

RETROSPECTIVE STUDY OF NASOPHARYNGEAL MALIGNANCIES IN ADULT POPULATION IN RURAL ONCOLOGY SETUP

Devdatt P.Kotnis¹, Pallavi A.Lokhande², Sushil G.Kachewar³ and Dilip L.Lakhkar⁴

¹Department of ENT, Dr.Vikhe Patil Medical College, Ahmednagar

^{2,3,4}Department of Radio-Diagnosis, Dr.Vikhe Patil Medical College, Ahmednagar

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ABSTRACT

Nasopharyngeal carcinoma is a rare malignancy with few studies in the Indian terrain. The disease was studied retrospectively in the rural setup of western Maharashtra for a period of 3 yrs. The clinical, imaging characteristics of the carcinoma were studied. Age & gender wise distribution with related habits were studied with characteristic imaging findings & cervical lymphadenopathy.

Key words:

Nasopharyngeal carcinoma (NPC),
fossa of Rosenmüller.

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INTRODUCTION

Nasopharyngeal carcinoma (NPC) is tumor arising from the epithelial cells of nasopharynx. It is relatively a rare malignancy in various regions of the world. The incidence of less than 1/1,000,000 in nonendemic regions like Europe & North America(1). The incidence is higher in specific populations & geographical regions which include Chinese populations & the regions of South East Asian countries, Eskimos in the Arctic, Arabs in North Africa(2). Male preponderance is noted(3).

Five provinces of Southern Chinese population, including Guangdong, Hainan, Guangxi, Hunan, and Fujian, have higher incidence rates of NPC. Highest rates are noted among the Cantonese who inhabit the cities and counties in Pearl River Delta and West Pearl River Valley form a core high-incidence zone.

Indian population shows a low incidence of nasopharyngeal cancers as compared to the cancers of the oro-pharyngeal region except for the North Eastern region. The highest incidence being in the state of Nagaland.(4)

Multiple etiological factors have been related with the nasopharyngeal carcinoma including environmental, genetic/host factors. Ho3 suggested that at least three etiological factors: Epstein Barr virus (EBV) infection, genetic susceptibility, and associated environmental factors. Dietary

factors like salted food with high nitrosamine content (5-8), smoke dried food (9).

Smoking & inhalation of various types of smokes & fumes have also been related with higher incidences of nasopharyngeal carcinomas. (10-13)

Most common site for the origin of is the lateral wall of the nasopharynx (fossa of Rosen Müller). Local invasion within or out of the nasopharynx to the opposite side of the lateral wall, superiorly to skull base & the palate, nasal cavity & oropharynx. Cervical lymph nodal metastases is commonly present. Distant metastases in bone, lung, and mediastinum and rarely to the liver has been reported.

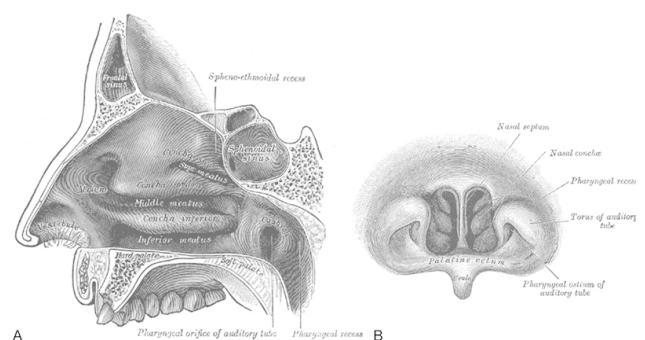


Fig 1 A) Lateral wall of the nasopharynx. (B) Front of the nasopharynx as seen with a nasalendoscope, depicting the pharyngeal recess (or fossa of Rosen Müller). (Gray, H. Anatomy of the Human Body. Philadelphia: Lea & Febiger, 1918. Public domain) (or fossa of Rosen Müller).(14)

