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ORIGINAL ARTICLE

Frequency of Nasopharyngeal Carcinoma in patients presenting with Neck Masses

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ABSTRACT

Background: Patients come in the head and neck clinic most of the time with no obvious symptoms and most of the time with no visible lesion in the head and neck area. The nasopharynx is the area that is hidden from examination as it lies very deep in the skull base. It has a very high blood supply and a very metastatic rate.
Study design: Prospective study
Place and duration of study: Department of ENT, Pakistan Institute of Medical Sciences, Islamabad from 1st March 2021 to 28th February 2022.
Methodology: Eighty six patients with FNAC proven neck masses showing squamous cell carcinoma were included. Pan endoscopy was done in all the patients after thorough clinical examination and CT scan. The patients with visible lesion were biopsied from the lesion site and the patients that had no visible lesion were biopsied from three sites i.e. nasopharynx, oropharynx and hypopharynx. The biopsies were sent to the PIMS histopathology laboratory.
Results: There were 52 males and 34 females. The nasopharynx was the common site in the patients with visible lesion in 18 patients. In patients with non-obvious lesions again nasopharynx was the most frequent site in 9 out of 28.
Conclusion: The nasopharynx is a very common site for carcinoma and has a very high metastatic rate, so every patient coming to head and neck should be thoroughly examined in the clinic in reference to nasopharynx and any suspicious are should be biopsied.
Keywords: Frequency, Nasopharyngal carcinoma, Neck mass

INTRODUCTION

In the head and clinic patients mostly present with neck lumps with no other obvious lesions, due to this reason there is a need to follow a protocol to diagnose these patients that present with neck lumps keeping in view the nasopharynx. If this protocol is not made or followed there will be marked diagnostic and hence therapeutic delay.[1] Neck node from the primary in the neck with no obvious lesion despite thorough examination and work up is called unknown primary[2]. This entity may be due to different environmental influences which are unknown.[3] Approximately one third of the metastasis from unknown primary site is in the cervical lymph nodes[4], the incidence of cervical metastasis from unknown primary in different studies is approximately found to be 1.5-5.5%[5,6]

Nasopharyngeal carcinoma is the most common carcinoma in some parts of china and Asia and has now became endemic in these areas due to reasons still not known and unexplained. The incidence in southern china is now approximately 30 to 80 cases per 100,000 per year which is a huge number[7].

To diagnose and stage the nasopharyngeal carcinomas and neck metastasis for nasopharyngeal carcinomas computed tomography and magnetic resonance imaging are mostly used but the latter modality is mostly preferred modality.[8-11] It is because the nasopharyngeal carcinoma is mostly in the mucosa and sub-mucosa and mostly due to soft tissue involvement by the nasopharyngeal carcinoma and less frequent presence of bony structures in the nasopharynx which is better seen with CT scans. In some centres where the imaging is advanced the PET (positron emission tomography) scan has replaced the conventional CT and MRI scans due to accurate and precise imaging of the metabolically active lesion in the deep cervices of the skull base and the nasopharynx.[12] But the PET has a very low precision for the anatomic details. In these circumstances the PET is combined with CT to make the anatomy more precise and easy to diagnose the metabolically active lesion. The PET/CT is done after the conventional MRI scan to have a high yield for locating the otherwise hidden primary and augment the findings in patients presenting with the retropharyngeal nodes[13].

In the western world studies have shown that over 90% of the neck nodes metastasis is mostly due to squamous cell carcinoma followed by adenocarcinomas, undifferentiated carcinoma, thyroid carcinoma in different percentages[14]. In countries and geographical areas where nasopharyngeal carcinomas are common, undifferentiated type of nasopharyngeal carcinomas are most common.

