



ORIGINAL RESEARCH PAPER

Otolaryngology

A CLINICO-PATHOLOGICAL STUDY OF SUPRAGLOTTIC MALIGNANCY AT A TERTIARY CARE CENTRE IN CENTRAL INDIA - OTORHINOLARYNGOLOGY

KEY WORDS: Supraglottic malignancy, risk factors, staging, nodal metastasis

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ABSTRACT

Introduction: Prevalence of supraglottic malignancy is more common in India which by virtue of its anatomical location, local infiltration and direct extension interferes with most vital functions like voice, respiration and swallowing. Objective: The present study was undertaken to find out the clinicopathological profile of supraglottic malignancies of the patients in a tertiary level hospital. This study also aims to analyze epidemiological features of patients presenting with supraglottic malignancies and evaluate pattern of neck node metastasis. **Materials and methods:** A cross sectional observational study was conducted among 50 cases of histopathologically proven supraglottic carcinoma, who were selected from the out-patient department of the Department of ENT, Maharaja Yashwantrao Holkar Hospital, Indore and a detailed history taking and clinical examination was done followed by FNAC or radiographic imaging if required. Results: In our study, majority (64%) of the patients were between 50-60 years. In this study, 4 major risk factors were found: smoking, betel nut and leaf chewing, chewing tobacco and alcohol consumption. The most common risk factor among the patients was smoking (96%). The most common presentation of this study was change of voice (72%). A larger portion of the patients (52%) had growth in Aryepiglottic fold found in Laryngoscopy. Next common sites were arytenoids (44%). 78% nodal metastasis, among them the metastasis was seen as, 56% in N2, N1 in 16%. Histopathological evaluation showed that Squamous cell carcinoma (SCC) was present in 96% cases, among them moderately differentiated SCC were 52 percent. **Conclusion:** Supraglottic carcinoma presents between 40 to 80 years of age, more common in 5th and 6th decades of life. Chewing betel nut and smoking should be avoided to reduce the risk of supraglottic carcinoma and early presentation & diagnosis will improve the prognosis of patients.

INTRODUCTION

Laryngeal carcinoma is the leading cause of head and neck cancer world wide.¹ In India it shows male predominance with approximately 2.3% of all malignancies in males and 0.4% of all malignancies in females.² In a study done in India, the second most common head and neck malignancy is laryngeal carcinoma and among the laryngeal carcinomas supraglottis is the commonest site (80%).³

Supraglottic carcinoma predominantly presents in 6th decade of life.³

The exact cause of supraglottic carcinoma is not known. Tobacco smoking, chewing betel leaves with various ingredients, alcohol consumption, and many other occupational factors such as exposure to asbestos and radiation are also involved in the etiology.

Supraglottic carcinoma presents with symptoms such as sore throat, globus sensation, dysphagia and dyspnea. The symptoms may also include hoarseness of voice, followed by

neck mass and odynophagia, hemoptysis, chronic cough, stridor and referred otalgia. Due to its rich lymphatic drainage, the highest incidence of cervical lymph node metastasis is associated with supraglottic carcinoma in comparison to glottic and subglottic carcinomas of the larynx.⁴

Histologically, most common cancer of the supraglottis is squamous cell carcinoma which is radiosensitive. So, for early stages with small tumour bulk, surgery can be avoided and thus the laryngeal functions can be preserved.

In our country cases of supraglottic carcinoma usually presents at an advanced stage. Poverty, illiteracy of the general population, and lack of centers capable of treating laryngeal carcinoma are some of the reasons for delayed presentation.

Despite the severity of the disease, supraglottic carcinoma is a potentially curable disease, specially if diagnosed at an early stage. But the prognosis is worse if presentation is

delayed. Endoscopy, imaging of larynx and examination of neck for nodal metastasis are useful diagnostic aid for staging of supraglottic carcinoma.

So, clinical presentation of supraglottic carcinoma is very important in planning the management and prognosis of the disease. This study will give us information about the epidemiological factors and clinical presentation of supraglottic carcinoma of the larynx.

METHODS:

TYPE OF STUDY: Cross sectional study.

SAMPLE: 50 cases.

DURATION AND PLACE OF STUDY: The study was done from March 2022 to February 2023 in the Department of ENT, Maharaja Yashwantrao Holkar Hospital, Indore, India.

INCLUSION CRITERIA

- All histopathologically proven supraglottic carcinoma of larynx of any age or sex coming to the Department of ENT, Maharaja Yashwantrao Holkar Hospital, Indore, India.
- Patients giving consent for study.

