

A Hospital-Based Study on Burden of Head and Neck Cancer Surgery in Upper Assam Region

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ABSTRACT

BACKGROUND

Cancer is expected to rank as the leading cause of death and the single most important barrier to increasing life expectancy in every country of the world in the 21st century.¹ Head and neck squamous cell carcinoma is the most commonly diagnosed cancer worldwide. Our aim in this study is to find out the incidence of head and neck cancer cases in Otorhinolaryngology Department of our tertiary care centre in Assam.

METHODS

This is a retrospective study conducted among 45 cases over a period of one year. All patients who were operated in the Department of Otorhinolaryngology of our tertiary care centre over a period of one year from January 1st 2019 to 31st December 2019.

RESULTS

36 were males and 9 were females. Male to female ratio was 4:1. Age ranged from 17 yrs. to 70 yrs., with a mean of 58 yrs. Maximum number of patients was in the age group 51 to 60 years (26%). Oral cavity cancer included a total of 11 cases, out of which 7 were males 4 were females. Age group of cases was distributed evenly from 30 yrs. to 60 yrs. Pre-operative diagnosis of oral cavity cancer included 5 cases of lower gingiva-buccal sulcus (GBS) squamous cell carcinoma, 3 cases of upper GBS squamous cell carcinoma, and 1 case of retromolar trigone squamous cell carcinoma.

CONCLUSIONS

Population-based screening, early diagnosis based on awareness of early symptoms and signs and properly linked cancer registry system is needed to decrease the burden of head and neck cancer on government and medical personnel.

KEYWORDS

Hypo Pharyngeal Carcinoma, Thyroid Carcinoma, Laryngeal Carcinoma, Oral Cavity Carcinoma

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BACKGROUND

Cancer is expected to be the leading cause of death and the single most important barrier to increasing life expectancy in every country of the world in the 21st century.¹ Head and neck squamous cell carcinoma is the most commonly diagnosed cancer worldwide. Over 200,000 cases of Head and Neck Cancer (HNC) occur each year in India. Nearly 80,000 oral cancers are diagnosed every year in our country.²

As India is emerging as one of the major developing economy in world there is a huge shift in lifestyle of Indians irrespective of their socioeconomic status. Increased consumption of tobacco, alcohol, smoking, sedentary lifestyle, unhealthy diet and increased stress are some of the contributing factors in hiked number of cancers in our country.

India is a vast country with varied cultures, customs, habits, socioeconomic status, lifestyle, environment and geographical areas so the data accumulated from different regional registries holds equal importance. Unfortunately, there exists a large discrepancy between the registered cancer cases and the actual burden in the society. This can be due to lack of linkage between small private hospitals all over India, lack of awareness in rural population, poverty, noncompliance of patient and lack of coverage by population-based cancer registries.³

If HNC is diagnosed early (especially laryngeal and oral cavity cancer), a higher cure rate can be achieved when concomitant radiotherapy, chemotherapy and surgical intervention are done. However, cure rate decreases in locally advance cases whose probability of cure is inversely proportional to tumour size and even more so to the extent of regional lymph node status.

The survival advantage provided by new treatment modalities have been undermined by the significant percentage of people cured of head and neck squamous cell carcinoma (HNSCC) who subsequently develop secondary primary tumour. These recurrent tumours are major threat to long term survival after successful therapy of early stage HNSCC. Therefore, it is very important to plan out a proper surgical approach to clear out all the cancer cells and to achieve a better cure rate. The treatment protocol should be tailored for each patient by a multispeciality team consisting of ENT surgeon, pathologist, radiologist, medical oncologist, radiotherapist and rehabilitation experts.

Population of about 7.56 million is covered by our tertiary medical referral centre for upper Assam and areas in neighbouring states, including Arunachal Pradesh. We carried out a retrospective study to find out incidence of Head and neck cancer cases operated in Otorhinolaryngology Department of our Tertiary care centre in a period of 1 year from January 1 2019 to 31 December 2019. In this study we have discussed the incidence, demographic data, diagnosis and the management of different head and neck cancer.

