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A Clinico-Pathological Study of Secondary Neck Masses in Head and Neck Cancers

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Abstract

Head and neck cancer is the eighth most common cancer in males and sixteenth most common cancer in females among all cancers in the UK. It is well recognized that the presence of cervical metastasis is the most important prognostic factor in head and neck squamous cell carcinoma. The aim of this study is to clinically study secondary neck masses in head and neck cancers and its correlation with primary tumours. This is a Prospective observational study conducted from July 2022-January 2024 with a sample size of 120 patients. The age distribution of the patients with head and neck cancers had maximum incidence in age of above 60 years. Histopathological examination (HPE) of secondaries of neck region and primary site of head and neck cancers show maximum cases having squamous cell carcinoma. The majority of the cases of head and neck malignancies presented to our hospital are Laryngeal (24.1%), Oral cavity (24.1%), Oropharyngeal (21.6%), Hypopharyngeal (20.8%), Occult primary (4.1%), Nasopharyngeal (2.5%), Nose and sinuses (1.6%) and Ear (0.83%). According to my study almost 1/3rd cases presented with secondary neck masses in which most of the neck masses correlated with the primary and most of the cases presented with involvement of level 2 lymph node group followed by level 3 and 4. HPE and Fine Needle Aspiration Cytology are gold standard diagnostic modalities for head and neck cancers, not only for confirmation but also helps in further management.

INTRODUCTION

Head and neck cancer is the eighth most common cancer in males and sixteenth most frequent in females among all cancers in the UK^[1]. Head and neck cancers in India accounted for 30% of all cancers^[2]. In India 60 to 80% of patients present with advanced disease as compared to 40% in developed countries^[3]. 40,000 new cases of head and neck cancer are diagnosed every year and approximately 13,000 people die from head and neck cancer per year. Head and neck cancer can occur in males (75.7%) and females (24.3%) with a male to female ratio of 3.1:1 and occurs mostly in people aged 60-69 years old or 7th decade. The most common type of head and neck cancer is squamous cell carcinoma (SCC) [80-90%]^[4]. It is well recognized that the presence of cervical metastasis is the most important prognostic factor in head and neck squamous cell carcinoma, accounting for a 50% reduction in the five-year survival rate for ipsilateral cervical lymph node metastasis and 75% reduction in case of bilateral metastasis^[5,6,7]. Nothing is more controversial than management of cervical metastatic disease as the most important mechanism of the spread of the head and neck cancers is lymphatic spread^[8]. This is not surprising considering the lack of knowledge of carcinogenesis, pathophysiology of metastasis, implications of tumour spread. Fortunately, great studies have been made in the understanding of intricate processes related to metastatic disease. Proper understanding of anatomy and the detection of cervical metastatic disease is crucial to the process. The diagnostic evaluation should include a complete history taking, a thorough physical examination, a careful Oto-rhino-laryngological examination, radiological studies, triple endoscopy and biopsies. A thorough and persistent attempt should be made to discover the primary site of growth, since cure is theoretically impossible until the primary lesion is located and treated appropriately. Hence the present study is taken up to study the clinic-pathological manifestations of secondary neck masses in head and neck cancer patients.

Aim of the Study: The aim of this study is to clinically study secondary neck masses in head and neck cancers and its correlation with primary tumours.

MATERIALS AND METHODS

This is a Prospective observational study conducted from April 2022-march 2024 with a sample size of 120 patients conducted in the department of Otorhinolaryngology (ENT), Mamata Medical College and General Hospital, Khammam. This Study was approved by institutional ethics committee and written informed consent was obtained from all patients participating in the study.

Inclusion Criteria:

- All the patients with Head and Neck malignancy.
- All patients with secondary neck masses (Enlarged lymph nodes).
- Age group of 21-70 years.

Exclusion Criteria:

- Neck masses due to infections.
- Non-metastatic neck mass.

Method of Collection of Data: Patients attending outpatient and inpatient departments of ENT and General Surgery of Mamata Medical College and General Hospital with neck masses suggesting of cervical lymphadenopathy were submitted to an assessment protocol based on guided history taking, specific clinical examination and subjected to appropriate investigations. During history taking and investigations, care is taken to rule out causes other than metastatic deposits to lymph nodes. The findings were recorded in the proforma for individual patients. Informed written consent was obtained from the patients after full explanation of the details of the procedure of the study.

Statistical Analysis: All the data will be recorded in the proforma of the individual patients

RESULTS AND DISCUSSIONS

Graph 1 in this study is showing Head and Neck Cancers presented along with secondary neck nodes are 120 cases of which maximum cases were from oral cavity (24.1%) and larynx (24.1%) and minimum from ear (0.83%).

