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# Clinico-pathological profile of nasopharyngeal carcinoma at Muhimbili National Hospital, Dares Salaam, Tanzania

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## ABSTRACT

**Background:** Nasopharyngeal carcinoma (NPC) is an uncommon malignant tumor which has been reported invariably and cases have been encountered in Tanzania. Though rare they are associated with potential morbidity and mortality. The aim of this study was to characterize the clinico-pathological profile of such neoplasm in our set up.
**Methods:** A retrospective review of 25 cases from hospital archives for 3 consecutive years was done where all patients with a histopathologically confirmed diagnosis of NPC were recruited. Data was analyzed using SPSS version 21.
**Results:** Of the 25 eligible cases, 15 (60%) were males and 10 (40%) were females. Age range was 15-70 years. The peak age was 30-50 years in males and 50-59 years in females. Highest incidence was in the 5$^{th}$ decade. The commonest presenting features were cervical lymphadenopathy (92%) epistaxis (80%), hearing loss (80%) and nasal obstruction (76%) while the least common feature was seizures (4%). Histologically, undifferentiated carcinoma (76%) was the commonest variant while the least common one was differentiated non keratinizing squamous cell carcinoma (8%). Identifiable risk factors were consumption of salted smoked fish (80%), tobacco use (60%), alcohol intake (52%) and occupational exposure to wood dust (32%). Majority of patients (80%) were diagnosed with advanced stage of the disease (Stage IV).
**Conclusions:** Findings from this study correlate with what has been reported elsewhere. Clinicians should have a higher index of suspicion in diagnosing NPC to enable early referral and prompt treatment of such malignant neoplasm.

**Keywords:** Clinico-pathological, Nasopharynx, Carcinoma, Tanzania

## INTRODUCTION

Nasopharyngeal carcinoma (NPC) is an uncommon malignant tumor that has been invariably reported worldwide and it has been reported to have high prevalence rates in south east Asia and some parts of middle east and north Africa.[1-3] Such malignant neoplasms have been reported to exhibit both racial and geographic variability with the highest incidence rate of 20- 50/100,000 person-years in southern China and the picture decreases towards northern China.[1,4-6]

Although the incidence of NPC tends to increase with increasing age, a bimodal pattern of distribution has been observed with peak incidence in late adolescent and another peak in the fifth or sixth decade of life.[1,3,5-9]

In the year 2002, NPC was reported as the 23rd most common cancer worldwide with estimated incident rates of 80,000 new cases and over 50,000 estimated deaths during that year.[7] A study which was conducted in Tanzania at Muhimbili National Hospital (MNH) found NPC to be the third most common head and neck cancer being preceded by sinonasal and laryngeal cancer.[10]

NPC is characterized by several clinical features such as bilateral neck swelling, epistaxis, nasal obstruction, blood tinged nasal discharge and Serious otitis media as the earliest symptoms. Other reported features include difficulty in breathing, cervical lymphadenopathy, and cranial nerve involvement. Our experience in the department show patients with NPC to present in advanced stages of the disease by the time they are first seen by us at MNH. Such patients are found to be initially treated as cases of cervical tuberculous lymphadenitis due to cervical lymphadenopathy being the prominent feature reported by such patients when first seeking medical consultations. Similarly, such local studies also show such patients to be under physicians' care and they are labelled as cases of multiple neuropathies and it is only when they are in late stages when they are referred for review by otorhinolaryngologists.

Due to advanced stage of presentation by NPC patients and by virtue of the anatomical location of this tumour, curative surgical resection may not be achievable and thus increasing morbidity and mortality. However, NPC is highly radiosensitive and external beam radiotherapy coupled by chemotherapy has been the mainstay of primary treatment even in cases with nodal metastasis.[11-16]

There are prognostic indicators for patients with NPC, these are mainly characterized by WHO classification of such malignant tumors. According to such classification scheme, nasopharyngeal carcinoma can be classified into three types: keratinizing squamous cell carcinoma (type I) and non-keratinizing carcinoma characterized as differentiated (type II) and undifferentiated (type III).[17] The aim of this study was thus to characterize the clinico-pathological profile of nasopharyngeal carcinoma in a tertiary hospital in Tanzania.

## METHODS

This was a retrospective review of all patients seen in the Department of Otorhinolaryngology at Muhimbili National Hospital (MNH) from 2015-2018. The patient's biodata as well as clinical presentation were extracted from the case notes at the time such patients were presented at the tumor board ready to be sent to the Ocean Road Cancer Institute (ORCI) for chemoradiation. By the time such patients were to be sent to ORCI, the histopathological slides were already reviewed by the panel of pathologist. Cases without histopathological biopsy confirmation were excluded. The data entry was done using SPSS version 21.

## RESULTS

A total of 25 histopathologically confirmed cases of nasopharyngeal carcinoma were seen during the study period. There were 15 males and 10 females with a M:F ratio of 1.5:1. The age ranged between 15–70 years with a mean of 50±15.9 years. The peak age was found to be 30-50 years in males and 50-59 years in females. Highest incidence was in the 5th decade of life.

**Table 1: Clinical profile of patients with nasopharyngeal carcinoma.**

| Clinical features | Frequency (%) |
|---|---|
| **Cervical lymphadenopathy** | 23 (92) |
| **Epistaxis** | 20 (80) |
| **Hearing loss** | 20 (80) |
| **Nasal obstruction** | 19 (76) |
| **Cranial nerve palsy** | 2 (8) |
| **Diplopia** | 4 (16) |
| **Seizures** | 1 (4) |

The commonest presenting features were cervical lymphadenopathy (92%) epistaxis (80%), hearing loss (80%) and nasal obstruction (76%) while the least feature was seizures (4%) (Table 1).