METHODS

This is a retrospective study on total 45 cases in a period of one year. All the patients who were operated in the Otorhinolaryngology department of our Tertiary care centre in a period of one year from January 1 2019 to 31 December 2019 for head and neck cancer were included in the study. The inclusion criteria of our study were a) all cases of biopsy proven head and neck malignancy, b) patients who gave consent for participation in study and, c) patients who were surgically fit. The exclusion criteria were a) patients who were not willing for long follow up, b) patients unfit for surgery, c) T4b tumours with vascular invasion, d) prevertebral space invasion, e) skull base infiltration, f) invasion of mediastinal structures, g) distant metastasis and, h) Recurrence of malignancy. Grouping of all the cases were done on the basis of the primary cancer subsite such as sinonasal, nasopharynx, oral cavity, larynx, salivary and thyroid. Basic demographic, histopathological report, treatment given were noted.

Ethical Clearance

Before commencing the study, necessary permission and approval from ethics committee was obtained from the Institutional Ethics Committee (Human), Assam Medical College and Hospital. Informed written consents were obtained from each patient involved in the study according to the protocol approved by the Ethics Committee and after explaining them the operative procedure in their own understandable language.

RESULTS

A total of 45 cases were included in study in period of one year from 1 January 2019 to 31 December 2019 out of which 36 were males and 9 females. Male-female ratio was 4:1 (as shown in Table 1). Age ranged from 17 to 70 yrs with mean age of 58 yrs. Maximum number of patients were in age group 51 to 60 years (26%) (as shown in Table 2). Out of total 45 cases 40% cases were from Dibrugarh, 13% from Sivsagar, 11% from Golaghat, 8% from Dhemaji, Tinsukia and Lakhimpur, 4% from Charaideo and 2% from Namsai and Biswanath (as shown in Table 3). Out of 45 cases 40 were Hindu and 8 Muslim (5 cases had gingivobuccal sulcus squamous cell carcinoma and 3 cases had AEF and PFS squamous cell carcinoma). 88.8% cases gave history of tobacco chewing and 66.6% cases gave history of smoking and 61 % cases gave history of Chronic alcohol consumption. Oral cavity cancer included a total of 11 cases out of which 7 were males 4 females. Age group of cases were distributed evenly from 30 to 60 yrs.

Pre-operative diagnosis of oral cavity cancer were 5 cases of lower GBS squamous cell carcinoma, 3 cases of upper GBS squamous cell carcinoma, 1 case of retromolar trigone squamous cell carcinoma, 1 case of left buccal mucosa verrucous carcinoma and 1 case of left angle of mouth verrucous carcinoma.

Cancer Site	No. of New Cases	No. of Males	No. of Females
Oral Cavity (Buccal Mucosa/Rmt/Hard Palate/GBS)	11	7	4
Larynx (AEF & PFS)	7	7	0
Nasopharynx	11	9	2
Sinonasal Mass	2	2	0
Salivary Glands	5	5	0
Thyroid	9	6	3

Table 1. Gender Wise Distribution of the Study Group

Cancer Site	11-20 Yrs.	21-30 Yrs.	31-40 Yrs.	41-50 Yrs.	51-60 Yrs.	61-70 Yrs.	Total Cases
Oral Cavity (Buccal Mucosa/RMT/Hard Palate, GBS)				6	2	3	11
Larynx (AEF & PFS)			2	1	2	2	7
Nasopharynx	1	4			4	2	
Sinonasal Mass	1			1			2
Salivary glands			2	1	1	1	5
Thyroid		3	1	1	3	1	9

Table 2. Age Wise Distribution of the Study Group

Address	Oral Cavity	Larynx	Naso-pharynx	Sino Nasal Cancer	Salivary Glands	Thyroid
Dibrugarh	6	1	5	2	1	3
Sivsagar	2	1	2		1	
Dhemaji			1			2
Tinsukia			2			2
Lakhimpur	1	3				
Golaghat	2		1		1	1
Namsai					1	
Charaideo		1			1	
Biswanath		1				

