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Original Research Article

Demographic, radiological and pathological profile of head and neck cancers

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ABSTRACT

Background: Objective of the current study was to assess incidence of various head and neck cancers, their demographic, radiological, pathological characteristics and patterns of regional lymph node metastasis.
Methods: This is a retrospective analysis of data available from medical records department in our institution from the period of January 2017 to November 2020. Patients as per inclusion and exclusion criteria, were selected, the disease was staged and analyzed.
Results: Males were more commonly affected (78%). Among the upper aerodigestive tract cancers, lip and oral cavity cancers were most common (26%). Most common stage at presentation was stage IV A. Cervical lymph node metastasis was present in 69% of cases. Most common upper aerodigestive tract cancer was squamous cell carcinoma. Most common thyroid malignancy was papillary carcinoma.
Conclusions: Head and neck cancers have high morbidity and mortality owing to advanced stage of presentation and cervical lymph node metastasis affects the outcome of the disease adversely. Every case of head and neck malignancy, hence, need to be evaluated thoroughly and staged appropriately before taking treatment decisions.

Keywords: Head and neck cancers, Lymph node metastasis, Radiological and pathological profile

INTRODUCTION

Head and neck cancers constitute 30-40% of all cancer sites in India.[1,2] These include cancers of oral cavity, oropharynx, larynx, hypopharynx and upper oesophagus, thyroid gland, salivary glands, nasal, nasopharyngeal and paranasal sinus malignancies. According to GLOBOCAN 2018 data, more than 4 lakh deaths occur per year due to head and neck cancers.

Head and neck cancers have been studied exclusively for many decades now. The emerging data shows that the incidence is increasing, owing to a person's lifestyle habits of chewing or smoking tobacco, consumption of alcohol, exposure to radiation, environmental pollutants, poor oral and dental hygiene, HPV and EBV infections being the common risk factors. Most of the head and neck cancers are squamous cell carcinomas, constituting upwards of 90% of all the cases of head and neck cancers.[3] Squamous cell carcinomas have been found to metastasize to regional lymph nodes and to distal sites through lymphatic systems more often than hematogenously. Head and neck cancers have been staged essentially through AJCC staging system in terms of 3 different parameters; tumour stage, regional nodal stage, and distant metastasis.

The presence of lymph node metastasis indicates a permissive host response that can allow for metastasis to local and distant sites. The degree of lymph node

metastasis can be taken as an indicator of systemic tumour burden. The presence of lymph node metastasis also upstages the disease to at least stage III, in aerodigestive tract tumours, which confers the the requirement of multimodality treatment. It might require extensive surgeries, which increase post-operative morbidity to the patient and also reduces patient's overall survival. Depending on the site of the primary tumour, the lymphatic spread has been known to follow specific patterns, spreading first into regional lymph nodes of neck, and spread to distant sites late in the course.

Objectives

Objectives of current study were; to describe the demographic profile with head and neck cancers, to describe the stage at presentation, pattern of cervical lymph node metastasis in head and neck cancers and to assess the histopathological characteristics of head and neck cancers

METHODS

Source of data

Previous medical records from January 2017 to November 2020, retrieved from the medical records department of a rural tertiary care centre in southern Karnataka.

Inclusion criteria

Inclusion criteria for current study were; all the patients, who have been suspected to have a head and neck cancer and have undergone imaging (contrast enhanced CT scan of neck or MRI of neck) and cytological/ histo-pathological confirmation of presence of head and neck cancer and cervical lymph node metastasis.

Exclusion criteria

Exclusion criteria for current study were; patients who have not been evaluated completely, missing imaging or cytological/histopathological investigations.

Procedure

Current study was a retrospective study done between December 2020 and February 2021. Details of all the cases of head and neck cancers diagnosed between January 2017 and November 2020 were retrieved from the medical records department of the institution. A total of 88 cases fulfilled the inclusion and exclusion criteria, and these 88 cases were included in our study and were taken as the study sample. The cases were staged using TNM staging system as per AJCC guidelines revised in 2017. The case details were tabulated and analyzed using percentages.

RESULTS

A total of 88 cases were found to satisfy the inclusion and exclusion criteria and were included in the study. 78% of the patients (69/88) were males and 22% of the patients were females (19/88) and the mean age of the patients was 56.5 years. Lip and oral cavity was the most common site (23/88), followed by oropharynx (20/88), hypopharynx (16/88), suproglottis (7/88) and glottis (7/88) were next most common sites. Thyroid cancers were next most common (5/88) followed by metastasis from an unknown primary cancer (5/88). Other sites were relatively less common (salivary glands 3/88, nose and PNS 1/88, temporal bone 1/88).

