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Original Article

Clinicopathological Study of Cancer Larynx

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Abstract

Background: In India, laryngeal cancer contributes to approximately 3–6% of all cancers in men.

Objective: The aim of this study was to study the clinicopathology of cancer larynx with respect to age, sex, site, complaints, histology, staging, and predisposing factors.

Materials and Methods: The study population consisted of 100 patients who were suffering from cancer larynx. A complete clinical history was taken from the patients. After the clinical diagnosis of growth larynx, the patients were prepared for direct laryngoscopy under general or local anesthesia. The lesions were visualized, the extent of growth defined, and biopsy taken and then sent for histopathological examination. The staging of cancer larynx was done according to tumor, node, and metastasis classification.

Results: There were 80 male (80%) and 20 female (20%) patients. Maximum patients were in the age group of 51–60 years (40%). 54% showed supraglottic cancer, 45% had glottic cancer, and only 1% had subglottic cancer. In cases of supraglottic cancer, the most common complaint was difficulty in swallowing seen in all 54 patients; in cases of glottis cancer, the most common complaint was hoarseness of voice seen in 88.88%. There was only 1 patient of subglottic cancer who presented with difficulty in swallowing and difficulty in breathing. Out of 100 cases, there were 99 cases of squamous cell carcinoma whereas there was only 1 case of adenocarcinoma. Out of total 100 patients, overall most common stage was Stage 2 (34%), followed by Stage 3 (25%), Stage 4a (16%), Stage 1 (15%), and Stage 4b (10%). Smoking was found to be the most common predisposing factor (92%), followed by alcohol intake (78%) and tobacco chewing (50%).

Conclusion: Early diagnosis and treatment of laryngeal cancer is important to reduce the morbidity and mortality of patients.

Key words: Cancer, Smoking, Squamous cell

INTRODUCTION

The larynx is divided anatomically into supraglottis, glottis, and subglottis. The supraglottis and glottis are divided by a line passing through the ventricle, which separates the true cords from the false cords. The subglottis extends from approximately 1 cm below the level of the cords to the trachea inferiorly.[1] In patients with laryngeal disorders, most commonly, the presenting symptom is hoarseness of voice. In patients with benign lesions, hoarseness is often the only presenting symptom while patients with malignant lesions may have associated dysphagia, odynophagia, dyspnea, and secondaries in the neck due to lymph node metastasis. Other symptoms may include lump in the neck, foreign body sensation in the throat, sore throat, referred earache, and bad breath.[2]

The diagnosis of the laryngeal lesion is usually made by acquiring the biopsy of the tumor by direct laryngoscopy under general or local anesthesia, allowing a careful and thorough direct examination of the tumor. The biopsy material is important for definitive diagnosis of malignancy, identification of type of tumor, and degree of differentiation.[3]

Histologically, squamous cell carcinoma is the most common malignancy involving the larynx, arising from the non-keratinizing squamous epithelial lining. Other malignancies comprising <5% of all cancerous lesions include carcinoma *in situ*, sarcoma, lymphoma,

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and adenocarcinoma. Adenocarcinoma is aggressive malignancies.[4] Although rare, they are the most common glandular carcinoma to affect the larynx and comprise <1% of all laryngeal malignancies. Undifferentiated carcinomas and verrucous carcinomas are the major variants of squamous cell carcinomas, lymphoepithelial carcinoma, and spindle cell carcinoma.[5]

Men are traditionally more commonly affected, but the incidence among women is increasing as smoking in this group has become more common. Besides, smoking and alcohol, laryngopharyngeal reflux, and vocal abuse have also been implicated.[6]

Specific treatment of malignant tumors of larynx depends on the location, type, and stage of the tumor and includes surgery, radiation therapy, and chemotherapy in conjunction with radiotherapy.[7]

MATERIALS AND METHODS

This study was conducted in the Department of Otorhinolaryngology and Head and Neck Surgery of SMGS Hospital, Government Medical College, Jammu, between June 2016 and April 2019. The study included 100 patients of cancer larynx of either sex presenting in ENT outpatient department.