*Corresponding author: Devdatt P.Kotnis

Department of ENT, Dr.Vikhe Patil Medical College, Ahmednagar

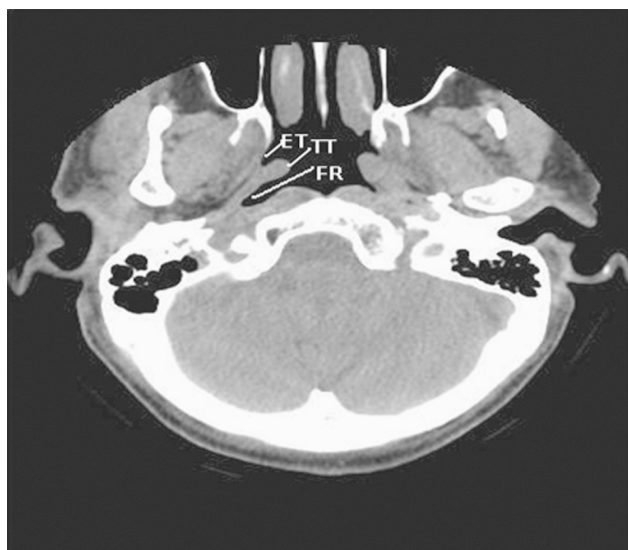


Fig 2 Axial computed tomography scan showing relationship between the Eustachian tube (ET), torus tubaris (TT), and fossa of Rosen Müller (FR)

Patient may present with cervical lymphadenopathy, and the diagnosis of NPC is often made by lymph node biopsy.

Symptoms like trismus, pain, otitis media, hearing loss and nasal regurgitation due to cranial nerve involvement.

Cranial nerve involvement was reported to be within 20 % patients conducted in the North American population. Most commonly affected nerve being V (Trigeminal nerve) causing neck/facial pain with paresthesia; followed by VI (Abducent nerve) causing diplopia on lateral gaze. However cranial nerve involvement either individually or in combinations is reported in the literature highest number being 9.(16, 17)

World Health Organization (WHO) classification (18)

Three subtypes of NPC are recognized:

- Type 1: squamous cell carcinoma, typically found in the older adult population
- Type 2: non-keratinizing carcinoma
- Type 3: undifferentiated carcinoma

Table 1 The International Union against Cancer (UICC) and American Joint Committee on Cancer (AJCC) staging system for NPC, seventh edition (2010)

Primary tumor (T)			
T1	Tumor confined to the nasopharynx, or extends to oropharynx and/or nasal cavity without parapharyngeal extension		
T2	Tumor with parapharyngeal extension		
T3	Tumor involves bony structures of skull base and/or paranasal sinuses		
T4	Tumor with intracranial extension and/or involvement of cranial nerves, hypopharynx, orbit, or with extension to the infratemporal fossa/masticator space		
Regional lymph nodes (N)			
N1	Unilateral metastasis in cervical lymph node(s), ≤6 cm in greatest dimension, above the supraclavicular fossa, and/or unilateral or bilateral, retropharyngeal lymph nodes, ≤6 cm, in greatest dimension		
N2	Bilateral metastasis in cervical lymph node(s), ≤6 cm in greatest dimension, above the supraclavicular fossa		
N3	Metastasis in a lymph node(s) >6 cm and/or to supraclavicular fossa		
N3a	>6 cm in dimension		
N3b	Extension to the supraclavicular fossa		
Distant metastasis (M)			
M0	No distant metastasis		
M1	Distant metastasis		
Anatomic stage/prognostic groups			
Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage II	T1	N1	M0
	T2	N0	M0
Stage III	T2	N1	M0
	T1	N2	M0
	T2	N2	M0
	T3	N0	M0
Stage IVA	T3	N1	M0
	T3	N2	M0
	T4	N0	M0
	T4	N1	M0
Stage IVB	T4	N2	M0
	Any T	N3	M0
Stage IVC	Any T	Any N	M1

Nasopharynx being a clinically difficult area to assess imaging modalities like MRI & CT. MRI shows more accuracy for detection of small nasopharyngeal lesions but CT is more reasonable & pocket friendly. CT is also preferable for radiotherapy planning & PET-CT helps in detecting primary and distant metastasis. Post therapy monitoring & recurrence can be done by PET-CT. (19-21)

Aims & objectives

To study the rare disease of nasopharyngeal carcinoma in the rural oncology setup of Dr.Vikhe Patil Medical Hospital, Ahmednagar.

