

Original Article

Frequency of Regional Metastasis in Supraglottic Carcinoma of Larynx

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Abstract:

Background: Incidence of laryngeal cancer still high among the upper aerodigestive tract. 85–95% of these laryngeal cancer is squamous cell carcinoma. Locally advanced laryngeal cancer metastasize more. Supraglottic cancers have the highest prevalence of regional metastases among laryngeal cancers.

Objectives: To evaluate the frequency of regional metastasis in supraglottic carcinoma of larynx.

Methods: This cross-sectional study was conducted including 40 patients with supraglottic Carcinoma of Larynx over a period of six months from June to November 2014 in the ENT and Head Neck Surgery department of Rajshahi Medical College Hospital, Rajshahi. Those with glottic carcinoma, subglottic carcinoma, hypopharyngeal carcinoma, metastatic neck node without any primary site (Occult primary) were excluded from the study. FNAC from neck node was done in patients with palpable neck node.

Results: Most of the patients 19 (47.5%) was in age group 50-60 years with mean age 54.5±13.2 years. Most of the patients present with more than one symptom & the commonest presenting symptoms was cough and irritation 35(87.5%) followed by dysphagia 26(65%) and change of voice 24(60%). A good number of patients, 16(40%) was presented with neck swelling. Among 40 patients, 16(40%) had their regional lymph nodes involved. Level-II lymph nodes were involved in higher number of cases 10(62.5%). Nodes in early stage of involvement were found in most cases 9(56.5%). Homolateral involvement of nodes was found in most cases 13(81.3%). Most of the supraglottic growths 22(55.0%) was exophytic in appearance. The common site of supraglottic carcinoma in this study was aryepiglottic fold and arytenoids 20(50.0%). Among the patients, 31(77.5%) had T₂ tumours. Amon them, 16(40%) were in stage-III followed by stage-II 10(25%).

Conclusion: Regional metastasis is a very useful prognostic indicator. Supraglottis is rich in lymphatic drainage and a high proportion of these tumors spread to lymph nodes.

Key Words: Supraglottic Ca, Lymph node, Regional metastasis.

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Introduction:

Laryngeal cancer is the second most common head and neck cancer worldwide. It occurs more in men than women, with a peak incidence in the age group 60-74 years¹. Incidence of laryngeal cancer has strong socioeconomic association. This is common in the more deprived groups. There is also a wide geographic variation².

Among laryngeal cancer patients, 60% present with localized disease alone; 25% with local disease and regional metastatic disease and 15% present with advanced disease, distant metastasis or both. More than 90% laryngeal malignancies are squamous cell carcinoma. Among the laryngeal regions, supraglottis is affected more³. Supraglottic cancer remains locally confined in early stage. It may extend superiorly to vallecula and to the base of the tongue; posteriorly tumor may extend to arytenoid cartilage. The pyriform fossa can be involved by tumors crossing aryepiglottic fold. 50% of supraglottic cancers spread to glottic region⁴.

There is high chance of lymphatic spread in supraglottic carcinoma in comparison with glottic and subglottic carcinomas⁵. Incidence of lymph node metastasis (over 60%) and occult metastasis is higher in supraglottic carcinomas⁶. Level-II and level-III neck node is most frequently involved⁷. Few patients present with distant metastasis at the time of diagnosis; most occurs in lungs, followed by bones, liver and skin⁸. Swelling in the neck may be direct extension of the disease through the thyroid cartilage into lateral part of the neck^{4,9}.

The presence of cervical lymph node metastases is the most significant prognostic factor in patients with squamous cell carcinoma of supraglottis⁹.

Diagnosis is based on the presenting feature, appropriate history taking, clinical

examination, assessment of the neck, endoscopic examination with both flexible and rigid, advanced imaging technique- CT, MRI; FNAC from neck node, was done. Early stage tumours can be treated with surgery and radiotherapy and advanced stage tumours are often treated with chemotherapy and radiotherapy^{9,10}.

Although there was some limitation of this study, attempt had been made to find out the actual facts and picture related to the subject prevailing in our country. In the proposed study, among the patients of supraglottic carcinoma, it was important to analyze the frequency of lymph node metastasis and their distribution through various neck levels. It would help in treatment of supraglottic carcinoma of larynx.

