Patterns of laryngeal cancer presentation of Iraqi patients

Patrones de presentación del cáncer de laringe en pacientes iraquíes

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Abstract

Background: Laryngeal cancer is the most common head and neck tumor; it forms about forth to third of head and neck tumors and forms 2% of total body cancers. It arises from larynx. Most laryngeal cancers are squamous cell carcinomas. Most laryngeal cancers originate in the glottis. Supraglottic cancers are less common, and subglottic tumors are least frequent. This study was conducted to estimate the presentation of Iraqi patients with laryngeal carcinoma. Methods: This study is a prospective study was included forty patients already diagnosed with laryngeal carcinoma who attended the hospital of radiation oncology and nuclear medicine, head and neck unit from January - June 2016. Included 31 men and 9 women, with age 41 to 84 years old. All patients had histopathological and CT scan of head, neck with chest X-ray. Results: most of patients (42.5%) in the age group 60-70 years; 3:1 the male to female ratio, (77.5%) of patients being men and (22.5%) being women. Most important risk factor for developing laryngeal carcinoma is smocking around 95% of patients, and the risk increase in relation to number of cigarette smoked which is 50% when cigarette smoked more than 40 cigarette per day, and have strong relationship to duration of smoking 37.5% in 20-30 years of smoking. Further, hoarseness of voice is the main chief compliant 65%, with most common duration of symptoms 27.5% in 2-3 months duration. In this study 52.5% positive cervical LAP at time of presentation with most common 80% bilateral cervical LAP and most common levels of cervical LAP are II (27.5%) and III(37.5%). Further; 70% of patients in stage III and 30% in stage IV, and 77.5% of patients in grade I and II of disease, being 35% and 42.5%, respectively. (100%) of patients have carcinoma squamous cell type (most common type) of laryngeal carcinoma. Conclusion: Cancer of larynx might be strongly associated with number and duration of cigarette smoking, especially if associated with alcohol drinking, other risk factors are potentially less important. XI is the most histologic kind of squamous cell carcinoma while others are rare. Metastases to cervical lymph nodes are depended on laryngeal subsites, which are most common in supraglottic than others subsites.

Keywords: Presentation, Laryngeal Carcinoma, Risk Factors

Resumen

Antecedentes: el cáncer de laringe es el tumor de cabeza y cuello más común; forma alrededor de un cuarto a un tercio de los tumores de cabeza y cuello y forma el 2% de los cánceres corporales totales. Surge de la laringe. La mayoría de los cánceres de laringe son carcinomas de células escamosas. La mayoría de los cánceres de laringe se originan en la glotis. Los cánceres supraglóticos son menos comunes y los tumores subglóticos son los menos comunes. Este estudio se realizó para estimar la presentación de pacientes iraquíes con carcinoma de laringe. Métodos: Este estudio es un estudio prospectivo en el que se incluyeron cuarenta pacientes ya diagnosticados de carcinoma de laringe que acudieron al hospital de oncología radioterápica y medicina nuclear, unidad de cabeza y cuello de enero a junio de 2016. Se incluyeron 31 hombres y 9 mujeres, con edades de 41 a 84 años. años. A todos los pacientes se les realizó histopatología y tomografía computarizada de cabeza, cuello con radiografía de tórax. Resultados: la mayoría de los pacientes (42,5%) en el grupo de edad de 60 a 70 años; 3: 1 la relación hombre / mujer, (77,5%) de los pacientes son hombres y (22,5%) son mujeres. El factor de riesgo más importante para desarrollar carcinoma de laringe es fumar alrededor del 95% de los pacientes, y el riesgo aumenta en relación con el número de cigarrillos fumados, que es del 50% cuando se fuma más de 40 cigarrillos por día, y tiene una fuerte relación con la duración del tabaquismo 37.5 % en 20-30 años de tabaquismo. Además, la ronquera es el principal cumplimiento del 65%, con una duración más común de los síntomas del 27,5% en 2-3 meses de duración. En este estudio, el 52,5% de LAP cervical positiva en el momento de la presentación, con el 80% de LAP