Inclusion Criteria

- Patients of laryngeal cancer irrespective of age and sex.

Exclusion Criteria

- Refusal by the patient
- Recurrent cases of laryngeal cancer.

After the selection of patients, informed written consent was taken. A complete clinical history was taken from the patients. Clinical history included chief complaints, duration of symptoms, presenting illness, past history, addiction history (mainly smoking, tobacco chewing, and alcohol consumption), occupational history, family history, and socioeconomic status of the patients.

After the clinical diagnosis of growth larynx, the patients were prepared for direct laryngoscopy under general or local anesthesia. The lesions were visualized, the extent of growth defined, and biopsy taken and then sent for histopathological examination. The results were then noted in a prescribed performa. The staging of cancer larynx was done according to tumor, node, and metastasis classification.

RESULTS AND OBSERVATIONS

A 100 patients of cancer larynx were included in the study. The following observations were made.

Age and Sex Distribution

There were 80 male (80%) and 20 female (20%) patients. The male:female ratio was 4:1. Maximum patients were in the age group of 51–60 years (40%). There were two patients of age <30 years. One of them was 28 years old. The mean age was 52 years. Figure 1 shows age distribution of patients.

Site of Cancer

Out of 100 patients of cancer larynx, 54% showed supraglottic cancer, 45% had glottic cancer, and only 1% had subglottic cancer. Figure 2 shows the site of involvement of cancer.

Chief Complaints

In cases of supraglottic cancer, the most common complaint was difficulty in swallowing seen in all 54 patients

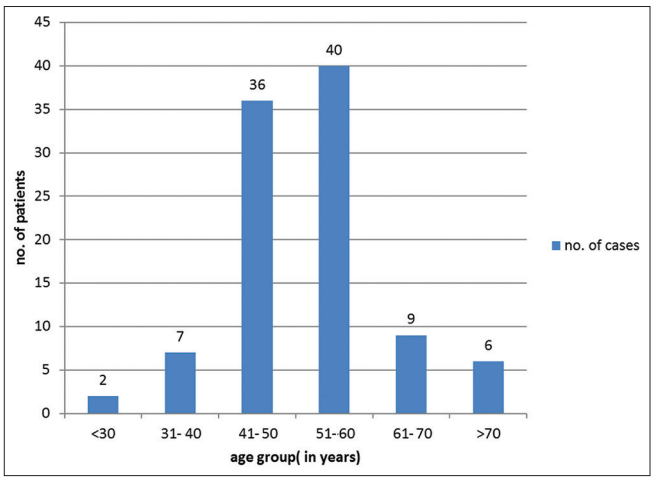

Figure 1: Age distribution of patients

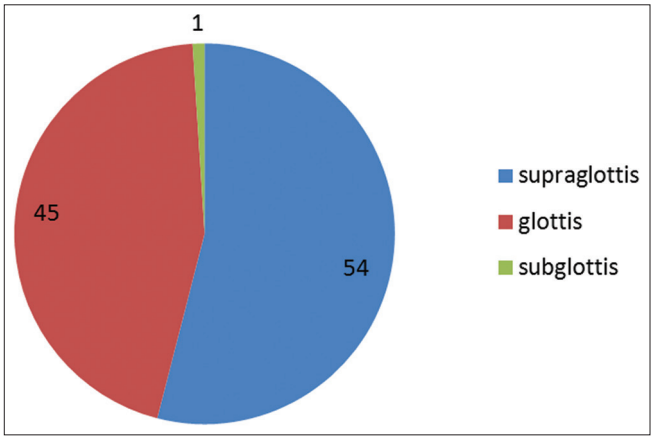

Figure 2: Site of cancer

(100%), followed by foreign body sensation in throat (81.48%), hoarseness of voice (42.59%), difficulty in breathing (40.74%), and pain in ear (22.22%).

