

Clinicopathological Study of Hypopharyngeal Malignancies among Patients Attending a Tertiary Care Centre.

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Abstract

Hypopharyngeal malignancies are rare but carry the worst prognosis among head and neck malignancies. Patients generally present in advance stages. The Indian subcontinent has the highest rate of hypopharyngeal malignancies worldwide. The aim is to study etiopathological factors, presentation, progression and the distribution of these tumors in relation to age, sex, and site of occurrence, describe the epidemiology, workup, and staging of disease. It is a prospective study carried out from September 2017 to August 2019. This study included all cases of hypopharyngeal malignancy seen in the above duration. Most of the patients presented between 5th to 7th-decade. Males were more commonly affected. Smoking was the most common addiction observed. Most common presentation was dysphagia. All cases in the present study had biopsy-proven squamous cell carcinoma, early diagnosis and initiation of treatment help in improved survival rates and functional outcomes of patients.

Keywords: hypopharynx, malignancy, prognosis, squamous cell carcinoma, pyriform fossa

Date of Submission: 06-11-2022

Date of Acceptance: 20-11-2022

I. Introduction

Hypopharyngeal malignancies are relatively rare entities and account for less than 10% of all squamous cell carcinoma of the upper aerodigestive tract. They account for less than 0.5% of all cancers and 3–5% of head and neck cancers.⁽¹⁾

Hypopharynx includes three subsites –posterior pharyngeal wall, pyriform fossa, or sinuses, and post cricoid space. Hypopharyngeal malignancies generally tend to present late in advanced stages due to the site of the tumor and do not produce sufficient symptoms for the patient to seek early medical advice. These also tend to carry the worst prognosis of all head and neck cancers. This is attributed to the fact that the disease has submucosal spread that can be extensive, involves regional lymph nodes, and has a tendency of early distant metastasis. Post cricoid carcinoma is associated with previous irradiation and 10% of patients with a history of Plummer-Vinson, Kelly Patterson Brown syndrome. The peak incidence of hypopharyngeal malignancy is 6th to 7th decade^[7]. Alcohol and smoking both acting synergistically is the strongest risk factor. HPV related cancers are seen in 10.9% of hypopharyngeal malignancies, with subsite being pyriform fossa with the highest association.⁽²⁾ Most of the malignancies histologically are squamous cell carcinoma. These are biologically more aggressive due to its rich vascularity and a lack of barriers to the spread of the tumor. Proper management of patients includes detailed history taking, general examination of the patient, and a thorough laryngeal and neck examination. Barium swallow is an effective screening tool for hypopharyngeal malignancies and synchronous cancers in the esophagus. CT imaging has a higher sensitivity for defining the T stage of the tumor^[3]. A chest x-ray should be performed as a part of screening for distant metastasis. In borderline-resectable disease, positron emission tomography (PET) along with CT scan (FDG-PET/ CE-CT) as a single-staging investigation may be considered for evaluation of the primary disease status and excluding any distant occult disease^[4]. Treatment depends upon the stage of cancer. Early cancers are potentially curable, and goals of treatment should be maximizing chances of cure with function preservation. The main issue in treating patients with advanced stages, as they have many comorbidities, is preserving the laryngeal form and function. Hypopharynx is rich in lymphatics with a high incidence of metastasis to the jugular paratracheal and retropharyngeal group of lymph

nodes and occult metastasis can be seen in 30% to 40% of N0 necks. Hence treatment of neck nodes is mandatory in all hypopharyngeal cancers.

AIMS AND OBJECTIVES

1. To study the etiological factors of hypopharyngeal malignancy.
2. To identify the presentation, progression, and prognostic factors of disease.
3. To study the distribution of these tumors in relation to age, sex, and site of occurrence.
4. To describe the epidemiology, workup, and staging of disease.

PATIENTS AND METHODS

This is a prospective observational study conducted in patients who presented to the tertiary care hospital, from September 2021 to August 2022. A total of 20 cases were taken.

Inclusion criteria

- a) All patients presenting with neoplastic growth in the Hypopharynx.
- b) Patients who give consent for the study.

Exclusion criteria

- a) Patients who do not give consent for the study.
- b) Growth if found to be non-neoplastic.