EXCLUSION CRITERIA

- Inability to fully evaluate or confirm diagnosis by histology.
- Where the involvement of larynx is so extensive that proper site of origin of carcinoma cannot be identified

DATA COLECTION:

50 cases of histopathologically proven supraglottic carcinoma were randomly selected. A detailed history was taken followed by general physical and clinical otorhinolaryngological examination which included indirect laryngoscopy and video laryngoscopy. Cervical lymph nodes examination was done, followed by FNAC or radiographic imaging if required. Staging was done using TNM classification for supraglottic malignancy (AJCC 8th edition).

RESULTS

There were several risk factors for supraglottic malignancy identified in this study. Most common risk factor as shown in fig 1, was smoking (96%), followed by patients chewing betel nut and leaves (48%), chewing tobacco (16%) and alcohol consumption (8%).

Most of the cases, as seen in fig 2, presented with more than one symptom of which the commonest presenting symptom of supraglottic carcinoma was found to be change in voice (72%). It was followed by respiratory distress (48%), neck swelling (44%), dysphagia (36%), and less common symptoms were hemoptysis (4%) and marked weight loss (16%).

Fig 3 shows that on histopathological evaluation, squamous cell carcinoma (SCC) was present in 96% cases, amongst which well differentiated type was seen in 32%, Moderately differentiated in 52% and poorly differentiated in 12% patients. Adenocarcinoma found in 4% cases.

In most of the cases, more than one subsite was involved. As seen in table 1, the commonest site involved were arytenoids and aryepiglottic folds (48%), followed by epiglottis and valleculae (24%). Epiglottis alone was involved in 16% cases. Supraglottic carcinoma is known for higher percentage of lymph node metastasis. This study (table 2) also showed the same with having 78% nodal metastasis, among them the metastasis was seen as, 56% in N2, N1 in 16%, N3 in 6%. In this study all cases were M0.

Staging of tumour revealed that most of the cases presented at an advanced stage (table 3), state- IV (62%) followed by stage- III (16%). Stage- II and stage - I was found in 14% and

8% cases respectively.

DISCUSSION

Smoking was the most significant risk factor for cancers of the larynx, associated with an estimated 70% to 95% of all cases.⁵ Any history of smoking portends higher risk, with current smokers exhibiting increased relative risk versus ex-smokers overall and increased relative risk for supraglottic versus glottic cancers. As seen by Bhattacharyya et al an association with heavy alcohol consumption has also been characterized, though the independent effect of alcohol is not clearly given and combined use with tobacco is noted in most cases⁵. In our study (as seen in fig 1) we also found smoking (96%) to be the most common risk factor in the etiology of the supraglottic carcinoma.

The most common presentation of this study, as seen in fig 2, was change of voice (72%). Dysphagia found in 18 (36%) cases and neck swelling presented in 22 (44%) cases. Irritable cough and respiratory distress 24(48%) were also seen.

The length of individual symptoms varied considerably. In accordance with some earlier findings, hoarseness had the longest, and more alarming symptoms like haemoptysis, dyspnoea and neck mass had the shortest median durations. The proportion of advanced-stage lesions was distinctly higher among patients with a supra-glottic tumour.⁶

Histopathologically (fig 3), Squamous cell carcinoma (SCC) was present in 96% cases, among them Well differentiated type was seen in 32%, Moderately differentiated in 52% and Poorly differentiated in 12% patients. Adenocarcinoma found in 4% cases.

Usually the proliferative growth involves more than one structure. In larger portion (48%) of the patients arytenoids and aryepiglottic fold (table 1) were involved followed by epiglottis and valleculae (24%), while the growth over vocal folds were seen in 16% cases.

Due to the rich lymphatics of the supraglottic laryngeal carcinoma, patients frequently presents with progressed disease characterized by cervical lymphadenopathy. Inferable to negligible symptomatology within the early stages, supraglottic SCC most frequently presents late. This study (table 3) also showed the same with having 78% nodal metastasis, among them the metastasis was seen as, 56% in N2, N1 in 16% , N3 in 6%. Commonest stage of lymphadenopathy in this series was N1, N2 and N3 were 53.48% ,27.9% and 18.6% respectively.⁷

