# NASOPHARYNGEAL CARCINOMA STUDY OF 20 CASES

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## SUMMARY

**Nasopharyngeal Carcinoma is not an uncommon malignancy in NWFP. Presentation of tumour is variable, patients can present with nasal, otological symptoms. Majority of cases presented with unilateral or bilateral neck masses. Our study of nasopharyngeal carcinoma showed age range between 10 to 73 years, with variable symptoms and signs. In all the cases final diagnosis was confirmed on histological reports. Radiotherapy was main line of treatment for both early and late cases. Chemotherapy was reserved for recurrent disease only. It is stressed that video endoscopic examination with documentation of the nasopharynx is a valuable procedure. This facility should be provided to all physicians in the management of nasopharyngeal carcinoma especially in geographical area's where the disease is thought to be prevalent. Endoscopic documentation of the nasopharynx is helpful in initial diagnosis of tumour; the assessment of the site and size of the tumour is easy and precise both for diagnosis and follow up.**

## INTRODUCTION

Many types of tumours including rare, primitive ones have been described in the nasopharynx.[1] (Table I) Tumours arising here often have a low latent period with few primary symptoms. This has often led to delayed diagnosis and treatment. Preliminary biopsy is often required for diagnosis before starting treatment. The histological diagnosis of some tumours can be difficult without various specific immunohistochemical staining. Of all the tumour carcinoma is the most common. It is unique in its epidemiology and racial predispostion, with distinct immunogenetics influencing diagnosis and survival. Besides the lymphoepithelium, the nasopharyngeal wall also contains glandular and connective tissue surrounded by bone and cartilage of the skull base. The relative proportion of cancer types in the nasopharynx varies in different countries. (Table II). Nasopharyngeal carcinoma is the most common form irrespective of geography and race. It constitutes 75- 95% of nasopharyngeal cancer in low risk populations and virtually all nasopharyngeal cancer in high risk population. In Southeast Asia nasopharyngeal carcinoma predominates over other types of cancer so much that the ratio is approximately 9:1.[1]

## MATERIAL AND METHODS

The study was conducted in ENT Department of Post Graduate Medical Institute Lady Reading Hospital Peshawar in 18 months from August 1994 to February 1995. The number of cases in the study were 20 which include early to very advance cases. After recording particulars of the patients like age, sex, address; detailed history was taken to know about presenting complaints. After examination the patients were subjected to very few available

TABLE – I

W.H.O CLASSIFICATION OF TUMOURS OF THE NASOPHARYNX
(SHAN MUGARATNAM AND SOBIN 1991)

(i) Epithelial Tumours:

(a) Benign

(1) Papilloma
(2) Pleomorphic Adenoma
(3) Oncocytoma
(4) Basal Cell Adenoma
(5) Ectopic Pituitary Adenoma

(b) Malignant

(1) Nasopharyngeal Carcinoma
(2) Adeno Carcinoma
(3) Papillary Adeno Carcinoma
(4) Mucoepidermoid Carcinoma
(5) Adenoid Cystic Carcinoma
(6) Polymorphous low grade Adeno Carcinoma

(ii) Soft Tissue Tumours

(a) Benign

(1) Angiofibroma
(2) Haemangioma
(3) Haemagio Pericytoma
(4) Neurolemmoma
(5) Neurofibroma
(6) Paragangloma

(b) Malignant

(1) Fibrosarcoma
(2) Rhabdomyosarcoma
(3) Angiosarcoma
(4) Kaposi's Sarcoma
(5) Malignant Haemangio Pericytoma
(6) Malignant Nervesheath Tumour
(7) Synovial Sarcoma

(iii) Tumours of Bone & Cartilage

(iv) Malignant Lymphomas

(1) Non Hodgkin's Lymphoma
(2) Extramedullary Plasmacytoma
(3) Middiline Malignant Reticulosis
(4) Histocytic Lymphoma
(5) Hodgkin's Disease