II. Methodology:

Medical history was obtained including the onset of, severity, duration of symptoms, smoking and alcohol intake, dietary history, occupational history, and family history of cancer. Prior history of anemia, history of Plummer – Vinson syndrome was looked for inpatients also, in female patients, parity was included due to the risk of anemia with increased parity. Socioeconomic status was graded accordingly by the modified Kuppuswamy scale. Clinical examination included an examination of the oral cavity and oropharynx, indirect laryngoscopy, neck examination, and video laryngoscopy. In cases of cervical lymphadenopathy ultrasound neck, and FNAC of lymph node was done. X-ray neck lateral view is done as a part of the examination in all cases. CECT neck was done in all cases, and appropriate staging was given. A chest x-ray and ultrasound abdomen were done, as a part of screening for distant metastasis. CECT chest was done in cases of suspected distant metastasis. All patients underwent direct laryngoscopy, and biopsy was taken from growth and sent for histopathology. All patients were referred to the oncology center for further management.

III. Observations And Results

AGE AND SEX:

Table no. 1 AGE and SEX INCIDENCE

AGE	No of females	No of males	N0 OF PATIENTS	% OF TOTAL PATIENTS
21-30	0	0	0	0
31-40	1	1	2	10
41-50	2	1	3	15
51-60	1	6	7	35
61-70	1	7	8	40
TOTAL	5	15	20	100

In the present study, age incidence ranged from 35-70 years. 40% of the patients presented in the 6th to 7th decade. The mean age of presentation was 55.4 years. In this series of 30 patients, 15 [75%] were males, 5 [25%] are females. Males: females ratio is 3:1.

MODE OF PRESENTATION

TABLE 2: - SYMPTOMS AND DURATION

SYMPTOMS	No. of patients	Duration of symptoms[mean] in months	% of the total patients
Dysphagia	15	3.6	75%
Globus sensation	6	4.1	30%
Neck mass	12	2	60%
Throat pain	9	3.5	45%
Odynophagia	8	3	40%
Hoarseness of voice	5	1	25%
Weight loss	11	4.3	55

Referred otalgia	3	2	15%
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In the present study, 75% of the patients presented to ENT OPD, with chief complaints of dysphagia, followed by cervical lymphadenopathy seen in 60% of patients.30% of patients presented with a globus sensation. Themost involved nodes were level II.

RISK FACTORS

SMOKING AND ALCOHOL

TABLE 3: - SMOKING AND ALCOHOL ADDICTION

ADDICTION	MALES	FEMALES	TOTAL NO OF PATIENTS	% OF TOTAL PATIENTS
SMOKING	14	0	14	70
ALCOHOL	12	0	12	60
SMOKING & ALCOHOL	12	0	12	60
SMOKELESS TOBACCO USE	4	4	8	40

In this series of 20 patients, 17 were smokers from which all were males. The mean duration of the smoking habit in males is 26.2 years. Most of the patients had smoked hand-rolled [bidi] tobacco[43.3%] followed by filtered cigarettes [13.3%].Most of the patients had 21-30 pack-years. 8 patients had a habit of smokeless tobacco use.Out of 20 patients, 12 patients are alcoholics who were all males. The mean duration of habit was 25.3 years. All the patients who were alcoholics also smoked.Most of the patients had a habit of traditionalalcohol.9 patients were binge drinkers, 2 were moderate and 1 patient had heavy alcohol use.

OCCUPATION AND NUTRITION

In the present study, most of the patients were farmers, followed by daily laborers. 76.6% of patients, belonged to the lower middle class.16.6% of patients from upper middle class and 6.6% patients are from upper class. Females had a low intake of fruits, pulses, green leafy vegetables, and carotenoids, and meat when compared to males.

ULTRASOUND NECK, FINE NEEDLE ASPIRATION CYTOLOGY OF LYMPH NODES AND SUBSITE INVOLVED

In the present study, 60% of patients had cervical lymphadenopathy. The most involved lymph node was level-II.FNAC of all patients showed metastatic squamous cell carcinoma.most commonly involved site is pyriform fossa [66.6%],post cricoid area[23.3%],posterior pharyngeal wall[10%].

STAGING

All the patients were thoroughly evaluated, and staging was done by the eighth edition of the UICC and American Joint Committee on Cancer (AJCC) Staging Manual, Head and neck Section.

Primary tumor[T]

TABLE 4: - DISTRIBUTION OF T-STAGING

T -stage	Number of patients	% OF TOTAL PATIENTS
T1	2	10%
T2	6	30%
T3	10	50%
T4a	1	5%
T4b	1	5%
Total	20	100%

In the present study, 50% of patients presented in the T3 stage, followed by 30% of patients in the T2 stage

Regional lymph nodes[N]

TABLE 5: - DISTRIBUTION OF N- STAGING

N-STAGE	Number of patients	% OF TOTAL PATIENTS
N0	8	40%
N1	2	10%
N2a	2	10%
N2b	5	25%
N2c	2	10%
N3a	1	5%
N3b	0	0
Total	20	100%

In the present study, 60% patients had nodal metastasis.25% of patients had N2b stage. N3a was seen in 1 [5%] patient.