Methods:

It was a cross-sectional study carried out in the Department of ENT and Head-Neck Surgery, Rajshahi Medical College Hospital, Rajshahi from June to November 2014. A total of 40 patients with Supraglottic carcinoma attending in indoor department of ENT & Head Neck Surgery of Rajshahi Medical College Hospital, Rajshahi were included for the study sample. Random Sampling technique was used. All patients with Supraglottic carcinoma of any age and sex were included in the study. Those with glottic carcinoma, subglottic carcinoma, hypopharyngeal carcinoma, metastatic neck node without any primary site (occult primary) were excluded from the study.

Detailed history taking, general examinations and Ear, Nose & Throat examination was done & recorded in data collection sheet. Examination of neck was done in all patients. The nodal metastasis, level of nodal involvement, size of the neck node, site of involvement of the nodes is thoroughly checked and recorded. FNAC from neck node was done in positive neck node

patients. Indirect laryngoscopy was done in all cases. Histopathology was done after taking biopsy on direct laryngoscopy to confirm malignancy. The process of the study was fully explained to each guardian and informed consent was taken.

Data was analyzed and graph was generated using Microsoft excel. Continuous variables were analyzed by mean values. The quantitative findings were mentioned by frequencies and percentages.

Results:

Forty patients were included in the study. Highest number of patients 19(47.5%) was in age group 50-60 years with mean age was 54.5 ± 13.2 years. In this study male & female ratio was 12.3:1. Most of the patients 24(60%) came from poor socio-economic group. Smoking was the commonest 26(65%) personal habit. The other common personal habits were chewing betel leaf 6(15%) and chewing tobacco 4(10%).

Table I :
Sociodemographic characteristics of the patients (n=40)

Variables		No. of patients	Percentage (%)
Age	40-50	8	20.0%
	50-60	19	47.5%
	60-70	10	25.0%
	70-80	2	5.0%
	>80	1	2.5%
	Mean SD (range)	54.5 ± 13.2 (40-81)	
Sex	Male	37	92.5%
	Female	3	7.5%
	Male: Female ratio	12.3:1	
Occupation	Cultivation	21	52.5%
	Service	11	27.5%
	Business man	5	12.5%
	House wife	3	7.5%
Socioeconomic status	Poor	24	60.0%
	Middle class	10	25.0%
	Higher class	6	15.0%
Personal habits	Smoking	26	65.0%
	Chewing habit	6	15.0%
	Smoking, chewing tobacco & alcohol	3	7.5%
	Smoking & alcohol	1	2.5%
	Smoking & chewing tobacco	4	10.0%

Table II :
Presenting symptoms of supraglottic carcinoma (n=40).

Symptoms	No. of patients	Percentage (%)
Cough and irritation	35	87.5%
Dysphagia	26	65.0%
Change of voice	24	60.0%
Foreign body sensation	20	50.0%
Respiratory distress	8	20.0%
Neck pain	8	20.0%
Neck swelling	16	40.0%
Stridor	5	12.5%
Loss of weight	4	10.0%

Table III :
Cervical lymph node metastasis (n = 16)

Lymph node Characteristics	No. of patients	Percentage (%)
Level of lymph node Involved		
Level-I	0	0.0%
Level-II	10	62.5%
Level-III	3	18.8%
Level-IV	2	12.5%
Level-V	1	6.3%
Level-VI	0	0.0%
Status of involved node		
N1	9	56.5%
N2	4	25.0%
N3	3	18.8%
Neck node		
Homolateral	13	81.3%
Bilateral	3	18.8%

Table IV :
Macroscopical appearance and site of growth in supraglottic larynx (n=40).

Growth Characteristics	No. of patients	Percentage (%)
Macroscopic appearance of growth		
Exophytic	22	55.0%
Ulcerative	13	32.5%
Infiltrative	5	12.5%
Site of involvement of growth		
Aryepiglottic folds and Arytenoids	20	50.0%
Epiglottis with right sided vestibule	11	27.5%
False cord	5	12.5%
Epiglottis	4	10.0%

Table V :
Distribution of the study subjects by tumour size and stages (n=40)

Characteristics	Number of cases	Percentage %
Tumour size		
T ₁	9	22.5%
T ₂	31	77.5%
Stage		
Stage-I	8	20.0%
Stage-II	10	25.0%
Stage-III	16	40.0%
Stage-IV	6	15.0%

Discussion:

Supraglottic carcinoma of larynx is a common disease in otolaryngology in Bangladesh. We carried out this study to find out the frequency of regional metastasis.