Table 3. Region Wise Distribution of Study Group

Oral Cavity (Buccal Mucosa/RMT/Hard Palate/GBS)	Site	Histology	Procedure
1 Case	RT RMT	Squamous Cell Carcinoma	WLE WITH MRND TYPE -3
1 Case	LT BUCCAL Mucosa	Verrucous Carcinoma	WLE WITH MRND TYPE -3
1 Case	LT Angle of Mouth	Verrucous Carcinoma	WLE WITH MRND TYPE -3
2 Cases	RT Upper GBS	SCC	WLE with Infrastructure Maxillectomy with Sohnd
1 Case	LT Upper	SCC	WLE with Infrastructure Maxillectomy with Sohnd
2 Cases	RT Lower	SCC	WLE with Marginal Mandibulectomy with Sohnd
3 Cases	LT Lower	SCC	WLE with Segmental Mandibulectomy with Sohnd
NPC Cancer			
5 Cases	1 & 2	SCC	Radiotherapy
6 Cases	3 & 4	SCC	Chemotherapy & Radiotherapy

Table 4. Diagnosis and Procedure Performed in Oral Cavity and Nasopharyngeal Carcinoma

Thyroid Cancer	Site	Histology	Procedure
2 Cases	RT LOBE	Papillary CA	Total Thyroidectomy with Central and Lateral Neck Dissection
2 Cases	LT LOBE	Papillary CA	Total Thyroidectomy with Central and Lateral Neck Dissection
1 Case	RT LOBE	Invasive Follicular CA	Total Thyroidectomy with Central and Lateral Neck Dissection
2 Cases	RT LOBE	Medullary CA	Total Thyroidectomy with Central and Lateral Neck Dissection
2 Cases	LT LOBE	Undifferentiated CA	Palliative Chemoradiation

Table 5. Diagnosis and Procedure Performed in Thyroid Carcinoma

AEF and PFS SCC	Site	Histology	Procedure
1 Case	LT AEF & PFS	SCC	Total Laryngectomy with Type 1 MRND
3 Cases	RT AEF & PFS	SCC	Total Laryngectomy with Type 3 MRND
3 Cases	RT AEF & PFS	SCC	Elective Tracheostomy with Radiotherapy
No. Nasal Cancer			
1 Case	LT Sinonasal Mass	Invasive Papillary Adeno Carcinoma	WLE with Weber Ferguson Approach
1 Case	LT Nasal Cavity Maxillary Sinus	Adenoid Cystic Carcinoma	Subtotal Maxillectomy
Salivary Gland Cancer			
2 Cases	LT Parotid	1 Case SCC 1 Case Mucoepidermoid CA	WLE with Superficial Parotidectomy WLE with LT Hemimandibulectomy with MRND 1
2 Cases	RT Parotid	1 Case Mucoepidermoid CA 1 Case Acinic Cell CA	WLE with Superficial Parotidectomy WLE with Superficial Parotidectomy
1 Case	RT Submandibular	SCC	WLE with RT Segmental Mandibulectomy with MRND 3

Table 6. Diagnosis and Procedure Performed in Laryngeal, Sino-Nasal and Salivary Gland Carcinoma

Procedures performed are mentioned in Table 4. Out of total 11 cases of nasopharyngeal carcinoma 9 were male and 2 were female. Age group of cases had biomes distribution 3 case less than 30 years and 8 cases more than 60 yrs. HPE of all the cases was squamous cell carcinoma with 5 cases in stage 1 and 2 and 6 cases in stage 3 and 4 at the time of presentation to our department. Procedure performed is mentioned in Table 4. Out of 45 cases 9 had thyroid malignancy, 6 were males and 3 females. Preoperative diagnosis of patients were 4 cases had papillary carcinoma (age group 30 to 40 yrs.), 2 cases had medullary carcinoma (age group 50 to 70 yrs.), 1 had invasive follicular carcinoma (45 yrs.) and 1 had undifferentiated carcinoma (67 yrs.). Procedure performed is mentioned in Table 5. Out of 45 cases only 2 male patients had Sino nasal malignancy both were in age group 30 - 40 yrs. 1 case had invasive papillary Adenocarcinoma and 1 had adenoid cystic carcinoma. Procedure performed is mentioned in Table 6.