In this series there is highly significant association between the tumour states and nodal states. The clinically positive cervical lymphadenopathy is much more common in advanced tumour stage, as shown in table 3. Cervical lymphadenopathy was present in a much higher frequency in supraglottic carcinoma (74.42%) which is little bit higher to study done in our country that showed only 65.5% cases of supraglottic carcinoma present with cervical lymphadenopathy.⁸

CONCLUSION

This study shows that there are marked differences in the symptom patterns of laryngeal malignancy, depending on tumour site and stage. Presence of certain individual symptoms and a higher number of symptoms indicated poorer prognosis, but this impact was mainly due to the association with stage and it was not found in the multivariate analysis. Thus the independent role of the symptoms in treatment planning and evaluation of prognosis seems to be minor. There is undoubtedly considerable variation in the intrinsic aggressiveness of laryngeal carcinomas and the proportion of tumours that can be diagnosed early may be

limited. Nevertheless, the relatively high proportion of patients with a long symptom duration emphasizes the importance of increasing the awareness among both the general public and primary healthcare physicians of the symptoms of laryngeal cancer.

Nodal metastasis can be found in the early stages of supraglottic carcinoma. Thus, the FNAC plays an important role in diagnosing laryngeal carcinoma, especially in patients with reduced mouth opening or all patients where direct laryngoscopy and biopsy is difficult.

The histological classification is intended to facilitate the comparison of results in various fields of oncology and should be useful to pathologists, laryngologists, radiotherapists and oncologists as well as epidemiologists. A histological classification of neoplasms is extremely important for establishing a reliable prognosis, and this classification forms the foundation for appropriate clinical management of patients with laryngeal tumours.

TABLES AND FIGURES

FIG 1: DISTRIBUTION OF THE PATIENTS BY RISK FACTORS OF LARYNGEAL CANCER: (N=50)

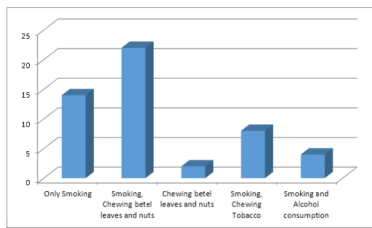


FIG 2: DISTRIBUTION OF THE PATIENTS BY CLINICAL SYMPTOMS (N=50)

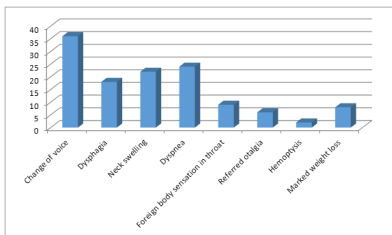


FIG 3: HISTOPATHOLOGICAL FINDINGS OF THE PATIENTS: (N=50)

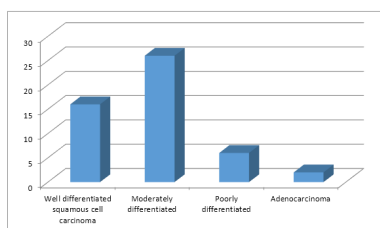


TABLE 1: DISTRIBUTION OF THE PATIENTS BY SUBSITE INVOLVEMENT IN DIRECT LARYNGOSCOPY: (N=50)

Area Involved	Number	Percentage
Epiglottis only	6	12
Epiglottis and extending to valleculae	12	24
Arytenoids and Aryepiglottic fold	24	48
Arytenoids and Aryepiglottic fold with vocal folds	8	16

TABLE 2: DISTRIBUTION OF THE PATIENTS BY LYMPH NODE METASTASIS: (N=50)

Nodal Involvement	Number	Percentage
NO	11	22

N1	8	16
N2	28	56
N3	3	6
Total	50	100

TABLE 3: STAGING OF CASES: (N=50)

Stage	Number	Percentage
Stage 1	4	8
Stage 2	7	14
Stage 3	8	16
Stage 4	31	62

FIGURES:

Fig 1: Proliferative growth in left false vocal folds and aryepiglottic fold in the indirect laryngoscopy

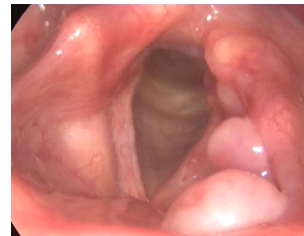
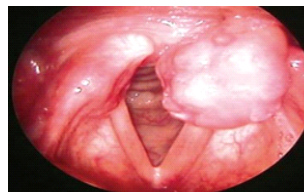


Fig 2 : Smooth growth involving left arytenoids and aryepiglottic fold along with true and false vocal folds.



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