cervical bilateral más común y los niveles más comunes de LAP cervical son II (27,5%) y III (37,5%). Más lejos; 70% de los pacientes en estadio III y 30% en estadio IV, y 77,5% de los pacientes en grado I y II de la enfermedad, siendo 35% y 42,5%, respectivamente. (100%) de los pacientes tienen carcinoma de células escamosas (el tipo más común) de carcinoma de laringe. Conclusión: El cáncer de laringe puede estar fuertemente asociado con el número y la duración del tabaquismo, especialmente si está asociado con el consumo de alcohol, otros factores de riesgo son potencialmente menos importantes. XI es el tipo más histológico de carcinoma de células escamosas, mientras que otros son raros. Las metástasis a los ganglios linfáticos cervicales dependen de los subsitios laríngeos, que son más frecuentes en los subsitios supraglóticos que en otros.

Palabras clave: presentación, carcinoma de laringe, factores de riesgo

Introduction

Laryngeal cancer is the most common head and neck cancer. It arises from larynx. Most laryngeal cancers are squamous cell carcinomas, reflecting their origin from the squamous cells that form the majority of the laryngeal epithelium. Most laryngeal cancers originate in the glottis. Supraglottic cancers are less common, and subglottic tumors are least frequent[1]. The larynx is located between the tip of the thyroid (bottom of the C3 vertebral corpus) and the bottom of the cricoid cartilages (C6 vertebra). For the purposes of tumor staging, the larynx is divided into three anatomical regions: the glottis (true vocal cords, anterior and posterior commissures); the supraglottis (epiglottis, arytenoids and aryepiglottic folds, and false cords); and the subglottis[1]. Carcinoma of larynx is mainly affecting men[2]. Tobacco smocking and alcohol conception are strongly associated with laryngeal cancer and both of them act synergistically[3]. Numerous researchers have measured the diet effect on the laryngeal cancer progression and found laryngeal cancer incidence was increases among patients with deficiency in vitamins and nutrients[2]. Most common laryngeal cancer is well-differentiated squamous cell carcinomas[4]. Carcinoma in situ usually present as grayish white or white mucosal thickening, while invasion of the basement membrane leading to the diagnosis of invasive carcinoma. Miss diagnoses of invasive carcinoma occur in very little biopsy samples[5]. Primary cancers of glottis are 3 times more common than carcinomas of supraglottic, while subglottic carcinomas are very rare (2% of laryngeal cancer)[5]. Hoarseness of voice is a chief symptom in patients with glottis carcinoma. If mistreated properly leading to disease progression and may associated with airway blockage, dysphagia and pain[2]. Indirect laryngoscopy with a mirror that is regularly added by fiber optic endoscopy is used to clinical assessment of laryngeal cancer, while direct laryngoscopy in last stage of assessment. Neck examination is vital to distinguish lymphadenopathy or direct tumor metastasis revealing as thyroid cartilage tenderness or subcutaneous mass. CT or MRI is useful for the evaluation of laryngeal cancer in places difficult to assess by fiberoptic scope like (pre-epiglottis area, base of tongue, subglottic and paraglottic area), these images procedures use to differentiate direct primary cancer metastasis from nodal involvement in soft tissue of head and neck[2]. This study conducted to estimate the presentation of Iraqi patients with laryngeal carcinoma.