Graph 2 in this study is showing the age distribution of the patients with head and neck cancers had maximum incidence in age of above 60 years and minimum below 30 years.

(Table 1) in this showing the gender distribution in cases presented with Head and Neck Cancers in 120 cases had more incidence in males with 83(69.1%) and females with less incidence 37 (30.8%) with ratio 2.2 : 1. Similarly patients presented along with secondary neck nodes in 47 cases had more incidence in males with 35(47%) and females with less incidence 12(26%) with ratio 2.91:1.

(Table 2) in this study is showing out of 120 cases almost 70 males and 18 females had history of smoking, 42 males and 13 females had history of tobacco chewing, whereas 74 males out of 83 and 15 females out of 37 had history alcohol consumption.

(Table 3) in this study is showing the male to female ratios of Head and Neck Cancers with secondary neck nodes according to various sites and

regions is Nasopharynx (2:1), Oropharynx (2.25:1), Hypopharynx (4:1), Oral Cavity (2:1), Larynx (6:1) and Occult primary (4:1).

All the 47 cases underwent FNAC of neck nodes of which 44 cases showed malignancy. Of remaining 3 cases, in 1 case core biopsy was done and in the other 2 cases excisional biopsy was done which on HPE showed malignancy. Accuracy of the FNAC is 93.61%. Graph 3 in this study is showing out of the 44 cases, FNAC showed squamous cell carcinoma in 43(97.7%) cases and in 1 case as adenocarcinoma (2.27%).

(Graph 4) in this study is showing the Histopathological examination (HPE) of primary site of head and neck cancers show maximum cases having squamous cell carcinoma (117) followed by undifferentiated carcinoma (2) and adenocarcinoma(1).

(Graph 5) in this study is showing the Histopathological examination (HPE) of secondaries of neck region wise show maximum cases having squamous cell carcinoma (44) followed by undifferentiated carcinoma (2) and adenocarcinoma (1).

Age Distribution: The pattern of bimodal age distribution in nasopharyngeal carcinomas (NPC) with peaks in age groups of 15-24 years and 65-74 years has been reported in low-risk populations by Bray^[9]. Our study reports a bimodal age distribution of >30 years and <60 years which is similar to low-risk populations. Patients diagnosed with hypopharyngeal cancer are typically male aged above 75 years by Kuo^[10]. Our study also showed maximum incidence above 60 years. The incidence of laryngeal malignancies peaks after the age of 65 years in both sexes according to Nocini^[11] and in our study we have seen maximum cases above 60 years but a few cases in 41-50 years also.

Sex Distribution: Male to female ratio in our study is 2.91: 1 and is similar to study conducted by Zaffar^[12] in which the male to female ratio was 2.7:1. The male to female ratio of nasopharyngeal cancers in a total of 27,579 cases ranged between 2.2-3.1 in a study by Xie^[13]. Our study showed a ratio of 2:1. Our study reported a male to female ratio of 6:1 in laryngeal cancers while 4.5:1 is reported by Wax^[14].

Risk Factors: The population attributable risk (PAR) for tobacco or alcohol was 72% for head and neck cancer, of which 4% was due to alcohol alone, 33% was due to tobacco alone and 35% was due to tobacco and alcohol combined according to Hashibe^[15] Where as in our study also many patients have risk factors including such as smoking, alcohol consumption and tobacco chewing which have been one of the leading cause of Head and neck cancers.

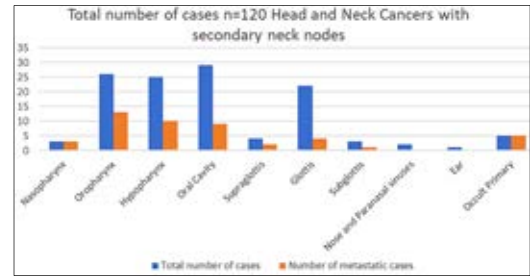


Fig 1: Showing the Head and Neck Cancers presented along with secondary neck nodes