Distant metastasis [M]

In present study, 1[5%] patient had distant metastasis to lung.

STAGE GROUPING

TABLE 6: - STAGE GROUPING

Stage	Number of patients	% OF TOTAL PATIENTS
I	2	10%
II	3	15%
III	5	25%
Iva	9	45%
IVb	1	5%
IVc	0	0%

In the present study, most patients have presented in advanced stages stage III and IVa.

Histological grading:

TABLE 7: - HISTOLOGICAL GRADING OF SCC

Type	No of patients	% OF TOTAL PATIENTS
Well differentiated [grade 1]	2	10%
Moderately differentiated [grade 2]	7	35%
Poorly differentiated [grade 3]	11	55%
Undifferentiated [grade 4]	0	0

All patients were biopsy-proven squamous cell carcinoma. Nearly half of the patients, in the present study, were poorly differentiated squamous cell carcinoma. 10% of patients had well-differentiated grading

IV. Discussion

Age

In this study, 15 [75%] patients were in the age group of 50-70 years. The mean age of presentation was 55.4 years, which is similar to previous studies, MD. Nazmul Islam et al., 2015⁽⁵⁾ where mean age was 54.25, Gupta et al.,2009⁽⁶⁾ it was 55 and Wahid et al.,2012⁽⁷⁾ it was 57.26.

Sex distribution

In the present study, the male preponderance is seen. M: F ratio is 3:1,comparable to studies of Johansen LV et al., 2000⁽⁸⁾, M:F ratio was 2.6:1.ChristianGodballe et al., 2002⁽⁹⁾,M: F ratio 2.7: 1.andTsikoudas. A. et al.,2007⁽¹⁰⁾ M:F ratio was 2.8:1.

Mode of presentation

In present study, 75% of patients had dysphagia, which is comparable to the study by Johansen LV et al., 2000⁽⁸⁾ andWahid et al.,2012⁽⁷⁾. Neck mass was seen in 60% of patients, where the same symptom was seen in 30% of patients in the study by Johansen LV et al., 2000⁽⁸⁾ and 21.7% of patients by Tsikoudas. A. et al.,2007⁽¹⁰⁾. 30% of patients had a globus sensation comparable to studies by Tsikoudas. A. et al.,2007⁽¹⁰⁾.

RISK FACTORS

Smoking and alcohol

VendhanGajalakshmi et al., 2007⁽¹²⁾, Jayalakshmi et al.,2013⁽¹³⁾,studies support that tobacco chewing, smoking are risk factors for this disease.Mark P. Purdue et al.,2009⁽¹⁴⁾ andFederica Turati et al.,2010⁽¹⁵⁾ studies argue in

favor of ethanol and its metabolites as the principal carcinogenic agents and the dose–risk relation between alcohol consumption and hypopharyngeal cancer.

OCCUPATION AND SOCIOECONOMIC STATUS

In the present study, 76.6% of patients are from lower-middle socioeconomic class. The majority of patients are from rural areas. Farming is the most common occupation involved. These were consistent with Sanjeev Bhagat et al 2003⁽¹⁶⁾, Manilal Aich et al., 2009⁽¹¹⁾ and Akhil Kukreja et al., 2013⁽¹⁷⁾, where rural population and lower socioeconomic status were most commonly involved.

NUTRITION

In the present study, females were more malnourished than males, very low intake of fruit /juice, milk/dairy products, uncooked vegetables, dietary fiber-containing food is seen among the patients. Uzcudun et al., 2002⁽¹⁸⁾ Ersilia et al. 2009⁽¹⁹⁾, and Bravi et al. 2012⁽²⁰⁾ concluded that a diet rich in fruit and vegetables and poor in meat and products of animal origin has a favorable role against pharyngeal cancer.

SUBSITE OF INVOLVEMENT

In the present study, the most commonly involved site is pyriform fossa, which is comparable to Sheng-Chieh Chan et al⁽²¹⁾, and Park YM et al., 2012⁽²²⁾, where Pyriform fossa was the most commonly affected site in 93.4% and 78% patients respectively.

