

## **Original Article**

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# **Presenting features of supraglottic carcinoma of larynx**

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### **Abstract:**

*Objectives: To find out the presentation of supraglottic carcinoma of larynx.*

*Methods: Fifty cases of supraglottic carcinoma were selected from the in-patient department of Otolaryngology and Head-Neck surgery of Bangabandhu Sheikh Mujib Medical University and Dhaka Medical College Hospital, Dhaka, during March, 2009 to August, 2009.*

*Results: Among 50 cases in this study male: female ratio 11.5:1 and mean age was 55 years with range 35 years to 80 years. Majority of cases were from the lower socioeconomic group (66%). Regarding habit 94% were smoker, 60% were habituated with chewing betel leaf and betel nuts with or without other ingredient. Only 3 cases (6%) were alcoholic. Most of the cases presented with more than one symptoms and commonest symptoms was change of voice (82%) which was followed by dysphagia (76%), respiratory distress (54%) and neck swelling (42%). 32 (64%) cases had enlarged cervical lymph nodes out of which 27 (84.37%) were homolateral, 4 (12.50%) were bilateral and only 1 (3.12%) was contra-lateral. Vocal cord movement was normal in 23 (46%) cases, impaired in 12 (24%) and fixed in 15 (30%) cases. Most of the cases presented with exophytic lesion 34 (68%) where ulcerative lesion was 16 (32%). (52%) presented with involvement of arytenoid with aryepiglottic folds/vestibule of larynx, 12 cases (24%) had lesion at epiglottis with vestibule/aryepiglottic folds, 8 cases (16%) had lesion at vestibule with false cord, 4 cases (8%) had lesion involving the epiglottis only. Maximum number of patients had T3 lesion (44%) and T2 lesion was 36%. Most of the cases presented at an advanced stage, stage- IV was 42% and stage- III was 36%. Stage- I and stage- II were 6% and 16% respectively.*

*Conclusion: Most common presenting symptoms of supraglottic carcinoma were change of voice, dysphagia and respiratory distress and most of the cases prented in an advanced stage (Stage III and Stage IV).*

**Key words:** *Supraglottic, personal habit, neck node*

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**Introduction:**

Laryngeal carcinoma is the most common head and neck cancer world wide.<sup>1</sup> In the UK it represents approximately 1% of all malignancies in men but is less common in women.<sup>2</sup> In a study in Bangladesh it was seen that 35.32% of all body cancers was in head and neck region and the commonest head and neck malignancy was laryngeal carcinoma (31.85%) and among the laryngeal carcinomas supraglottic region was the commonest site (72.99%).<sup>3</sup>

Supraglottic carcinoma predominantly affects the 6<sup>th</sup> decade of life.<sup>4,5</sup> Male: Female ratio is 10:1.<sup>3,4,5</sup>

The exact cause of supraglottic carcinoma is not known. Smoking tobacco, chewing betel leaves with various ingredients, drinking alcohol and many other occupational factors like asbestos, radiation have been seriously implicated in its etiology.<sup>1,6</sup> The risk of developing supraglottic carcinoma is increased 100 folds in individuals who both smoke and drink.<sup>7</sup>

Supraglottic tumours may cause miscellaneous symptoms such as sore throat, globus sensation, dysphagia and dyspnoea.<sup>8</sup> The most common symptoms of supraglottic carcinoma include hoarseness of voice, odynophagia and neck mass; haemoptysis, chronic cough, stridor and referred otalgia are also common.<sup>7</sup> Almost all of the patients present with multiple symptoms.<sup>6</sup> The highest incidence of cervical lymph node metastasis is associated with supraglottic carcinoma (65%) in comparison to glottic and subglottic carcinomas of the larynx.<sup>9</sup>

Supraglottic carcinoma of the larynx hampers three important functions like voice, respiration and swallowing due to its anatomical location, local infiltration and direct extension.

Cancer of the supraglottis is almost exclusively squamous cell carcinoma which is radiosensitive.<sup>6,7</sup> So, for early stages with small tumour bulk, surgery can be avoided and thus laryngeal function can be preserved.