Methods

A prospective study that included forty patients already diagnosed with laryngeal cancer who attended the hospital of radiation oncology and nuclear medicine and Baghdad Teaching Hospital, from January - June in 2016. Included 31 men and 9 women, with age 41 to 84 years old. All patients had histopathological and CT scan of head, neck with chest X-ray. All parameters estimated depended on history taken, physical examination, radiological investigation and histopathological report information. The radiological investigations included head and neck CT scan, chest X-ray and if indicated chest CT scan (when there was suspicion of lung metastasis). In this study we evaluated the risk factors including age, gender, smoking (including number of cigarette smoked per day and duration of smoking in years) and alcohol consumption. Also we evaluated history of presenting symptoms as a chief complaint whether the patient presented with hoarseness of voice or others symptoms including dyspnea, dysphagia, cough, hemoptysis and air way obstruction. The presence of cervical LAP was detected by clinical examination and confirmed by neck CT scan. The CT scan is also having important role in detection the site of primary tumor and its extension to adjacent subsides or regional lymph nodes, so it has an important role in the staging of tumor. The chest X-ray is important for detecting if there is pulmonary metastasis, the suspicious if there is any lesion then chest CT scan done to confirm if there is lung metastasis or not. The histopathological reports have important information regarding histological type, grading of tumor, state of lymphoavascular invasion, metastasis to regional cervical lymph nodes (if cervical lymph node dissection was done) and tumor margins whether involved or not. Statistical analysis done by SPSS 22, frequency and percentage done for categorical variables.

Age distribution: The age of patients was classified into six groups as follow: <40 years,40-50 years, 50-60 years, 60-70 years, 70-80 years and ≥80 year. Gender distribution: The male to female ratio was 3.4:1, 77.5% of patients were males and 22.5% were females. Smoking distribution: The frequency distribution of smoker and nonsmoker among laryngeal cancer patients. Number of cigarette smoking per day: Number of cigarette smoking are classified into three groups as follow: <20 cig. /day, 20-40 cig. /day, ≥40cig. /day. Duration of smoking in year: The duration of smoking are classified into <10year, 10-20 year, 20-30 year, and ≥30 year, among laryngeal cancer patients. Alcohol drinking distribution: The frequency distribution of alcohol and nonalcoholic drinking among laryngeal cancer patients. Chief compliant distribution: The frequency distribution of Hoarseness of voice and Non-Hoarseness of voice among laryngeal cancer patients. Duration of symptoms distribution: The duration of symptom in months are classified into <1 month, 1-2 months, 2-3 months, and 3-4months, 4-5 months, 5-6 months, and ≥6 months among laryngeal cancer patients. Distribution of metastasis to cervical lymph node at time of presentation: The frequency distribution of metastasis to cervical LN and no cervical LA metastasis at time of presentation among laryngeal cancer patients. Site of cervical LAP distribution at time of presentation: The frequency distributions of metastasis to cervical LN are classified into unilateral and bilateral at time of presentation among laryngeal cancer patients. Levels of cervical LAP distribution: The frequency of levels of cervical LAP distributions at time of presentation are classified into level Ib, level II, level III and level IV among laryngeal cancer patients. Histological type of laryngeal cancer: The frequency distribution of the histological type of laryngeal cancer among the patients, squamous cell carcinoma accounted for 100% of cases. Site of primary tumor at time of presentation: The frequency distribution of primary tumor site at time of presentation is classified into glottis, supraglottic, infraglottic and transglottic among laryngeal cancer patients. Cancer stage: Stage I accounted for 7.5% of cases, stage II accounted for 22.5%, stage III accounted for 30% and stage IV accounted for 40% of cases. Cancer grade: Grade I (Well differentiated tumor) accounted for 35% of cases, grade II (Moderately differentiated tumor) accounted for 42.5%, grade III (Poorly differentiated tumor) accounted for 22.5% of cases and grade IV (Undifferentiated) accounted for 0% of cases. As show in table 1 and fig 1,2.

Table 1. Variables distribution

variables		frequency	percentage
gender	male	31	77.5
	female	9	22.5
smocking	yes	38	95
	no	2	5
Cigarettes smoking/ day	<20	7	17.5
	21-40	11	27.5
	>40	20	50
smocking duration	<10	3	7.5
	11-20	9	22.5
	21-30	15	37.5
	>30	12	30
patients type	alcoholic	12	30
	not	28	70
Chief compliant	Hoarseness of voice	13	35
	Not	26	65
metastasis to cervical lymph node	positive	21	52.5
	negative	19	47.5
Site of cervical LAP	bilateral	8	20
	unilateral	13	80
Histological type	Squamous cell Ca.	40	100
	Non	0	0
Site of primary tumor	glottis	18	45
	supraglottic	16	40
	Subglottic	2	5
	Transglottic	4	10
Cancer stage	I	3	7.5
	II	9	22.5
	III	12	30
	IV	16	40
Cancer grade	I	14	35
	II	17	42.5
	III	9	22.5
	IV	0	0
Duration of symptoms	<1month	3	7.5
	1-2months	4	10
	2.1-3months	11	27.5
	3.1-4months	7	17.5
	4.1-5months	3	7.5
	5.1-6months	4	10
	>6months	8	20