In this study patients were of different age groups ranging from 40 to 80 years with mean

(\pm SD) age of 54.5 ± 13.2 years. The male to female ratio was 12.3: 1. The age and sex incidence is consistent with others^{11,12}.

Tobacco is a known risk factor for head and neck cancer. In this series, majority of the patients had a habit of smoking and some had a habit of alcohol consumption^{11,12}.

Here most of the patients (60%) came from poor socio-economic group. The socio-economic distribution of our series is similar to other Bangladeshi series^{3,11,13}.

The supraglottis is rich in lymphatics and there is high incidence of lymph node metastases. Here the incidence of lymph node involvement was 40%. Result coincides with others¹¹.

In our study most of the patients (56.25%) were in N₁ stage of lymph node size. This study almost reflect the study by others¹³.

In present study 60% cases had without palpable neck node. However supraglottic carcinoma frequently spreads to cervical lymph nodes by occult metastases^{12,14}.

Among the 16 patients with neck node, 13 cases had homolateral neck node and 3 cases had bilateral neck node. The supraglottic larynx drains through thyrohyoid membrane to reach upper deep cervical nodes (Level II/III). In this study the level-11 nodes were involved in majority of situations (62.5%). This is similar to other studies¹¹.

Among all the patient presented with one or more symptoms, we can see that cough and irritation in the throat was the common symptoms (87.5%), followed by dysphasia (66%), change of voice (60%), foreign body sensation in throat (50%), respiratory distress (20%), neck pain (20%) and neck swelling (40%). This observation is consistent with the result of others¹¹.

In this series, out of 40 patients, 20 cases (50%) had lesions involving aryepiglottic folds

with arytenoids, 11 cases (27.5%) had lesion at epiglottis and right sided vestibule, 5 cases (12.5%) had lesions at false cord and 4 cases (10%) had lesions involving epiglottis. This observation is also consistent with result of others^{11,12}.

The supraglottic carcinoma can be of three types macroscopically. We also found three types of growths here. In the present series out of 40 patients, 22 cases (55%) had exophytic growths and 13 cases (32.5%) had ulcerative growth and only 5 had infiltrative growth¹¹.

The incidence of palpable lymph nodes increases with the extent of the primary tumour. Regarding extension of tumour, maximum number of patients 31 cases (77.5%) had T₂ lesions and 9 cases (22.5%) had T₁ lesions, which reflects late presentation of cases. Patients were staged according to TNM feature. Most of the patients (40%) were in stage-III followed by stage-II (25%). Similar observation also made in our country by researcher in this respect^{11,12,14}.

A few numbers of patients presented with neck swelling were unaware of other symptoms such as cough or change in voice. The precise site of the node metastases in the neck may give important clues to the likely primary tumour. Squamous cell carcinoma forms the vast majority of malignant laryngeal disease. In this study, all cases were histopathologically Squamous cell carcinoma (100%). The majority of the patients (24 cases) had well differentiated carcinoma, 12 patients had moderately differentiated and 4 patients had poorly differentiated carcinoma^{11,12,14}.

Poorly differentiated tumours have the highest incidence of distance metastasis. Though presented late, in no case of our series distant metastasis was found. So, all were in M₀

state. As the stage at presentation is concerned, maximum (40%) presented at stage-III, 25% at stage-II, 20% in stage-I and 15% were in stage-IV. The distribution of stage is almost nearer to others studies^{11,12}.

Conclusion:

Lymphadenopathy is present much higher frequency in supraglottic carcinoma. Cervical metastasis is associated with decreased disease-free interval and survival. Further community based large scale studies should be done to explore the actual situation clearly. Steps should-be taken to disseminate the proper knowledge regarding supraglottic carcinoma through health workers and mass media.

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