Table 1: Number of cases by site.

Site	N
Oral cavity	23
Oropharynx	20
Hypopharynx	16
Supraglottis	7
Glottis	7
Thyroid	5
Metastasis from unknown primary	5
Salivary glands	3
Nose and PNS	1
Temporal bone	1

Table 2: Number of cases by stage at presentation; oral cavity and pharynx.

Parameters	Frequency
Oral cavity and lip (N=23)	
Stage I	1
Stage II	4
Stage III	5
Stage IV A	9
Stage IV B	5
Oropharynx (N=20)	
Stage II	5
Stage III	3
Stage IV A	10
Hypopharynx (N=16)	
Stage III	3
Stage IV A	11
Stage IV B	2

Table 3: Number of cases by stage at presentation; larynx.

Parameters	Frequency
Supraglottis (N=7)	
Stage III	1
Stage IV A	6
Glottis (N=7)	
Stage I	6
Stage II	1

Table 4: Number of cases by stage at presentation; thyroid.

Parameters	Frequency
Thyroid (N=5)	
Stage I	1
Stage II	3
Stage IV A	1

Table 5: Number of cases by stage at presentation; unknown primary cancers.

Parameters	Frequency
Metastasis from UPC (N=5)	
Stage III	1
Stage IV A	2
Stage IV B	2

Table 6: Number of cases by stage at presentation; others.

Parameters	Frequency
Salivary gland (N=3)	
Stage II	1
Stage IV B	2
Nose and PNS (N=1)	
Stage IV B	1
Temporal bone (N=1)	
Stage IV- Pittsburgh	1

Table 7: Lymph node groups involved; oral cavity and pharynx.

Parameters	N
Oral cavity and lip	
Ia	4
Ib	11
II	9
III	5
IV	1
V	2
No metastasis	6
Bilateral metastasis	4
Oropharynx	
Ia	1
Ib	9
II	12
III	5
No metastasis	5
Bilateral metastasis	5
Hypopharynx	
Ib	3
II	10
III	6
IV	2
V	1
No metastasis	2
Bilateral metastasis	3

Tumour status

Stage at presentation varied based on site of cancer. In oral cavity and lip, oropharynx, and hypopharynx and supraglottis, most common stage of presentation was Stage IV A. The glottic cancers presented earlier, all glottic cancers presenting at stage I and stage II. Thyroid cancers presented mostly at stage II, while cases of UPC presented at stage IV B most commonly owing to one or more fixed lymph nodes.

Table 8: Lymph node groups involved; larynx.

Parameters	N
Supraglottic larynx	
Ib	1
II	5
III	4
IV	1
Bilateral metastasis	1
Glottic larynx	0

Table 9: Lymph node groups involved; metastasis from unknown primary cancers.

Parameters	N
Metastasis from UPC	
II	3
III	3

Cervical lymph node status

Cervical lymph node metastasis was present in 61/88 cases (69%). Out of these, 13/61 cases (21.3%) had bilateral lymph node metastasis. Most common groups of lymph nodes involved varied as per site, oral cavity and oropharyngeal cancers having involvement of level Ib, II, III most commonly, and supraglottic and hypopharyngeal cancers having involvement of levels II, III most commonly. Glottic cancers did not show lymph node metastasis. Thyroid cancers showed metastasis mainly at level VI nodes. Cases of temporal bone and PNS cancers did not show any lymph node metastasis in current study.

Table 10: Lymph node groups involved; thyroid malignancies.

Parameters	N
Lymph node groups involved	
II, III	1
VI	2
No metastasis	2

Histological status

Histopathological analysis of the cytological/ histopathological specimens from the study patients yielded the following results. The most common upper

aerodigestive tract malignancy was squamous cell carcinoma with varying degrees of differentiation, comprising 89% of all the cases included in our study. The most common histology of thyroid cancers in our study was papillary thyroid carcinoma comprising 6% of all the cases. Salivary gland tumours were mainly mucoepidermoid carcinomas in our study comprising 3% of study population. A small fraction of cases who presented as cases of metastasis from unknown primary cancer were reported as Hodgkin's lymphoma which made up 2% of our study population.