In our country most of the cases of supraglottic carcinoma are at an advanced stage at the time of their presentation.<sup>10</sup> Poverty, illiteracy of the general population as well as paucity of centers which can deal with the throat cancer are responsible for usual delay at presentation.<sup>11</sup>

Despite the severity of the clinical presentation, supraglottic carcinoma is a potentially curable disease, specially when diagnosed at early stages.<sup>12</sup> But the prognosis is worse when it presents at an advanced stage with cervical lymph node metastasis.<sup>12</sup> Five years survival rate declines from 90.7% to 41.8% when disease progresses from stage-I to stage- IV.<sup>13</sup>

Although sometimes we need help of imaging and direct laryngoscopic findings, we mainly depend on clinical findings for staging of supraglottic carcinoma.

So, clinical presentation of supraglottic carcinoma is very important regarding management planning and prognosis of the disease. This study will give us information about the sociodemographic features, aetiological factors and clinical presentation of supraglottic carcinoma and will be able to compare the findings with those of previous studies carried out at home and abroad.

**Methods:**

**Type of study:** Cross sectional study.

**Sample:** 50 cases.

**Duration and place of study:**

The study was done from March, 2009 to August, 2009, in the Department of Otolaryngology and Head-Neck Surgery of Bangabandhu Sheikh Mujib Medical University and Dhaka Medical College Hospital, Dhaka.

**Inclusion criteria:**

All the cases are histopathologically proved supraglottic laryngeal carcinoma of any age and sex.

**Exclusion criteria:**

- Cases where the histopathological diagnosis excludes carcinoma.
- Where the involvement of pharynx is so extensive that question arises about the site of origin of carcinoma.

**Data collection:**

Detail history was taken, general and ENT examination was done thoroughly with particular emphasis on supraglottic region of the larynx. Examination of neck was done in all patients to see the lymph node involvement or direct extension of primary tumour from supraglottic region. Indirect laryngoscopy was done in all cases. Fibre optic laryngoscopy was done when indicated. Plain x-ray of neck was done in all cases. C.T. scanning of larynx and neck was done in few cases. Complete blood count, bleeding time, clotting time, serum creatinine, blood urea, random blood sugar, urine R/E, ECG and echocardiography (when indicated) were done in all cases. Then direct laryngoscopy under G/A was done for assessment of site, size and extension of disease, staging and taking biopsy. Tissue was sent for histopathology for tissue diagnosis and to find out the type of malignancy and for histological grading.

**Results:**

**Table-I**  
*Age distribution (n-50)*

Age	No. of patients	Percentage (%)
31-40 years	02	04%
41-50 years	13	26%
51-60 years	21	42%
61-70 years	09	18%
71-80 years	05	10%

The lowest and highest age at presentation were 35 years and 80 years respectively and mean age was 55 years.

**Table-II**  
*Personal habit of cases with supraglottic carcinoma (n-50)*

Personal habit	Number of cases	Percentage (%)
Only smoking	17	34%
Smoking, Chewing betel leaves and betel nuts	27	54%
Chewing betel leaves and betel nuts	03	6%
Smoking & chewing tobacco and Alcohol	02	04%
Smoking & Alcohol	01	02%

Smoking was the commonest (94%) personal habit. The other common personal habits were chewing betel leaves and betel nuts (60%) with other ingredients like shada pata, zarda etc. Chewing tobacco (64%) and alcohol (6%).

**Table-III**  
*Presenting symptoms of supraglottic carcinoma (n-50)*

Symptoms	Number of cases	Percentage (%)
Change of voice	41	82
Dysphagia	38	76
Respiratory distress	27	54
Neck swelling	21	42
Foreign body sensation in throat	07	14
Earache (Referred)	06	12
Cough with irritation	06	12
Neck pain	02	04
Haemoptysis	01	02
Marked weight loss	01	02

Most of the cases present with more than one symptoms and the commonest presenting symptom of supraglottic carcinoma was change of voice (82%). It was followed by dysphagia (76%), respiratory distress (54%), neck swelling (42%) and less common symptoms were cough (12%), haemoptysis (2%) and marked weight loss (02%).