(v) Miscellaneous Tumours

(a) Benign

(1) Meningioma
(2) Craniopharyngioma
(3) Mature teratoma

(b) Malignant

(1) Malignantmelanoma
(2) Chordoma
(3) Malignant germ cell tumour

(vi) Secondary Tumours

(vii) Unclassified Tumours

(viii) Tumour- Like Lesions

(1) Cyst
(2) Hetrotopic pituitary tumour
(3) Meningocele/Meningoecelphalocele
(4) Fibro inflammatory pseudo tumour
(5) Infective granuloma
(6) Wegener's granulomatosis
(7) Pseudoepitheliomatous hyperplasia
(8) Oncocytic metaplasia & hyperplasia
(9) Granuloma pyogenicum
(10) Lymphoid hyperplasia
(11) Malakoplakia
(12) Amyloid deposits

TABLE – II

INTERNATIONAL COMPARISON 1983-87, ANNUAL AGE-STANDARDIZED RATE PER 100,000 PERSONS FOR NASOPHARYNGEAL CANCER IN DIFFERENT POPULATIONS OF THE WORLD (PARKIN ETAL 1992)

| Country | Populations | Male | Female |
|---|---|---|---|
| Hong Kong | Chinese | 28.5 | 11.2 |
| Singapore | Chinese | 18.1 | 7.4 |
| USA (Hawaii) | Chines | 8.9 | 3.7 |
| China (Shanghai) | Chinese | 4.0 | 1.9 |
| Singapore | Malay | 4.3 | 0.4 |
| USA (Hawaii) | Hawaiians | 1.3 | 1.1 |
| USA (Connectient) | White | 0.5 | 0.2 |
| | Black | 1.0 | 0.1 |
| Singapore | Indian | 1.0 | 0.2 |
| USA (Bayaren) | White | 0.8 | 0.4 |
| | Black | 0.7 | 0.2 |
| India (Madras) | | 0.7 | 0.4 |
| Australia (New South Wales) | | 0.8 | 0.2 |
| Denmark | | 0.7 | 0.3 |
| Japan (Osaka) | | 0.6 | 0.2 |
| U.K (Birminghan) | | 0.5 | 0.1 |
| New Zealand | Maroi | 1.2 | 0.0 |
| | Non Maroi | 0.5 | 0.3 |
| Columbia Coli (South America) | | 0.5 | 0.1 |

investigations. Blood complete was done for haemoglobin estimation, TLC, DLC to exclude anemia or some other systemic diseases, urine complete for any albumin, RBC or sugar or any other cast to exclude any renal disease. X-ray chest was also done to know the position and size of the heart and lung fields and to exclude secordaries. CT Scan of the nasopharynx and skull was done in few cases to know the exact extensions of the mass. Abdominal U/S was done to know the texture of liver, spleen, kidneys for metastases. Bone scan was done in few cases for secondaries.

Unfortunately viral studies were not available in our province and it was too castly to send the patients to armed forces institute of pathology (AFIP), Rawalpandi. We totally relied upon biopses from the mass which was visible in nasopharynx. If there was no mass seen, proof biopsies from fossa of Rosser Muller were taken. After confirmation the disease from histopathological reports all patients were send to IRNUM (Institute of Radiotherapy and Nuclear Medicine) Peshawar for Radiotherapy/ Chemotherapy. Out of 20 patients seventeen patients presented with neck masses. Out of these, 14 had unilateral and three had bilateral neck masses. Twelve patients had aural complaints seven of them had unilateral deafness, where as three patients presented with otalgia and two with tinnitus. Out of twenty patients thirteen had

nasal problem. One of them had blood stained discharge. Nine had nasal discomfort two of them had unilateral obstruction and one had post nasal drip. Nine patients presented with either facial parathesis hoarseness, dysphagia, tongue changes or headache and diplopia (Table III). 85 % of patients with neck mass; 70 % showed uni-lateral and 15 % had bilateral neck masses.[2]