Out of 45 cases 5 male patients had salivary gland malignancy, equally distributed from age group 30 to 70 yrs. 2 had mucoepidermoid carcinoma of parotid gland, 1 had acidic cell carcinoma parotid gland, 1 had squats cell carcinoma of parotid gland and 1 had submandibular squamous cell carcinoma. Procedure performed is mentioned in Table 6. Total of 7 cases were of Aryepiglottic fold extending to pyriform sinus squamous cell carcinoma and all were male. Age group of all the cases were more than 50 yrs. 1 case was of left side and 6 of right side. Procedure performed is mentioned in Table 6.

DISCUSSION

In North America and Europe, the tumours usually arise from the oral cavity, oropharynx, or larynx, whereas nasopharyngeal cancer is more common in the Mediterranean countries and in the Far East. In Southeast China and Taiwan, head and neck cancer, specifically nasopharyngeal cancer, is the most-common cause of death

in young men.⁴ Ferlay et al in their study mentioned that South East Asia region (SEAR) contributes 32% (1.62 lakhs) of the incident HNC cases and 40% (1.13 lakhs) of the total mortality globally. Further, India is the home to around 3/4th of SEAR burden of HNCs, both in terms of incidence (1.45 lakhs) and the mortality (1.05 lakhs).⁵ Head and neck cancer is one of the leading causes of disease burden requiring surgery in department of Otorhinolaryngology throughout the world. Cancer patient and their family have to go through physical, mental and emotional as well as financial setback. Treatment of cancer is a costly affair also the surgical procedure for head and neck cancer leaves the patients with long-term morbidity.

We carried out a retrospective study to find out incidence of head and neck cancer cases operated in Otorhinolaryngology Department of our Tertiary care centre in a period of 1 year from January 1 2019 to 31 December 2019. George S Stoyanov et al in their study found that of all the registered HNC cases 76.41% (n = 473) were diagnosed in males and 23.59% (n = 146) in females, with male to female ratio of 3.24:1. The mean age of diagnosis was 63.84 ± 12.65 years, median 65 years, with the youngest patient diagnosed being 14 years old and the oldest 103 years of age at the time of diagnosis. In our study a total of 45 cases were included in study in period of one year from 1 January 2019 to 31 December 2019 out of which 36 were males and 9 females. Male: female ratio was 4:1.

Age group ranged from 17 to 70 yrs. with mean age of 58 yrs. Maximum number of patients were in age group 51 to 60 years (26%).⁶ In our study out of total 45 cases 40% cases were from Dibrugarh, 13% from Sivsagar, 11% from Golaghat, 8% from Dhemaji, Tinsukia and Lakhimpur, 4% from Charaideo and 2% from Namsai and Biswanth.

Marron M et al mentioned that quitting tobacco smoking for a short period of time (one to four years) results in a head and neck cancer risk reduction of about 30 per cent compared with current smoking, reduces the risk of laryngeal cancer by 60 per cent after 10–15 years and after 20 years can reduce the risk of developing oral cavity cancer to the level of a never smoker and the beneficial effects of quitting alcohol, on the risk of developing head and neck cancer, are only observed after more than 20 years, when the level of risk reaches that of non-drinkers.⁷ Potash AE et al in their study mentioned that alcohol is the other major independent risk factor for head and neck cancer. Patients who continue to drink heavily after treatment for head and neck cancer have a significantly worse quality of life and continued drinking has a negative impact on survival (hazard ratio 1.28).⁸ In our study 88.8% cases gave history of tobacco chewing and 66.6% cases gave history of smoking and 61 % cases gave history of chronic alcohol consumption. Out of 45 cases 40 were Hindu and 8 Muslim (5 cases had GBS squamous cell carcinoma and 3 cases had AEF and PFS squamous cell carcinoma). Rajjyoti Das et al in their study mentioned that the distributions of HNC by anatomical subsites in males are hypopharynx (36.2%) was the leading site followed by mouth (19.3%), tongue (16.5%), and tonsil (10.3%). Among females, mouth was the leading site (39.8%), followed by tongue (19%) and hypopharynx (17%).⁹

