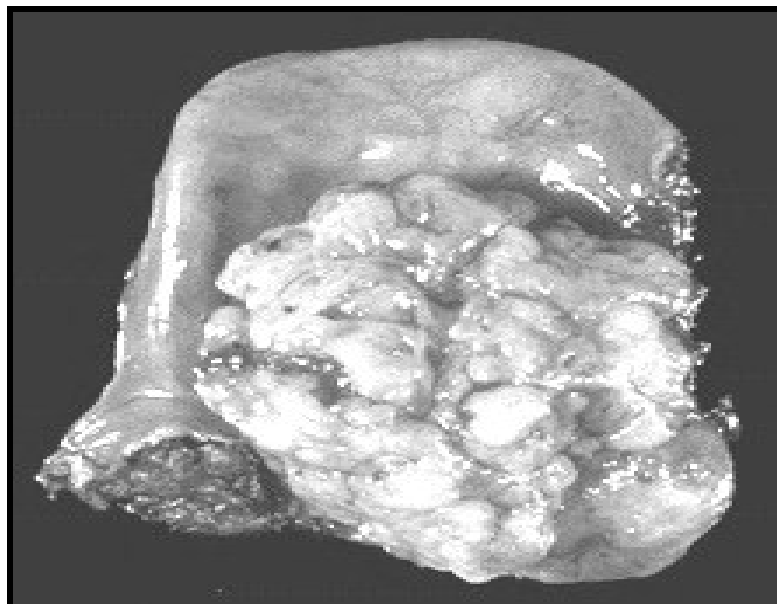


Fig 1. A surgical resection of the epiglottis. Note the exophytic squamous cell carcinoma. The mass extends from the surface as irregular tan nodules and papillations.

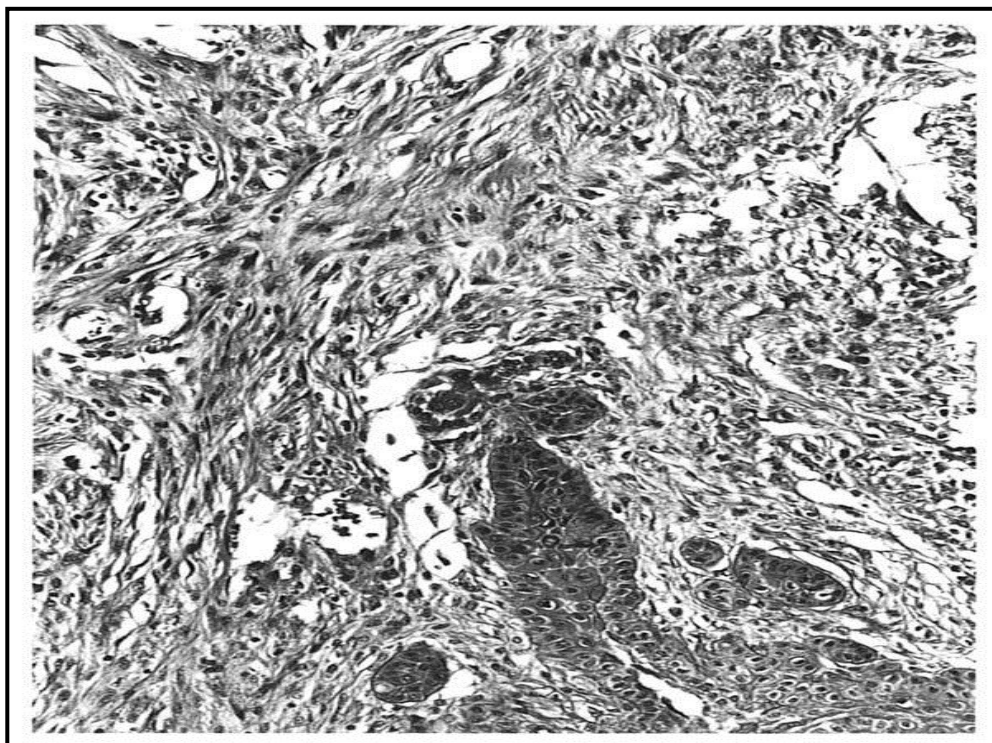


Fig 2 laryngeal carcinoma ,Islands of squamous cell carcinoma are surrounded by bulky tumor component with spindle appearance.

Table 1 Stages of laryngeal Carcinoma in group 1 and 2

Stage	Group (1)		Group (2)	
	No.	%	No.	%
Carcinoma in situ			3	8
I	10	10	9	25
II	42	42	6	17
III	37	37	13	37
IV	13	11	4	11
Total	102	100	35	100