In cases of glottis cancer, the most common complaint was hoarseness of voice seen in 88.88% followed by difficulty in breathing (84.44%), foreign body sensation in throat (55.55%), difficulty in swallowing (44.44%), and pain in ear (13.33%).

There was only 1 patient of subglottic cancer who presented with difficulty in swallowing and difficulty in breathing. Table 1 shows the incidence of various symptoms according to the site of involvement.

Histology of Cancer

Out of 100 cases, there were 99 (99%) cases of squamous cell carcinoma whereas there was only 1 (1%) case of adenocarcinoma. Out of these 99 cases of squamous cell carcinoma, 57% were moderately differentiated, 24% were well differentiated, and 18% were poorly differentiated. Table 2 shows distribution of patients according to histology of tumor.

Stage of Cancer

Out of total 100 patients, overall most common stage was Stage 2 (34%), followed by Stage 3 (25%), Stage 4a (16%), Stage 1 (15%), and Stage 4b (10%).

In supraglottic cancer, most common stage was Stage 3 (58%), whereas in glottis cancer, it was Stage 2 (45%). There was only 1 patient of subglottic cancer and he presented at Stage 4b. Figure 3 shows distribution of patients according to staging.

Predisposing Factor

On careful history taking of the patients, smoking was found to be the most common predisposing factor (92%), followed by alcohol intake (78%) and tobacco chewing (50%). Figure 4 shows the distribution of patients according to predisposing factor.

DISCUSSION

In our study, 54% showed supraglottic cancer, 45% had glottic cancer, and only 1% had subglottic cancer. This is in concordance with most of the studies, in which the supraglottis is the most common site of involvement, followed by glottis and subglottic regions.

Thompson *et al.*[8] studied 104 cases of tumors of larynx of which 30% were supraglottic, 46% were glottic, 3% were subglottic, and 21% were transglottic cancer. Bakshi *et al.*[9] in a study of 690 cases of laryngeal malignancy found that 56% tumors were supraglottic, 17% glottis, 3.6% subglottic, and 13% transglottic which is similar to our results. In all these studies, the subglottis was the least common site of involvement.