**Table 2: WHO histopathological classification of nasopharyngeal carcinoma.**

| WHO classification type | Histopathological type | Frequency (%) |
|---|---|---|
| **I** | Well differentiated keratinized squamous cell carcinoma | 4 (16) |
| **II** | Differentiated non keratinized squamous cell carcinoma | 2(8) |
| **III** | Undifferentiated carcinoma | 19 (76) |
| **Total** | | 25 (100) |

Based on the WHO classification, Type III (undifferentiated carcinoma) was the commonest histopathological variant reported in 76% of studied patients and this was followed by well differentiated keratinizing squamous cell carcinoma accounting for 16% of cases while the least variant was differentiated non keratinizing squamous cell carcinoma seen in 8% of patients (Table 2).

Identifiable risk factors were consuming salted smoked fish (80%), tobacco use (60%), alcohol intake (52%), occupational exposure to wood dust (32%), previous history of head and/or neck irradiation (12%) (Table 3).

Majority of patients were in advanced stage of the disease at the time of diagnosis where stage IV was accounted by

80% of patients while stage II and III was found in 8% and 12% respectively. None had stage I of the disease at the time of diagnosing nasopharyngeal carcinoma (Table 4).

**Table 3: Identifiable risk factors for nasopharyngeal carcinoma.**

| Risk factors | Frequency (%) |
|---|---|
| **Salted smoked fish** | 20 (80) |
| **Tobacco use** | 15 (60) |
| **Alcohol intake** | 13 (52) |
| **Exposure to wood dust** | 8 (32) |
| **Prior head and/or neck irradiation** | 3 (12) |

**Table 4: Stage at diagnosis of patients with nasopharyngeal carcinoma.**

| Stage at diagnosis | Frequency (%) |
|---|---|
| **I** | 0 (0) |
| **II** | 2 (8) |
| **III** | 3 (12) |
| **IV** | 20 (80) |
| **Total** | 25 (100) |

## DISCUSSION

The aim of this study was thus to describe the clinico-pathological profile of nasopharyngeal carcinoma in one of the largest tertiary hospitals in Tanzania. Throughout the world, though uncommon NPC forms an important component of the head and neck cancers except for the areas of endemicity. In this study, a male predominance was noted where male to female ratio was 1.5:1.[1-3,7,8] Such findings appear to correlate with others from different parts of the world. Such similarity may be due to shared similarity in terms of geographical and other factors which may be predisposing towards nasopharyngeal carcinoma. The age of patients with NPC in this study ranged from 15-70 years with the highest peak in the fifth decade of life. The peak age incidence among studied patients at MNH correlates closely with what has been reported in endemic regions such as South East Asia.[1,4,7,8] Generally, these findings correlate with what is known as far as the epidemiology of NPC is concerned.

In this study, the vast majority of patients with NPC presented with cervical lymphadenopathy (92%) epistaxis (80%), hearing loss (80%) and nasal obstruction (76%). The least reported feature was seizure (1%).These findings correlate with what can be depicted from studies done elsewhere such as Nigeria.[1,4]

Regarding predominance of various WHO classification categories for NPC, the most common variant in this study was found to be WHO type III followed by WHO type I and leastly WHO type II. Despite the fact that this WHO type III (undifferentiated carcinoma) is the predominant histological type found in children and adolescent, it also has the strongest association with EBV infection of all the histological types of NPC. This calls the need for further studies to establish the aetiopathogenesis of NPC among patients suffering from such disease in our country. Such predominance of WHO type III can also be depicted from studies done in Lagos and Ilorin both from Nigeria.[1,4] The similarity may presumably be due to shared aetiopathogenesis among Nigerians and Tanzanians.

In this study from MNH, the most commonly established identifiable risk factor was consumption of salted smoked fish (80%), tobacco use (60%), and alcohol intake (52%) and leastly prior head and/or neck irradiation (12%). These findings appear to have resemblance with what was established from a study which was conducted in Nigeria.[1] Resemblance may be due to similarity in terms of geographical distribution of the shared aetiological risk factors for NPC.

In terms of establishing the diagnosis of NPC, when patients suffering from such disease are seen at MNH, they are usually in advanced stage and this can be deduced from what was found in this study where majority were in stage IV by the time such patients are referred to MNH. This therefore calls the urge for increasing the diagnostic modalities for NPC among health care providers in various primary health facilities and therefore increasing their extent of suspiciousness and referral of patients to designated centers where the diagnosis may be established perfectly. Such delayed presentation of patients with NPC may also relate to other studies from Nigeria which reported cervical lymphadenopathy to be the commonest feature conforming to stage III or IV.[1,4] The obscure location of this cancer coupled with its vague, non-specific symptoms makes it difficult to diagnose early, thus most patients present when in advanced stage of the disease. Prompt referral to otolaryngologists coupled with high index of suspicion remains to be the cornerstone towards reducing morbidity and mortality due to NPC.

## CONCLUSION

NPC remains to have male predominance with the highest peak in the fifth decade of life. Majority of patients presented with clinical features conforming to late stage of the disease such as cervical lymphadenopathy and with majority of them presenting with stage IV when first seen in our hospital setting. Screening patients with early symptoms of NPC as it is eminently done in countries endemic for the disease, will aid in its early detection, diagnosis and curative medical intervention and thus reducing morbidity and mortality due to NPC.

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