Fig 1. age distribution

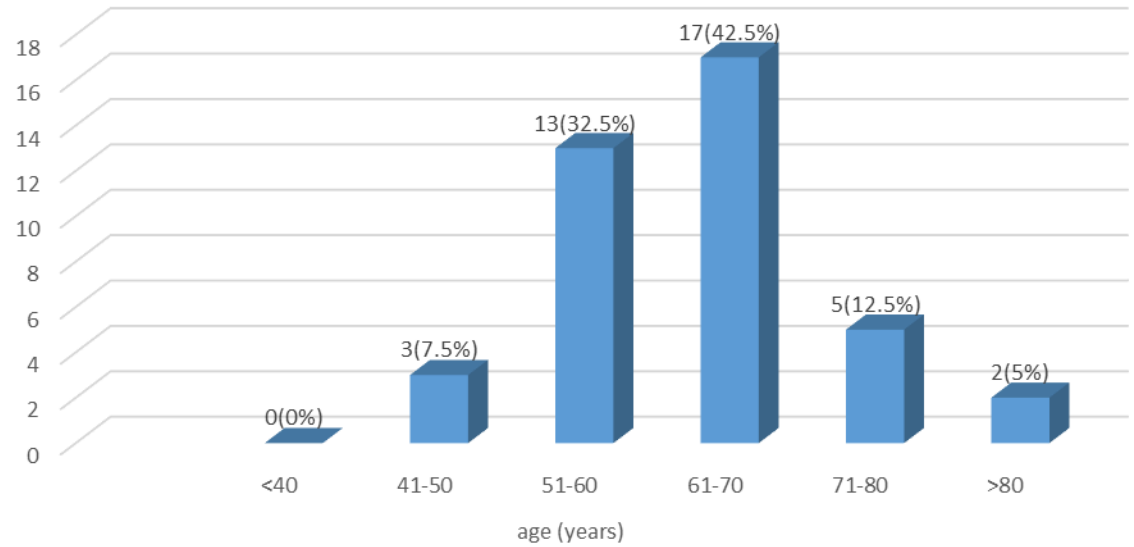
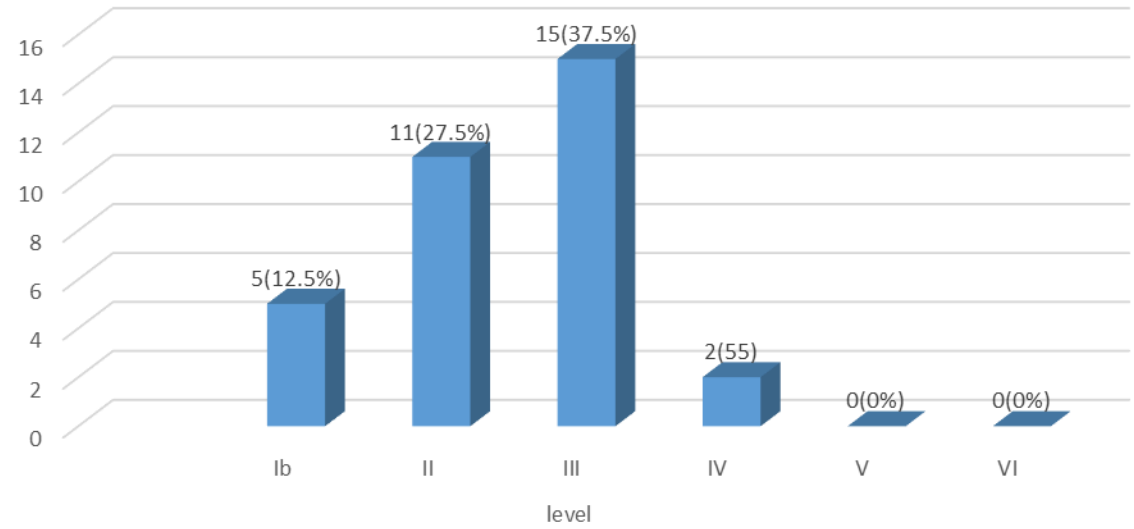