**Table-IV**  
*Sub-site of involvement of growth in supraglottic larynx (n-50)*

Distribution of cases	Number of cases	Percentage (%)
Arytenoids and aryepiglottic folds/ vestibule of larynx	26	52%
Epiglottis with vestibule of larynx/ aryepiglottic folds	12	24%
Vestibule with false cord	08	16%
Epiglottis only	04	08%
Extended to pyriform fossa	08	16%
Extended to vallecula	06	12%

In most of the cases more than one sub sites were involved and commonest was arytenoids and aryepiglottic folds/ vestibule of larynx (52%), followed by epiglottis and vestibule/ aryepiglottic folds (24%), involvement of pyriform fossa was (16%) and vallecula (12%).

**Table- V**  
*Movement of vocal cord (n = 50).*

Movement of vocal cord	Number of cases	Percentage
Normal	23	46 %
Impaired	Right- 5	10 %
	Left- 7	14 %
Fixed	Right- 7	14 %
	Left- 8	16 %

In this study movement of vocal cord was impaired in 12 (24%) cases, and were fixed in 15 (30%) cases.

**Table-VI**  
*Macroscopic appearance of growth in supraglottic larynx (n-50)*

Macroscopic appearance of growth	Number of cases	Percentage (%)
Exophytic	32	64%
Ulcerative	16	32%
Infiltrative	2	04%

Most of the supraglottic growths were exophytic (64%) in appearance.

**Table-VII**  
*Tumour size (n-50).*

Size	Number of cases	Percentage (%)
T <sub>1</sub>	04	08%
T <sub>2</sub>	18	36%
T <sub>3</sub>	22	44%
T <sub>4</sub>	06	12 %

In this study most of the cases 22 (44%) presented with T<sub>3</sub> tumours which was followed by T<sub>2</sub> 18 (36%), T<sub>4</sub> 6 (12%) and T<sub>1</sub> 04 (08%).

**Table-VIII**  
*Involvement of neck node (n- 32).*

Neck node	Number of cases	Percentage (%)
Ipsilateral	27	Right- 12
		Left- 15
Bilateral	04	12.50%
Contra lateral	01	03.12%
Total	32	64.00%

32 (64%) had their regional lymph nodes involved. Ipsilateral involvement of neck nodes were present in most cases.

**Table- IX**  
*Level of lymph node involved (n - 32)*

Level of lymph node involved	Number of cases	Percentage (%)
Level-I	Nil	Nil
Level-II	12	37.50%
Level-III	13	40.62%
Level-IV	06	18.75%
Level-V	01	03.12%

Level-II & III lymphnodes were involved in higher number of cases.

**Table- X**  
*Status of involved node (n - 32).*

Status of involved node	Number of cases	Percentage (%)
N <sub>1</sub>	12	37.50%
N <sub>2</sub>	09	28.12%
N <sub>3</sub>	11	34.37%

N<sub>1</sub> and N<sub>3</sub> stages of involvement were found in higher number of cases.

**Table-XI**  
*Staging of cases (n-50).*

Stage	Number of cases	Percentage (%)
Stage-I	03	06%
Stage-II	08	16%
Stage-III	18	36%
Stage-IV	21	42%

Patients were staged according to the TNM system taking the TNM features together. Most of the cases (42%) were in stage-IV

followed by stage-III (36%), stage- II (16%) and stage- I (06%). So most of the cases presented in advanced stage.

#### Discussion:

Laryngeal carcinoma is the most common head and neck cancer world wide.<sup>1</sup> Supraglottic region is the commonest site of laryngeal carcinoma in our country.<sup>3,4,6</sup> We carried out the study to find out the clinical presentation of supraglottic carcinoma of the larynx.