STAGE OF PRESENTATION

T1 Stage

In the present study, T1 stage is seen 10% of patients T2 in 30%, T3 in 50%, and T4 in 10%. 10% of patients presented in the T1 stage, which is comparable to studies with Christian Godballe et al., 2002⁽⁹⁾ [15%], and Eun-Jae Chung et al., 2013⁽²³⁾ [17.2%]. 30% patients, in this study, have presented in T2 stage, which is comparable to studies by Christian Godballe et al., 2002⁽⁹⁾, Park YM et al., 2011⁽²²⁾ and S. Bahadur.S et al., 2002⁽²⁴⁾ where patients presented in T2 stage are 23.6%, 34.7%, and 25% respectively. In the present study, 50% of patients presented in T3 stage. This is comparable with studies of Young-Hoon Joo et al., 2009⁽²⁵⁾, where 39% patients, S. Bahadur.S et al., 2002⁽²⁴⁾ where 47% patients, Hirano et al., 2010⁽²⁶⁾ where 33.3% patients presented in T3 stage. 10% of patients have presented in T4, which is comparable to studies by Eun-Jae Chung et al., 2013⁽²³⁾ [10.3%]

N- STAGE

In the present study, 40% of patients did not have regional lymph node metastasis and are categorized under N0. This is comparable to studies by Bahadur.S et al., 2002⁽²⁴⁾ and Marc Makeieff et al., 2004⁽²⁷⁾, 10% of patients presented in the N1 stage, which is comparable to studies by ta et al., 2010⁽²⁶⁾ [11%] and Eun-Jae Chung et al., 2013⁽²³⁾ [13%]. N2a stage was seen in 10% of patients, and the N2b stage was seen in 25% of patients, comparable to studies by Young-Hoon Joo et al., 2009⁽²⁵⁾. N2c stage was seen in 10% of patients, comparable with findings by Eun-Jae Chung et al., 2013⁽²³⁾, where 13% of patients had the same. N3 stage was seen in 5% of patients, consistent with findings in the study by Marc Makeieff et al., 2004⁽²⁷⁾, Eun-Jae Chung et al., 2013⁽²³⁾ and Young-Hoon Joo et al., 2009⁽²⁵⁾.

M STAGE

In the present study, 1[5%] patient had distant metastasis to the lungs. In studies by Spector J Get al., 2001⁽²⁸⁾ and Hirano et al., 2010⁽²⁶⁾, it was 16.8% and 1.4%, respectively.

Overall stage

In the present study, the majority of patients have presented in advanced stages. 10% of patients presented in stage I, which is comparable to the study by Chiu Ming Ho et al., 1993⁽²⁹⁾. 15% of patients presented in stage II, which is comparable to studies by Chiu Ming Ho et al., 1993⁽²⁹⁾ and Gupta et al., 2009⁽⁶⁾. In a study by Tanaka. Set al. 2017⁽³⁰⁾ 56% patients presented in stage II and 27.2% presented in stage I. In the present study, 25% of patients present in stage III and 50% of patients presented in stage IV, which is comparable to studies by Christian Godballe et al., 2002⁽⁹⁾.

Histology

All patients underwent direct laryngoscopy, and biopsy and histopathology were squamous cell carcinoma. Wahid et al 2012⁽⁷⁾ in their study concluded that SCC was the commonest (97.33%) tumor in their patients.

Histological grading

In the present study, 53% of patients had poorly differentiated, 36.6% had moderately differentiated squamous cell carcinoma. This is comparable to studies by Johansen L Vet al., 2000⁽⁸⁾ and Robert J. Carpenter et al., 1976⁽³¹⁾.

V. Conclusion

- Hypopharyngeal malignancies are more common in the 5th -7th decades and men. Dysphagia is the commonest symptom, and the most common signs on clinical examination are growth in subsites of the Hypopharynx and the pooling of saliva in the pyriform fossa. Nodal metastasis is seen in 60% patients. Smoking and chronic alcohol consumption are the most likely risk factors. Majority are from the lower middle socioeconomic class and rural areas and farming is the most common occupation involved. The most commonly

involved site is pyriform fossa. Most patients presented in advanced stages, i.e., stage III and IV. Histopathology in most of the patients was poorly differentiated squamous cell carcinoma.

DECLARATION

FUNDING: not applicable

CONFLICTS OF INTERESTS: All authors declare they have no conflict of interest.

ETHICS APPROVAL: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/ or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with the animals performed by any of the authors.

CONSENT TO PARTICIPATE: Informed consent was obtained from all the individual participants included in study

CONSENT FOR PUBLICATION: Informed consent was obtained from all the individual participants included in study

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