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METHODOLOGY

This prospective study was conducted after approval from Ethical Review Committee in the Department of ENT, Pakistan Institute of Medical Sciences, Islamabad from 1st March 2021 to 28th February 2022. The patients that presented with neck masses with FNAC proven metastatic cervical lymph nodes, only squamous cell carcinoma that was proven on FNAC with no obvious head and neck primary lesions were included. The exclusion criterion included the patients were already operated. The patients that had oral cavity lesions, those patients that had obvious growth in head and neck region, infective pathologies were excluded from the study. Lymphomas and melanomas were also not included in the study were excluded. Lymph nodes with breast and abdominal primaries were also excluded from the study. Their base line investigations were done and GA fitness was taken from the anesthesia department. CT scan was done for all the patients with contrast before surgery. All the patients were subjected to panendoscopy which included laryngoscopy, bronchoscopy, esophagoscopy, nasopharyngoscopy and hypopharyngoscopy. In the case where visible lesion like ulcer, fungating mass was seen, biopsy was taken from it, but in cases where there was no obvious lesion then biopsy was taken from four sites, Nasopharynx, oropharynx and hypopharynx. In oropharynx biopsy was taken from the base of the tongue and tonsills. Bilateral tonsillectomy was done. In base of tongue, wedge biopsy was done. From the hypopharynx, bilateral pyriform fossa biopsy was done with punch forceps, and similarly punch biopsy was taken from the submucosa

of the nasopharynx. All biopsies specimens were then sent to PIMS histopathology department. The biopsies were then followed up in the OPD on Friday in Joint Cancer Clinic. Odd ratio was applied though SPSS version 25.0. P value <0.05 is significant.

RESULTS

The total number of patients in the study was 86. The male patients were 52 and the female patients were 34 in number. The age range of the patients was from 30 to 70 years with the mean age of 54 years (Table 1).

Fifty eight patients had visible lesion from which biopsies were taken. In all these patients the nasopharynx was the most frequent site in terms of visible lesions 18 out of 58. The nasopharynx was then followed by pyrifom sinus and the oropharynx. In 28 patients there was no visible lesion. In this category of patients the nasopharynx was still the top site in terms of involvement that is 9 out of 28. The tonsils were the second number of site in group of non obvious lesions (Fig. 1).

Table 1: Distribution of age and gender in enrolled patients (n=86)

Variable	No.	%age
Gender		
Male	52	60.46
Female	34	39.53
Age (years)		
30-40	10	11.62
41-50	20	23.20
51-60	39	45.34
61-70	17	19.76

Fig.1: Visible lesion sites for biopsy sampling in enrolled patients

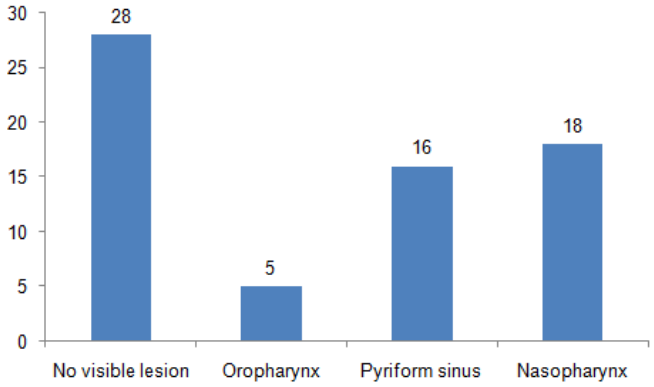

Table 2: Presentation of neck nodes, lymph node groups and cervical nodes in patients

Variable	No.	%age
Neck nodes (NN)		
Unilateral NN	73	84.88
Bilateral metastatic NN	11	12.79
Left sided carcinomic cervical lymphadenopathy	2	2.32
Lymph node group		
Level I	2	2.32
Level II	44	51.16
Level III	30	34.88
Level IV	4	4.65
Level V	6	6.97
Cervical nodes		
N2	58	67.44
N1	25	29.06
N3	3	3.48

In terms of neck nodes presentation, 73 patients presented to us in OPD with unilateral neck nodes while 11 patients presented with neck nodes. In 2 patients there were left sided cervical lymphadenopathy with carcinoma found on the contralateral side of the lesion. In terms of involvement of lymph node group, the level II lymph node group was the most common site of involvement, which was then followed by level III lymph node group. The level I was involved in only 2 patients, the level II was involved in 44 patients, the level III was involved in about 30 patients the level IV was involved in 4 patients while the level V was involved in 6 patients. Most of the patients presented with N2 cervical lymph nodes, which made 58 patients. Twenty five patients presented with N1 cervical lymphadenopathy, and the 3 patients presented with N3 cervical lymphadenopathy (Table 2).