The age of the cases ranged from 35 to 80 years with a mean age 55 years. The highest was found at age between 51-60 years. The age incidence is almost identical with the result of other studies.<sup>4,6,17</sup>

Out of 50 cases 46 were male and 4 were female. Male to female ratio was 11.5:1. This result is almost similar to other studies, where the ratio was 10:1 and 9:1 respectively.<sup>3,18</sup> This result differs from that of other countries, as 2:1 in Scotland, 3:1 to 4:1 in UK and 6:1 in Canada.<sup>2,15</sup> This male/female disparity may be due to tobacco and alcohol consumption which is common in female in these countries.

In the study population 66% cases were from poor socioeconomic group. This result coincides with the result of others.<sup>16,18</sup>

It has been described in different literatures that tobacco and alcohol are clearly associated with increased incidence of supraglottic carcinoma.<sup>1,2,15</sup> Our result showed that 94% of cases were smoker and 60% were habituated in chewing betel nut and betel leaf, 64% were habituated with chewing tobacco. Out of 50 cases only 3 were alcoholic. These similar results were near to other studies.<sup>4,17</sup>

Regarding symptoms, most of the patients suffered from more than one symptom. Common symptoms were change in voice 41(82%), dysphagia 38 (76%), respiratory

distress 27 (54%) and swelling in the neck 21 (42%). Less common symptoms were foreign body sensation in throat 7(14%), earache 6 (12%), neck pain 2(4%), haemoptysis (2%) and marked weight loss (2%). These results almost reflect the study by others.<sup>18,19</sup> But it differs from other studies where most common symptom was cough with irritation.<sup>10,16</sup>

Supraglottic carcinoma most commonly occurs in the centre of infrahyoid epiglottis.<sup>2</sup> In this study, in most of the cases more than one sub-site were involved. Out of 50 cases 26 (52%) had lesions in arytenoid with aryepiglottic folds/vestibule of larynx, 12 (24%) had lesion at epiglottis with vestibule/aryepiglottic folds, 8 (16%) in vestibule with false cords, 4 (8%) in epiglottis only. In 8 cases growth was extended into medial wall of pyriform fossa and in 6 cases involvement was in vallecula.

In 12 (24%) cases vocal cord movement were impaired, 15 (30%) cases were fixed and in rest of the cases vocal cord movement was normal. This is similar to another study.<sup>6</sup>

Macroscopically in majority of the cases growth were exophytic 32 (64%) and ulcerative lesion was seen in 16 (32%). Similar observation was found in our country by researchers in this respect.<sup>16,18,19</sup>

Regarding extension of tumour, maximum number of cases 22 (44%) had T<sub>3</sub> lesions followed by 18 (36%) cases had T<sub>2</sub> lesion, 6 (12%) cases had T<sub>4</sub> lesion and only 4 cases (08%) had T<sub>1</sub> lesion. This result is almost similar to another study.<sup>6</sup>

Supraglottic carcinoma has a positive node of over 60 percent<sup>1</sup>. In this study, incidence of lymph node involvement was 32 (64%). This result coincides with the result of others.<sup>6,9,16</sup>

Among the 32 cases 27 cases were ipsilateral lateral, 4 cases were bilateral and

only one case was contra-lateral neck node involvement. This result is consistent with other studies.<sup>6,18</sup>

In this study N<sub>1</sub> stage of lymph node were found in higher number of cases 12 (37.50%) which is followed by N<sub>3</sub> 11 (34.37%) and N<sub>2</sub> 9 (28.12%). This is almost near to other studies.<sup>9,16,19</sup>

Lymphatic spread of supraglottic larynx occurs via the superior laryngeal pedicle to level II, III and level IV<sup>2</sup>. In our study level II neck node involvement were 12 (37.50%), level III were 13 (40.62%) and level IV was 6 (18.75%). This is almost identical to other study<sup>9,20</sup>. In our study, distant metastases were not found. So, all were in M<sub>0</sub>.

Staging of tumour revealed that most of the cases presented at an advanced stages, stage- IV (42%) followed by stage- III (36%). Stage- II and stage - I was found in 16% and 6% cases respectively. In another study done in our country stage - III was 27%, stage- IV was 61.90% which also reveals the advanced stage at presentation.<sup>10</sup>

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