DISCUSSION

Cervical lymph nodes have been classified by Shah JP et al into several levels.[4] Cancers of different sites of head and neck are known to spread in particular patterns. Cadoni et al retrospectively analysed the lifestyle factors and parameters like overall survival (OS), recurrence, presence of second primary cancers in 482 individuals of aerodigestive tract cancers.[5] The cohort consisted of patients of oral cavity, oropharynx, larynx and hypopharyngeal cancers. They also reported a high predominance in male patients (79%). Five-year overall survival for all stages combined for oral cavity was 49%, oropharynx 54%, hypopharynx 50% and larynx 63%.

Presence of cervical lymph node metastasis has been known to reduce long term survival by upto 50%.[6] according to Sanderson et al in their review. It also affects the quality of life of the patient significantly by altering functions, in terms of swallowing, breathing, speech and phonation.

Saxena et al analyse the long term survival outcomes in head and neck cancers.[7] They report a median survival time of 40 months in stage I head and neck cancer patients, which reduces with the progression of the disease. They also report that majority of cases presented in stage IV A, as opposed to stage III that has been reported in the previous literature.[8]

Shah et al report the patterns of spread of head and neck cancers, to different cervical lymph node groups.[9] According to them, lymph node groups of I, II, III are at highest risk of metastasis from cancers of oral cavity and level II, III, IV being mostly involved by cancers of oropharynx, supraglottis and hypopharynx. Glottic malignancies have been reported to have least incidence of lymph node metastasis owing to sparse lymphatic drainage.

In our study, the patterns of presentation have followed a similar trend, stage IV A being the most common stage of presentation. The patterns of lymphatic spread also follow the patterns that have been described in previous literature, except significant number of cases of oropharyngeal cancers showing involvement of level Ib lymph nodes. The limitations of our study are the limited dataset and a limited sample size. Hence current study, may be used in conjunction with other studies in the future to arrive at more accurate conclusions.

CONCLUSION

Current study was a retrospective study done in order to ascertain the patterns of tumour and nodal presentations in head and neck cancers. In current study, upper aerodigestive tract cancers were frequently encountered, squamous cell carcinomas being the most common histological type. These malignancies are known to metastasize to regional lymph nodes which affect the prognosis adversely. Present study presents a brief profile of presentation of head and neck cancers, and their patterns of lymphatic spread. However due to the limited data set, this study may be used with other similar studies for more accurate conclusions.

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REFERENCES

1. Bhattacharjee A, Chakraborty A, Purkaystha P. Prevalence of head and neck cancers in the north east-An institutional study. Indian J Otolaryngol Head Neck Surg. 2006;58:15-9
2. Sharma JD, Baishya N, Kataki AC, Kalita CR, Das AK, Rahman T. Head and neck squamous cell carcinoma in young adults: A hospital-based study. Indian J Med Paediatr Oncol. 2019;40:18-22.
3. Prabhash K, Babu G, Chaturvedi P, Kuriakose M, Birur P, Anand AK, et al. Indian clinical practice consensus guidelines for the management of squamous cell carcinoma of head and neck. Indian J Cancer. 2020;57(5):1.
4. Shah JP, Strong E, Spiro RH, Vikram B. Surgical grand rounds. Neck dissection: current status and future possibilities. Clin Bull. 1981;11(1):25-33.
5. Cadoni G, Giraldi L, Petrelli L, Pandolfini M, Giuliani M, Paludetti G, et al. Prognostic factors in head and neck cancer: a 10-year retrospective analysis in a single-institution in Italy. Acta Otorhinolaryngologica Italica. 2017;37(6):458.
6. Sanderson RJ, Ironside JA. Squamous cell carcinomas of the head and neck. BMJ Clin Res. 2018;325(7368):822-7.
7. Saxena PU, Unnikrishnan B, Rathi P, Kotian H, Reshmi B. Survival analysis of head and neck cancer: Results from a hospital based cancer registry

in southern Karnataka. Clin Epidemiol Global Health. 2019;7(3):346-50.
8. Brenner H. Long-term survival rates of cancer patients achieved by the end of the 20th century: a period analysis. Lancet. 2002;360(9340):1131-5.
9. Shah JP. Patterns of cervical lymph node metastasis from squamous carcinomas of the upper aerodigestive tract. Am J Surg. 1990;160(4):405-9.

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