In patients with obvious lesions the frequency of different sites were like nasopharynx was involved in 18 patients, pyriform sinuses were involved in 16 patients, tonsils was involved in 9 patients, base of tongue was involved in 6 patients, supraglottis was involved in 5 patients, post cricoid was involved in 3 patients, posterior pharyngeal wall was involved in 1 patient. In patients with no obvious lesions the nasopharynx was involved in 9 patients, pyriform sinus was involved in 3 patients, tonsils were involved in 7 patients, base of tongue was involved in 3 patients, supraglottis, post-cricoid and posterior pharyngeal wall was not involved as they were not subjected to biopsy. The right side cervical lymphadenopathy was about 32 patients while the left sided cervical lymphadenopathy was about 54patients (Table 3).

Table 3: Presentation of neck nodes, lymph node groups and cervical nodes in patients

Variable	No.	%
Obvious lesions (n=58)		
Nasopharynx	18	31.03
Pyriform sinuses	16	27.58
Tonsils	10	17.24
Base of tongue	7	12.06
Supraglottis	7	12.06
Cervical lymphadenopathy (n=86)		
Right side	32	37.21
Left side	54	62.79

This study also presented the results of time delay which causes a percent increase in advancement of the carcinoma staging. The odds ration showed delay of greater or 3 months was most presented with advanced staging. Moreover this delay by diagnosis was significantly related with disease advancement. The confidence interval (CI) was taken as 95% for this test (Table 4).

Table 4: Time Delay and nasopharyngeal carcinoma staging

Delay Time	Stage I-II (n=32)	Stage III-IV	P value	Odds ratio (95% CI)
By patients				
<2	22	78		1.0*
≥	19	81	0.39	0.79(0.46-1.39)
<3	41	89		1.0*
≥3	21	79	0.91	1.02(0.57-1.83)
By Diagnosis				
<2	25	75		1.0*
≥2	19	81	0.122	0.67(1.37-1.19)
<3	27	73		1.0*
≥3	21	79	0.0069	0.47(0.27-0.83)

*Reference category

DISCUSSION

The nasopharynx is a deep space in the middle of the skull and approximately 10 cm from each side of the skull in three dimensions. It is roughly 4×4×2 cm in dimensions, anteriorly limited by the choana, posteriorly by the posterior pharyngeal wall, superiorly by the base of the skull and inferiorly by the soft palate, being roughly a box like cavity. This is the reason that it is asymptomatic until carcinoma or any other lesion totally blocks the nasopharynx and blocks the nose, or compresses and involves a nerve by its mass effect or directly by invasion. So this is the reason that it remains asymptomatic in the initial stages of the disease process. It has a very high metastatic rate due to large

amount of blood supply and being in the centre of skull. It is highest in incidence in some parts of china.[15,16]

It is often called “Canton Tumor” because of the highest morbidity of NPC in Guangdong Province, China. More than 70% of NPC patients have already developed cervical lymph node metastasis at initial diagnosis.[17] This study was done to see the frequency of nasopharyngeal carcinoma in the patients that present with the neck metastasis with no obvious primary. In this study it was clearly elaborated that nasopharynx was the commonest site of involvement in patients with cervical lymphadenopathy. It was also found that when pan-endoscopy was done there were two sub groups of patients, the patients with obvious lesion on endoscopy but otherwise asymptomatic and no obvious lesion even on endoscopy. In the patients with obvious lesion the nasopharynx was the most commonly involved site involved by the squamous cell carcinoma. In the patients with no obvious lesion the most common site was still nasopharynx. In the obvious lesion the nasopharyngeal involvement was approximately 31%. In the non obvious lesion the nasopharynx was still highest that is approximately 32%. In both groups combined the nasopharyngeal involvement was approximately 31%. So this study revealed that nasopharynx is the common site of involvement in patients that present in with neck nodes with unknown primary lesion.

CONCLUSION

The nasopharynx is the site that is somewhat hidden in the skull, not easily visible clinically. For this reason any patient that comes to OPD with unknown primary should be thoroughly examined especially the nasopharynx with angled or non-angled endoscopes or with the conventional mirror examination. This study has limited implications as the geographic coverage is limited but it shows that nasopharynx is most common site of involvement in this part of the world as shown by multiple studies previously done internationally.

Conflict of interest: Nil

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