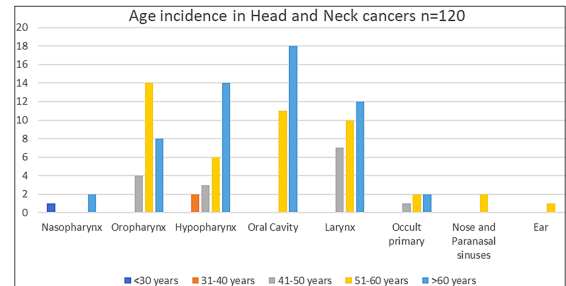


Fig 2: Showing the age distribution of the patients with head and neck cancers

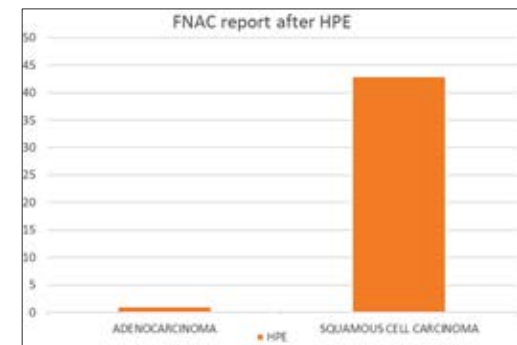


Fig 3: Showing the FNAC report of histopathological examination of secondary nodes

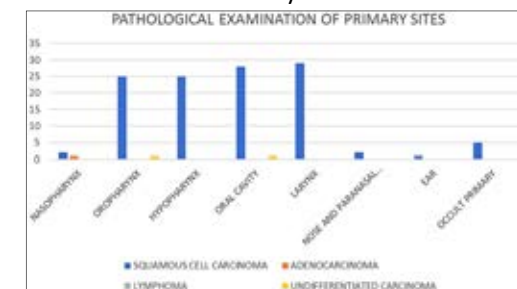


Fig 4: Showing the Histopathological examination (HPE) of primary site of head and neck cancers

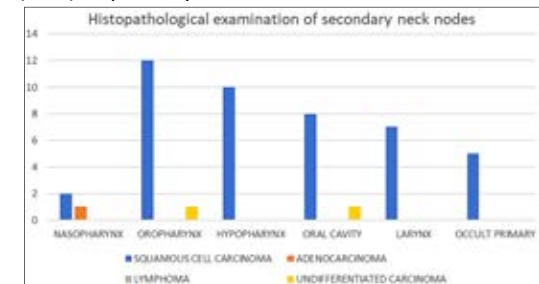


Fig 5: Showing the Histopathological examination (HPE) of secondaries of neck region wise

Table 1: Showing the Gender distribution in cases presented with Head and Neck Cancers and with secondary neck nodes

Gender	Total (n = 120)	Patients with head and neck cancer along with secondary neck nodes(n = 47)
Male	83 (69.1%)	35(74%)
Female	37(30.8%)	12(26%)

Table 2: Showing the Risk factors in Head and Neck Cancers

Risk factors	Smoking	Alcohol	Tobacco chewing
Males	70	74	42
Females	18	15	13

Table 3: Showing the male to female ratios of Head and Neck Cancers with secondary neck nodes according to various sites and region

Sl. No.	Primary Site	Male	Female	Ratio
1.	Nasopharynx	2	1	2:1
2.	Oropharynx	9	4	2.25:1
3.	Hypopharynx	8	2	4:1
4.	Oral Cavity	6	3	2:1
5.	Larynx	6	1	6:1
6.	Occult Primary	4	1	4:1
	Total	35	12	2.91:1

Table 4: Showing the Presenting symptoms according to primary site

Primary Site	Presenting Symptoms
Nasopharynx	Nasal obstruction, Epistaxis, Swelling of neck, Hyponasality, Pain in the ear, Hearing impairment.
Oropharynx	Sorethroat, Pain during swallowing, Ulcer, Swelling in the neck, Pain in the ear.
Hypopharynx	Difficulty during swallowing, Pain in the neck, Pain in the ear, Mass in the throat, Difficulty in breathing (stridor), Swelling in the neck.
Oral Cavity	Pain and ulcer in the mouth, Pain and difficulty in swallowing, Difficulty in opening mouth, Swelling in the neck.
Larynx	Hoarseness of voice, Difficulty in breathing (stridor), Pain and soreness in the throat, Swelling in the neck.
Occult Primary	Swelling in the neck.

Histopathological Examination: In our study done for 120 cases in which 47 cases showed secondary neck nodes were subjected to FNAC of both primary site and involved node showing results of 44 cases been Squamous cell carcinoma and 2 cases been Undifferentiated carcinoma and 1 case Adenocarcinoma. According to Argiris^[16] almost all of these epithelial malignancies are squamous cell carcinoma of the head and neck (SCCHN), for which the most important risk factors are tobacco and alcohol consumption. However, increasing evidence has documented human papillomavirus (HPV) as a cause of specific subsets of SCCHN. More than 90% of tumours in the head and neck are squamous carcinomas. According to Alam^[17] histopathology of 87 patients revealed that 70(80.46%) cases of metastatic neck node whose primary lesions arise from the squamous epithelium of upper aerodigestive tract and 17(19.54%) cases from a non-squamous origin.