Fig 2. Levels of cervical LAP distribution



Discussion

The age of laryngeal cancer patients was classified into six groups, which showed the disease was more common between the ages 50-80 years, especially in the age group 60-70 years, which accounted for 42.5% of patients. The second peak of age ranged 50-60 years, which account for 32.5% of patient. These results were consistent with that of Leonard L. Gunderson et al.[2], who stated that the incidence of laryngeal cancer increases with age, with the median age at diagnosis being 65 years. In addition, age was an important risk factor for the development of laryngeal cancer.

Various studies have shown that individuals aged more than 65 years have 9 folds increase the incidence of cancer in general and a 15 times greater mortality rate than individuals aged less than 65 years[1]. The male to female ratio among laryngeal cancer patients was 3.4:1; this result agreed with that of Leonard Gunderson et al.[2], who stated that laryngeal cancer still mainly a disease occur in males. Laryngeal cancer incidence is 6.1 and 1.3 in males and females, correspondingly[6]. Among patients of this study, 95% were found to be smokers; hence, smoking was considered an important risk factor for developing

laryngeal cancer. The number and duration of cigarette smoking also associated with enhance effect of smoking as an important risk factor. In this study we showed there was 50% of cases were smoked more than 40 cigarette per day, and also there was higher incidence of laryngeal cancer among those patients who had history of smoking 20-30 years. This result was similar to that of Timme et al[7] and Menvielle ea al[8] who stated that tobacco smocking is powerfully related with the progress of laryngeal cancer, more with heavy smokers as well as an intermediate danger among ex-smokers. More than 95% of patients with history of laryngeal cancer are tobacco smackers. In addition, this result showed an agreement with that of Goldstein et al[9], who stated that the risk of oral and laryngeal cancers were strongly related to smoking and demonstrated that non-drinkers who smoked 25 or more cigarettes per day had a seven-fold increased risk of oral and laryngeal cancer. There was also an agreement to the study result by lee Ch et al.[10] who identified that the danger of laryngeal cancer is high with amount and period of smoking. Furthermore, the danger of laryngeal cancer increased in present smokers than in ex-smokers and more in persons who start smoking at early age than in persons who began smoking at a late age. The result of this study was similar to that of Shivappaet al[11], who stated that the relative risks for laryngeal cancer were 5.3 for people who smoked less than 15 cigarettes per day and 14.3 for people who smoked 25 or more cigarettes per day, compared with people who had never smoked. Furthermore, the relative risks were 5.9 for people who had smoked for less than 30 years and 18.0 for persons smoked for ≥40 year. The results of this study showed that 30% of the patients had a history of alcohol drinking and all of them were smokers, this study was consistent with barul et al.[12], who stated that alcohol drinking is strongly related to laryngeal cancer. Uncommon to appreciate carcinoma of larynx in non-smoking patients have abuse of alcohol in past, this agree with Timme et al[7], that show the history of alcohol abuse highly associated with supraglottic laryngeal cancers. Among the patients in this study, 65% presented with hoarseness of voice while others 35% presented with hemoptysis, dyspnea, odynophagia or dysphagia. These results were agreed with that of Gunderson et al.[2], who showed that hoarseness of voice is the most common presenting symptom in patients have glottic cancer. This study agreed with spiotto et al.[13], was stated that the diagnosis of laryngeal cancer should be considered when hoarseness is present for more than 2 to 3 weeks. Glottic carcinoma presents early with hoarseness due to vocal cord involvement. Cancers of the supraglottic larynx generally presented later due to a lack of symptoms in the early stages. Common signs and symptoms include difficulty in swallowing, otalgia, and odynophagia. In this study, the most common duration of symptoms was that lasted from two to three months, this result was agreed with that of Alkureishi et al.