ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 11 | November - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ROLE OF COMPUTED TOMOGRAPHY IN DETECTING CERVICAL METASTASIS IN CLINICALLY N0 HEAD AND NECK SQUAMOUS CELL CARCINOMA

Otolaryngology

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ABSTRACT

BACKGROUND: Head and Neck squamous cell carcinoma is one of the most common emerging cancer in the world at present. Especially in developing countries.The annual incidence of HNSCC is around 5500000 cases out of which 300000 deaths occur per year worldwide. In India the toll is 30 cases/1 lakh population. The rate of cervical nodal metastasis is highest in it and mostly involves level I to level V group of lymph nodes. The involvement of cervical lymph nodes bears an impact on the survival and prognosis of the patient.Out of the various modalities like USG neck,Magnetic resonance imaging,CT scan neck available for the early detection of cervical lymph nodes,CT scan is the most effective for neck node detection.

AIMS AND OBJECTIVE:1.This study aims at role of CT in detecting cervical metastasis in clinically N0 HNSCC. 2.To compare the site of predilection of HNSCC in head and neck.3.To compare the age,community and gender predominance of HNSCC.4.To compare the efficacy of CT scan to various other modalities available for detection of occult nodes.

METHODS: A prospective observational study was conducted at department of Otorhinolaryngology Head and Neck surgery at tertiary care teaching hospital in central India.

RESULT: Out of 50 patients included in this study CT scan could detect the occult nodes in 70% of the cases as compared to USG could detect nodes in 20% of the cases while clinical palpation could detect nodes only in 2% of the cases. Our study reveals that oral cavity is the most common site of HNSCC and hypopharynx is the least common site of involvement. Our study also highlights that HNSCC is more common in rural population as compared to urban population.

KEYWORDS

HNSCC-Head and neck squamous cell carcinoma, CT Neck-computed tomography neck, USG neck-ultrasonography neck

INTRODUCTION

Cancers of head and neck are most common worldwide with increasing incidence in developing countries.Of all histological types squamous cell carcinoma predominates.In India HNSCC accounts for 3% of total cancers out of which 1% are squamous cell carcinoma. Cervical lymph node metastasis is most important mechanism of its spread and a critical prognostic factor for staging tumors and deciding a management strategy. The risk of missing subclinical metastasis is a source of great controversy in head and neck oncology whether or not toelectively treat a clinically node negative neck. Thus a need to find a single non invasive highly accurate diagnostic modality for identification of cervical metastasis is the need of the hour today. Computed tomography stands out in all modalities available for early diagnosis of neck nodes .It is of prime importance for head and neck surgeons to know exactly about nodal metastasis so that intervention can be instituted at an early stage.

Aims And Objective

1. To study the role of computed tomography in detecting cervical metastasis in clinically N0 head and neck squamous cell carcinoma.
2. To compare the site of predilection of HNSCC in head and neck.
3. To compare the age, community and gender predominance of HNSCC.
4. To compare the efficacy of CT scan to various other modalities available for detection of occult nodes.

Materials And Methods

This study was conducted as prospective observational study in the Department of Otorhinolaryngology head & neck surgery , at a tertiary care teaching hospital in central India after taking ethical approval on inpatients and outpatients visiting the department who were biopsy proven cases of Head and neck squamous cell carcinoma with clinically negative nodes.

Duration Of Study

This study was conducted for a period of 1 year from January 2019 to June 2020.

Inclusion Criteria:

Patients selected were from age group 15-80 years and biopsy proven squamous cell head and neck malignancy with clinically N0 cervical nodes.

Exclusion Criteria—1.

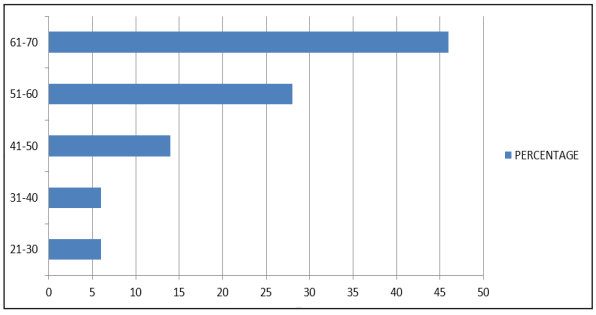
Patients already having FNAC proven metastatic nodes.2.Those who had already taken treatment for primary in head and neck were excluded.3.Patients with known allergy to iodine contrast media.4.Pregnant and lactating females were excluded from study.

A thorough history was taken from the patients about demographic details and addictions like smoking, tobacco chewing and its duration and frequency was noted. History of any chronic disease and past surgical history with history of bladder/bowel habits and sleep disturbances was noted. This was followed by a clinical examination whereby a detailed ear ,nose, throat examination was done alongwith 70 degree endoscopy,0 degree nasal endoscopy and flexible fibreoptic nasal endoscopy to rule out any other lesion.

Neck was also examined by clinical palpation to look for any palpable neck nodes. Then the patient was subjected to ultrasonography followed by CT scan neck plain and contrast with axial and coronal cuts to evaluate the primary alongwith neck nodes. The metastatic node presented as discrete mass more than 1 cm diameter non enhancing or with calcification and heterogenous enhancement.