CONCLUSION

This study concludes that the Highest incidence of neck masses are from primary sites involving Nasopharynx, Oropharynx and hypopharynx. Pathological investigations such as Histopathological examination and Fine Needle Aspiration Cytology are gold standard diagnostic modalities for head and neck cancers, not only for confirmation but also for proper further management. It is important to know the preferred area of spread of cervical node metastasis as it helps to design more adequate plans to manage the individual lesions.

REFERENCES

1. John, W. and W. Ralph 2012. Stell & Maran's Textbook of Head and Neck Surgery and Oncology.

- 5th Edn., CRC Press, Boca Raton, Florida, United States, ISBN-14: 978-0340929162, Pages: 1182.
2. Arora, N., J. Singh and J.L. Davessar, 2017. Evaluation of Cervical Lymph Node Metastasis in Head and Neck Cancers. J. Otolaryngol. ENT. Res. 7: 2-19.
3. Kulkarni, M.R., 2013. Head and neck cancer burden in India. Int. J. Head, Neck, Surg. 4: 29-35.
4. Fizza, A., H. Mervyn, A.B. Saima, B.Z. Abeeha, A. Angbeen and F. Sana, 2020. Association of Clinicopathological Features with Lymph Node Metastasis. Cross, Sec. Study. Oral. Squamous. Cell Carcinoma Patients 32: 46-53.
5. Hoang, J.K., J. Vanka, B.J. Ludwig and C.M. Glastonbury, 2013. Evaluation of cervical lymph nodes in head and neck cancer with ct and mri: Tips, traps and a systematic approach. Am. J. Roentgenology, 200: 17-25.
6. Montoro, J.R.D.C., H.A. Hicz, L. de Souza, D. Livingstone, D.H. Melo, R.C. Tiveron and R.C.M. Mamede, 2008. Prognostic factors in squamous cell carcinoma of the oral cavity. Braz. J. Otorhinolaryngol., 74: 861-866.
7. Esen, G., 2006. Ultrasound of superficial lymph nodes. Eur. J. Radiol., 58: 345-359.
8. Mokhtari, S., 2012. Mechanisms of cyst formation in metastatic lymph nodes of head and neck squamous cell carcinoma. Diagn. Pathol., 7: 1-5.
9. Bray, F., M. Haugen, T.A. Moger, S. Tretli, O.O. Aalen and T. Grotmol, 2008. Age-incidence curves of nasopharyngeal carcinoma worldwide: Bimodality in low-risk populations and aetiological implications. Cancer Epidemiol., Biomarkers and dev., 17: 2356-2365.

10. Kuo, P., M.M. Chen, R.H. Decker, W.G. Yarbrough and B.L. Judson, 2014. Hypopharyngeal cancer incidence, treatment, and survival: Temporal trends in the united states. *The Laryngoscope*, 124: 2064-2069.
11. Nocini, R., G. Molteni, C. Mattiuzzi and G. Lippi, 2020. Updates on larynx cancer epidemiology. *Chin. J. Cancer Res.*, Vol. 32.
12. Zaffar, S., A. Rashid, S.A. Mustafa, M. Tariq, M.A. Bhat, M. Khan and W. Rashid, 2015. Epidemiological profile of head and neck cancers at a tertiary care hospital. *J. Evol. Med. Dent. Sci.*, 4: 14285-14293.
13. Xie, S.H., I.T.S. Yu, L.A. Tse, O.W.K. Mang and L. Yue, 2013. Sex difference in the incidence of nasopharyngeal carcinoma in hong kong 1983–2008: Suggestion of a potential protective role of oestrogen. *Eur. J. Cancer*, 49: 150-155.
14. Wax, M.K. and B.J. Touma, 1999. Management of the n0 neck during salvage laryngectomy. *The Laryngoscope*, 109: 4-7.
15. Hashibe, M., P. Brennan, S.C. Chuang, S. Boccia and X. Castellsague *et al.*, 2009. Interaction between tobacco and alcohol use and the risk of head and neck cancer: Pooled analysis in the international head and neck cancer epidemiology consortium. *Cancer Epidemiol., Biomarkers & Prev.*, 18: 541-550.
16. Argiris, A., M.V. Karamouzis, D. Raben and R.L. Ferris, 2008. Head and neck cancer. *Lancet.*, 371: 1695-1709.
17. Alam, M.M., A. Sama, M.H. Khan, C. Arma and M.A. Fakir 2017. Clinicopathological Study of Metastatic Neck Node. *Dhaka, Central Int. Medical College J.* 4: 40-46.