## RESULTS

The male to female ratio is 1.2 : 1. The age of male patients was between 12 and 73 years with an average of 42.09 years. The age of female patients was between 10 and 60 years with an average of 35.33 years. 20% of patients presented with paralysis of fourth cranial nerve while 30% showed diplopia and involvement of adjacent nerve. In 40% of patients disturbance of fifth cranial nerve and facial parasthesis occurred. While 10% of patients showed involvement of glasopharyngeal, vagus, accessory and hypoglassal nerve. None had involvement optic, occulomotor, facial and vestibulo-cochlear nerves.

## DISCUSSION

Nasopharyngeal carcinoma has a distinctive epidemiological pattern. Its incidence among Chinese and other South East Asians is about 10-50 times higher than that of other countries. The highest incidence (age standardized ratio ASR) of 30-50/ 100,000 males is observed in Southern China, Hong Kong, Southern Asian Chinese and Chinese else where. Various environmental agents/factors implicated in the etiology of nasopharyngeal carcinoma are shown in (Table IV). Fifty three cases were studied by Huang in 1990.[4] The majority were of less than 14 years of age. YU MC in 1990,[3] studied diet and nasopharyngeal carcinoma in Chinese, and found that salted fish especially ungutted salted marine fishes contains an appreciable amount of volatile nitrosomine N-nitrosodie-methylamine and

TABLE – III

| Complaints | No of patients | % |
|---|---|---|
| Neck Mass | 17 | 85 |
| Unilateral | 14 | 70 |
| Bilateral | 03 | 15 |
| Contralateral | 0 | 0 |
| Aural | 12 | 60 |
| Unilateral Deafness | 7 | 35 |
| Bilateral Deafness | 0 | 0 |
| Otalgia | 3 | 15 |
| Otorrhea | 0 | 0 |
| Tinnitus | 2 | 10 |
| Nasal | 13 | 65 |
| Blood Stained Discharge | 1 | 5 |
| Moderate to severe epistaxis | 0 | 0 |
| Nasal Discomfort | 9 | 45 |
| Unilateral Obstruction | 2 | 10 |
| Bilateral Obstruction | 0 | 0 |
| Post Nasal Drip | 1 | 5 |
| Miscellanous Symptoms | 9 | 45 |
| Facial Parathesis | 1 | 5 |
| Facial Palsy | 0 | 0 |
| Throat Pain | 0 | 0 |
| Hoarseness | 1 | 5 |
| Dysphagia | 1 | 5 |
| Shoulder Weakness | 0 | 0 |
| Tongue Changes | 1 | 5 |
| Blindness | 0 | 0 |
| Headache | 3 | 15 |
| Trismus | 0 | 0 |
| Diplopia | 2 | 10 |
| Vertiqo | 0 | 0 |
| Symptoms from Distant Metastasis | 1 | 5 |

TABLE – IV

VARIOUS ENVIRONMENTAL AGENTS/ FACTORS IMPLICATED IN THE AETIOLOGY OF NASOPHARYNGEAL CARCINOMA

| Agents | Factors |
|---|---|
| Episten-Barr Virus | Raised Antibody Viralgenome in tumour cell |
| Chemical<br>Tobacco<br>Drugs<br>Plant Products | <br>Cigarette Smoking<br>Chinese herbal medicine<br>EBV activating properties/ Co-factors |
| Diet | Salted fish<br>Preserved vegetables<br>Fermented food stuff<br>Nitrosomine & Nitroprecursor<br>Tunisian preserved spice<br>Meat ( Quaddied) & Stewing base (To Uklia) |
| Cooking Habits | House hold smoke & fumes |
| Religious Practices | Incense & Joss Stick Smoke |
| Occupations | Industrial fumes & chemicals<br>Metal Smelting<br>Furnaces<br>Formaldehyde<br>Wood dust |
| Others | Socioeconomic status<br>Previous otolaryngological ailments<br>Weaning habits<br>Nutritional deficiencies<br>Metals (Arsenic Chromium, Nickle) |