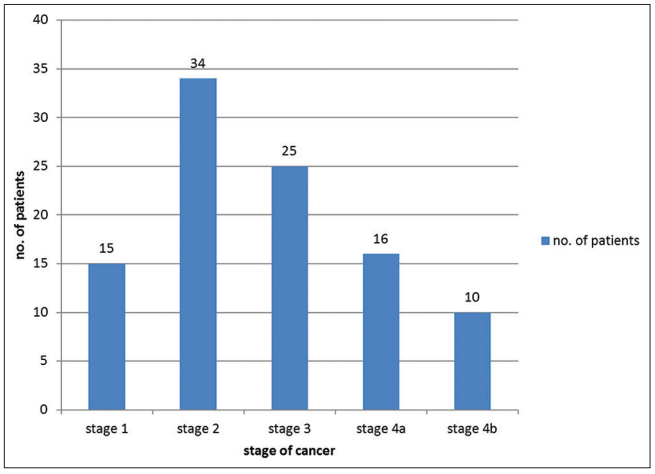

Figure 3: Staging of cancer

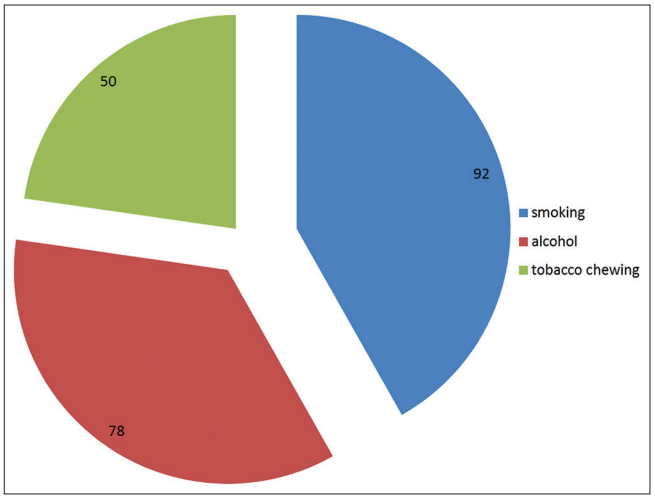

Figure 4: Predisposing factor

Table 1: Incidence of presenting symptoms depending on the site of cancer

Site of cancer	Hoarseness of voice		Difficulty in swallowing		Difficulty in breathing		Foreign body sensation in throat		Pain in ear	
	No. of cases	%age	No. of cases	%age	No. of cases	%age	No. of cases	%age	No. of cases	%age
Supraglottis	23	42.59	54	100	22	40.74	44	81.48	12	22.22
Glottis	40	88.88	20	44.44	38	84.44	25	55.55	6	13.33
Subglottis	0	0	1	100	1	100	0	0	0	0

Table 2: Distribution of patients according to histological type of cancer

Type	Number of patients	Percentage
Well-differentiated squamous cell carcinoma	24	24
Moderately differentiated squamous cell carcinoma	57	57
Poorly differentiated squamous cell carcinoma	18	18
adenocarcinoma	1	1
Total	100	100

In our study, maximum patients were in the age group of 51–60 years (40%). There were two patients of age <30 years. One of them was 28 years old. The mean age was 52 years. Similar results were observed by Thompson *et al.*[8] in his study of exophytic and papillary squamous cell carcinoma of larynx. According to 3-year report of population-based cancer registries 2009–2011 in India, the maximum number of cases of laryngeal carcinoma were reported in the age group of 60–69 years.[10]

In cases of supraglottic cancer, the most common complaint was difficulty in swallowing seen in all 54 patients (100%), followed by foreign body sensation in throat (81.48%), hoarseness of voice (42.59%), difficulty in breathing (40.74%), and pain in ear (22.22%). In cases of glottis cancer, the most common complaint was hoarseness of voice seen in 88.88% followed by difficulty in breathing (84.44%), foreign body sensation in throat (55.55%), difficulty in swallowing (44.44%), and pain in ear (13.33%). There was only 1 patient of subglottic cancer who presented with difficulty in swallowing and difficulty in breathing. Bakshi *et al.*[9] in their study also found that hoarseness was the most common complaint while other complaints were sore throat, neck nodes, and hemoptysis.

Out of 100 cases, there were 99 (99%) cases of squamous cell carcinoma whereas there was only 1 (1%) case of adenocarcinoma. Out of these 99 cases of squamous cell carcinoma, 57% were moderately differentiated, 24% were well differentiated, and 18% were poorly differentiated. These findings are consistent with the findings of the studies by Kaufman and Burke, Kumar *et al.*, Jaiswal and Hoang, Domanowski, and Wang *et al.* in which the percentage of squamous cell carcinoma were 90%, 96%, 95%, 99%, and 99%, respectively.[11-15]

In our study, smoking was found to be the most common predisposing factor (92%), followed by alcohol intake (78%) and tobacco chewing (50%). A significant association of laryngeal cancer with smoking and alcohol was observed by Elwood *et al.*[16] and Dosemeci *et al.*[17] in case–control studies conducted to evaluate risks of laryngeal cancer as in men by subsite and cell type in relation to smoking and alcohol. Bakshi *et al.*[9] found that smoking was a predisposing factor in 87.8% of the cases and additionally or otherwise alcohol consumption was found in 75% of the cases. Menvielle *et al.*[18] in their hospital-based study also observed the synergistic effect of alcohol and tobacco in etiology of laryngeal cancer. Kapil *et al.*[19] in their study of 305 laryngeal cancer patients observed alcohol and tobacco consumption to be a major risk factor in laryngeal cancer.

CONCLUSION

On the basis of present study, it can be concluded that laryngeal cancers of different subsites produce different symptoms. Smoking and alcohol are most common predisposing factors. Early diagnosis of laryngeal cancer is important for effective treatment and hence to decrease morbidity and mortality arising from the disease.

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