RESULTS

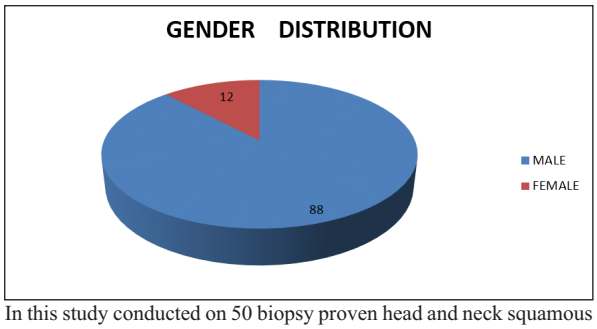
1. Comparing the age predominance of head and neck squamous carcinoma:



The study reveals that majority of the cases of HNSCC belonged to the

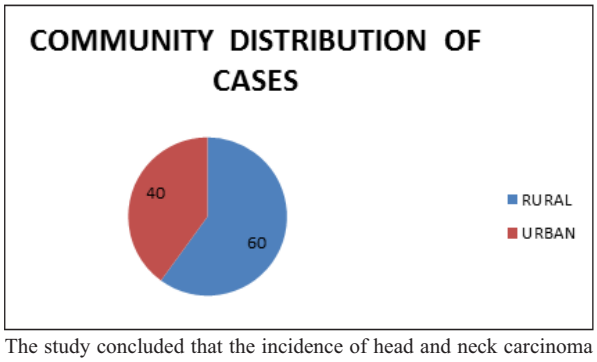
age group of 61-70 years.

2. Comparing gender predominance of head and neck squamous carcinoma



In this study conducted on 50 biopsy proven head and neck squamous cell carcinoma patients it was concluded that malignancy is more common in males than female counterparts with a sex ratio of 7.7:1.

3. Comparing community distribution of cases-



The study concluded that the incidence of head and neck carcinoma was higher in rural population as compared to the urban population.

4. Comparing the site predeliction for head and neck squamous cell carcinoma

SITE	NUMBER OF CASES	PERCENTAGE(%)
ORAL CAVITY	18	36
OROPHARYNX	10	20
LARYNX	14	28
HYPOPHARYNX	08	16

This study concluded that the most common site of occurrence of HNSCC was oral cavity and least common was hypopharynx.

5. Comparing CT scan with other imaging modalities

MODALITY	CASES DETECTED	PERCENTAGE(%)
USG	14	28
CT SCAN	36	72

In our study it was found that as compared to ultrasonography which could detect only 28% of the cases computed tomography could detect as high as 72% of tha cases proving its efficiency as an effective diagnostic tool for detection of occult cervical metastasis.

DISCUSSION

The early diagnosis of occult cervical metastasis is necessary for the long term prognosis of a cancer patient and it is often challenging to diagnose a case early especially in Indian scenario where majority of the patients present late to the health facility.Henceforth the need of a prompt modality which could detect this occult metastasis at an early stage like computed tomography for earliest management of patient and improvement of prognosis.Our study including 50 biopsy proven HNSCC patients focuses on the efficiency of CT in detecting these hidden nodes at an early stage.In our study majority of the patients belonged to the age group 61-70years indicating high prepondance of HNSCC in this age group.In our study the incidence of HNSCC was found more in males complying to a similar study done by Tove M Goldson,Yimel Han et al for clinicopathological predictors in lyphatic metastasis in HNSCC[1].Another study done by G. Cadoni et al for prognostic factors in HNSCC also concluded male predominance of the disease[2].Tien Hong et al also did a study for gender association in head and neck squamous cell carcinoma also proved male dominance[3].The cause for male predominance maybe due to to high tendency for addiction in males as compared to females.

Our study concluded majority of the population of HNSCC were belonging from rural areas as compared to the urban areas.Zeynep Oruc et al also conducted a study for effects of environment on HNSCC and drew similar conclusion for community distribution of HNSCC[4].The reason for rural predominance could be attributed to the lack of awareness in rural population and increased addiction history.In this study maximum number of cases were of oral cavity(36%) followed by larynx(28%),oropharynx(20%) and hypopharynx(16%) study done by Tove et al also had a similar pattern of site predeliction.Deepti Shetty, Bhushan V et al did a study for comparing the role of palpation,USG and CT scan in detecting cervical metastasis in HNSCC[5] found an upper hand of USG and CT in detecting metastasis as compared to palpation our study also compared the modalities and found CT scan far more superior to USG in detecting occult metastasis.Basavraj N Kallali,Kamala Rawson et al also did a comparitive study between clinical examination,USG,CT SCAN in assessing cervical lymph node metastasis in oral squamous cell carcinoma [6]again concluded similar results.Study done by Niranjan Mishra,Krushna Chandrarath [7]also enlightened this fact.Nitin Anand,Neena Chaudhary et al did study for comparison of palpation,USG and CT scan for detection of cervical metastasis also found supremacy of CT scan in detection of occult neck nodes[8].

- **OTHER STUDIES- BASAVRAJ STUDY, NIRANJAN STUDY, NITIN ANAND STUDY, DEEPTI SHETTY STUDY.**

OUR STUDY CASE DETECTION%	OTHER STUDIES*
CT SCAN(98%)> USG(2%)> PALPATION(0%)	CT SCAN>USG>PALPATION

CONCLUSION

The conclusions drawn from this study are the head and neck squamous cell carcinoma has high predilection for occult metastasis .HNSCC is more common in males than female population.HNSCC is more common in rural population than urban areas.Out of all the tools for detecting occult metastasis CT scan is the most effective for early detection of neck node thuis affecting longterm survival and prognosis of the patient.

FUNDING:

No funds were taken from any source as all investigations were done free of cost in Govt Medical College ,Bhopal,M.P. India.

Declaration

Conflict Of Interest

No conflict of interest is declared.

Informed Consent:

Written consent was taken from all the patients prior to their participation in the study.

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