N-nitro-diethyclemine. They are known to induce squamous cell carcinoma and adenocarcino-ma in the nasal and paranasal cavities in animals. Besides salted fish high volatile nit-rosomine levels are also found in many other preserved food stuffs, which yield volatile nitrosomine in human stomach after ingestion. Further more the bulk of human nitrosomine comes from endogenous sources in the gut.[3] Zongetal 1985 showed that croton plants and many other traditional medicinal plants posses strong Epsteins Barr virus activating properties. Toki moto-Tetal[13] showed that a higher incidence of antinuclear anti bodies was found in the serum of patients of nasopharyngeal carcinoma and the antibodies production in these patients was higher after radiation therapy. Teo-Petal in 1989 showed that FNAC of cervical lymph nodes can aid in the diagnosis of other wise occult nasopharyngeal carcinoma and in detecting residual or recurrent nodal disease in-patients with nasopharyngeal carcinoma who had undergone treatment.[12] In our cases we staged nasopharyngeal carcinoma by HO staging (Table V) Teo-P-etal in Oct 1991[11] made a retrospective comparison between different

TABLE – V

CLASSIFICATION OF TUMOURS OF THE NASOPHARYNX, ACCORDING TO Ho.

$T_1$: Tumour confined to the nasopharynx.

$T_2$: Tumour extended to nasal fosa, oropharynx, or adjacent muscles.

$T_3$: Tumour extended beyond $T_2$ limits and sub classified as:

$T_{3a}$: Bone involvement below the base of skull.

$T_{3b}$: Involvement with the base of skull.

$T_{3c}$: Involvement of cranial nerves.

$T_{3d}$: Involvement of orbits, laryngopharynx, or infratemporal fossa.

stage classification of NPC. They stated that HO's classification is best in view of highly significant differences between the over all stages in survival and between N-Stages in distinct metastasis.[13] In our study not a single patient showed any signs & symptoms of metastasis. Oh Shimo-K etal in 1991 studied lymphnodes containing metastatic carcinoma including metastatic lymphoepithelioma, as this tumour has a strong association with Epistein-Barr virus. Their results indicate that metastatic carcinoma in lymphnodes showing EBV genomes revealed lymphoepithelioma and that the nasopharynx is very likely to be the primary site.[10] Choo-R Tannonocke in 1991[9] suggested that carcinoma of the nasopharynx should be considered a malignant nasoplasm that is distinct from squamous cell cancer in other sites of the head and neck and selected patients with recurrent or metastatic carcinoma of the nasopharynx should receive aggressive combination chemotherapy. In our study of 20 patients two patients were subjected to chemotherapy because of recurrence of disease. They had completed their full radiotherapy course. Rest of the patients were given radiotherapy. Russell- JD et al in 1993 studied brachytherapy using implantable radioactive gold or iodine and found it as a useful adjunct in eliminating residual microscopic disease.[8]

Brown-P et al[7] in 1989 studied proton therapy for NPC. They suggested that the use of protons for the major part of the treatment results in a more even distribution of dose to the tumour and an increase of approximately 5 Gy in median tumour dose with substantial reductions in doses to adjacent normal tissue. Yar JH etal in 1990 recommended booster dose for pathology positive residual lesion in the nasopharynx. They described four factors in the development of local recurrence.

a) Residual primary lesion proved positive by pathology but left unboosted.

b) Well differentiated squamous cell carcinoma in the original primary lesion.

c) Mild radio response in the cancer parenchyma and,

d) Mild radio response in interstitial tissue.[6]

Elargo- S et al in 1991 reported a case of nasopharyngeal carcinoma with secondaries in extra dural space at the thoracic level of the spinal cord which is an unusual site. Previously distinct metastasis of NPC has been reported in the bones, lungs, liver, distant lymph nodes brain and portahepaties.[5]

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