In our study 24.4% case were of oral cavity cancer and nasopharyngeal cancer, 15.5% laryngeal cancer, 20% thyroid cancer, 11.1% salivary gland cancer and 4.4% sinonasal cancer. Nouraei SA et al in their study included 10,589 major head and neck cancer operations performed in England between 2006 and 2011. There were 7312 males, and mean age at surgery was 63±13 years. Oral cavity (42%) and the larynx (28%) were the commonest cancer sites.¹⁰ In our study total Oral cavity cancer included 24.4 % cases. Out of which 63.6% were males. Age group of cases were distributed evenly from 30 to 60 yrs. 24.4% cases were of nasopharyngeal carcinoma 9 were male and 2 were female. Age group of cases had bimodal distribution, 3 case less than 30 years and 8 cases more than 60 yrs.

HPE of all the cases was squamous cell carcinoma with 5 cases in stage 1 and 2 and 6 cases in stage 3 and 4 at the time of presentation to our department. 20% cases had thyroid malignancy, 6 were males and 3 females. Preoperative diagnosis of patients were 4 cases had papillary carcinoma (age group 30 to 40 yrs.), 2 cases had medullary carcinoma (age group 50 to 70 yrs.), 1 had invasive follicular carcinoma (45 yrs.) and 1 had undifferentiated carcinoma (67 yrs.). Procedure performed is mentioned in Table 5.

15.5% cases were of Larynx (Aryepiglottic fold extending to pyriform sinus squamous cell carcinoma) and all were male. Age group of all the cases were more than 50 yrs. 1 case was of left side and 6 of right side. 11.1% cases had salivary gland malignancy, all were males equally distributed from age group 30 to 70 yrs. 2 had mucoepidermoid carcinoma of parotid gland, 1 had acidic cell carcinoma parotid gland, 1 had squats cell carcinoma of parotid gland and 1 had submandibular squamous cell carcinoma. 4.4 % cases had Sino nasal malignancy both were males in age group 30-40 yrs. 1 case had invasive papillary Adenocarcinoma and 1 had adenoid cystic carcinoma.

CONCLUSIONS

Population-based screening, early diagnosis based on awareness of early signs and symptoms, access to proper tertiary centre authorised for cancer treatment, timely monitoring aid from government, availability of trained staff, home-based palliative care for advanced cancer and properly linked cancer registry system are needed to decrease the burden of head and neck cancer on government, medical personnel, and the cancer patients.

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REFERENCES

- [1] Bray F, Ferlay J, Soerjomataram I, et al. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2018;68(6):394-424.

- [2] Kulkarni MR. Head and neck cancer burden in India. *Int J Head Neck Surg* 2013;4(1):29-35.
- [3] Behera P, Patro BK. Population Based Cancer Registry of India – the challenges and opportunities. *Asian Pac J Cancer Prev* 2018;19(10):2885-2889.
- [4] Titcomb Jr CP. High incidence of nasopharyngeal carcinoma in Asia. *J Insur Med* 2001;33(3):235-238.
- [5] Ferlay J, Soerjomataram I, Dikshit R, et al. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *International Journal of Cancer* 2015;136(5):E359-E386.
- [6] Stoyanov GS, Kitanova M, Dzhenkov DL, et al. Demographics of head and neck cancer patients: a single institution experience. *Cureus* 2017;9(7):e1418.
- [7] Marron M, Boffetta P, Zhang ZF, et al. Cessation of alcohol drinking, tobacco smoking and the reversal of head and neck cancer risk. *Int J Epidemiol* 2010;39(1):182-196.
- [8] Potash AE, Karnell LH, Christensen AJ, et al. Continued alcohol use in patients with head and neck cancer. *Head Neck* 2010;32(7):905-912.
- [9] Das R, Kataki CA, Sharma DJ, et al. A study of head and neck cancer patients with special reference to tobacco use and educational level. *Clinical Cancer Investigation Journal* 2017;6(1):21-25.
- [10] Nouraei SA, Middleton SE, Hudovsky A, et al. A National analysis of the outcome of major head and neck cancer surgery: implications for surgeon-level data publication. *Clin Otolaryngol* 2013;38(6):502-511.