[14], was stated that presentation of patients with supraglottic laryngeal cancer have hoarseness just in late stage when involved the mucosa of vocal cord. The number of patients presented with metastasis to cervical lymph nodes was found 52.5% at time of diagnosis, 80% of them were found bilateral while 20% were unilateral. In this study the levels of metastasis to cervical lymph node at time of presentation showed two peaks, first in level III (37.5%) and the second was in level II (27.5%). These results were consistent with that of Grossbc et al.[15], were found that the nodal groups at risk of laryngeal cancer are stage II, III and IV, and also this study agreed with Gostiun et al.[16], was stated that the level I and V are infrequently involved by the tumor. In addition, Nakayam et al.[17], was found that patients with lesions centrally located involving both sides of the supraglottis frequently had bilateral neck disease, while if the lesion was strictly on one side, no contralateral metastasis occurred. Alkureishi et al.[14] and L.W.[18], were stated that the likelihood of lymph node involvement varies greatly with the extent of the primary tumor and the lymphatic drainage primary disease. In supraglottic larynx, the ipsilateral level II and III cervical lymph nodes are the most common metastatic sites, which showed 39% and 26%, respectively. In addition, this study was agreed with Nichio et al.[19], was stated that the submandibular lymph nodes is rarely involved and the incidence of lymph nodes involvement is 56% at the time of diagnosis. The results of this study showed that 100% of the patients had squamous cell carcinoma as a histological type. This result was agreed with that of Gunderson et al.[2], who stated that the commonest histopathological type of laryngeal carcinoma is squamous cell carcinoma. In addition, this study agreed with that of L.W.[18], stated that the vast majority of laryngeal carcinomas arises from the mucosal surfaces, are squamous cell carcinomas (SCC), and most of them are well to moderate differentiated. The results of this study were consistent Vincent [20], who stated that most carcinoma of larynx arises from the surface epithelium. In this study, the glottic subtype of larynx was the most common primary site of tumor growth which forms (45%) and the supraglottic subtype was formed (40%) at time of presentation. This results was consistent with that of L.W. Brady [18], was found that the incidence of laryngeal cancer subtypes as follow glottic (65%), supraglottic (35%) and subglottic subtypes (<1%) at time of presentation. In addition, these findings were approximately similar to those of Gunderson[2], who showed that primary cancer of glottic is 3 times common than supraglottic laryngeal cancers. In current study stage I is 7.5% of patients with laryngeal cancer, stage II for 22.5% of patients, stage III accounted for 30% of patients and stage IV which was accounted for 40%, there were no patients with carcinoma in situ. Those results agreed with that of Lydiatt et al.[21], who stated that the most common stage of laryngeal cancer at presentation were stage III and IV especially for supraglottic this was because this area was rich in lymphatics and associated with high percentage of lymph node metastasis. In addition, this result was consistent with L. W. Brady [18], was stated that the stage III and IV were common presenting stage of laryngeal cancer. Grade I accounted for 35% of laryngeal cancer patients, grade II for 42.5%, grade III accounted for 22.5% and grade IV accounted for 0% of

patients. These results were consistent with those of Gunderson et al.[2], who stated that the grading is one of the important prognostic factors in head and neck tumor especially in laryngeal carcinoma in which the grade I and II are the main grading.

Conclusions

Cancer of larynx might be strongly associated with number and duration of cigarette smoking, especially if associated with alcohol drinking, other risk factors are potentially less important. Squamous cell carcinoma is the most histologic type while others are rare. Metastases to cervical lymph nodes are depended on laryngeal subsites, which are most common in supraglottic than others subsites.

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