A retrospective study was conducted in the department of Otolaryngology in the rural oncology setup of Dr.Vikhe Patil Medical College & Hospital, Ahmednagar to study the patients of nasopharyngeal carcinoma in this region.

The study covers a period of 3 yrs & 1 month i.e. 2015-17& January 2018.

A total of 16 patients having clinical symptoms & signs, with Computed Tomographic imaging findings of nasopharyngeal lesions were studied. The patient factors like age, gender, tobacco use were studied. The imaging characteristics of these patients were studied.

The age & gender distributions of the studied patients is as follows

Age Distribution	No. of patients
20-29 yrs	1
30-39 yrs	2
40-49 yrs	7
50-59 yrs	1
60-69 yrs	3
70-79 yrs	1
80-89 yrs	1
Total	16

Gender	No. of patients
Male	12
Female	4
Total	16

The history of tobacco use was present in 62.5 % of the patients (i.e. 10 out of 16 patients) The patients were clinically examined & CT imaging status of the patients was studied. The lesions were classified according to location, size & lymphadenopathy. Most of the patients showed local extension with cervical lymphadenopathy.

12 out of 16 patients (75%) had cervical lymphadenopathy & most of them presented with the same. The most common location being the lateral recesses; in few cases local invasion with extension into the oropharynx & lateral wall soft tissues was noted.

Observations

Most common site of involvement was the lateral recesses in our study; right more than left (14 out of 16). The rest sites were anterolateral & posterior walls. The cervical nodal involvement was seen in 75% (12 out of 16 patients). Rest 4 patients did not show cervical lymphadenopathy clinically or imaging wise. The lesion on imaging were categorized by size into three: < 2 cm, ≥ 2-5cm & > 5 cm. 1, 5 & 10 out of 16 patients respectively were categorized accordingly.

Size wise distribution:	
Categorizes	No. of patients
< 2 cm	1
≥ 2-5cm	5
> 5 cm	10

Nodal involvement(clinical + imaging):	
Positive	Negative
12	4

Treatment

A multidisciplinary approach for the treatment of the nasopharyngeal carcinomas is suggested. Radiation therapy (RT) is considered to be the mainstay of the treatment. Radiotherapy is used as treatment of choice in non-disseminated NPC. Stage I disease is treated by RT alone, while stage III, IVA, IVB disease are treated by RT with concurrent chemotherapy. Concurrent chemotherapy is recommended for stage II disease (22). RT is targeted to the primary tumor and the adjacent regions, and to both the sides of the neck (levels Ib–V, and retropharyngeal nodes). The supraclavicular fossa is irradiated in cases where lower cervical nodes are involved electively. The standard agent used in concurrent chemotherapy–RT is cisplatin (23).

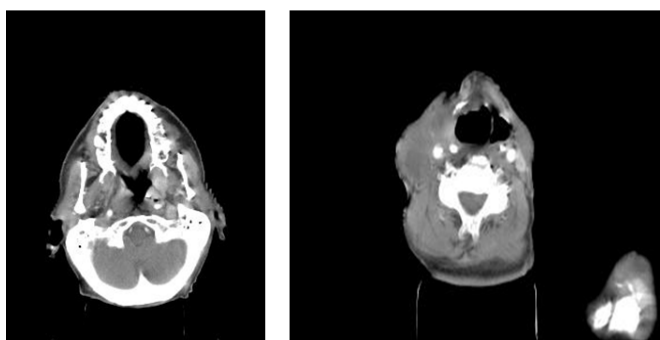
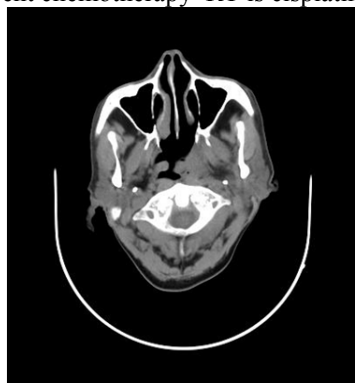


Fig 1 CECT Neck Right lateral recess soft tissue enhancing lesion with right cervical lymphadenopathy

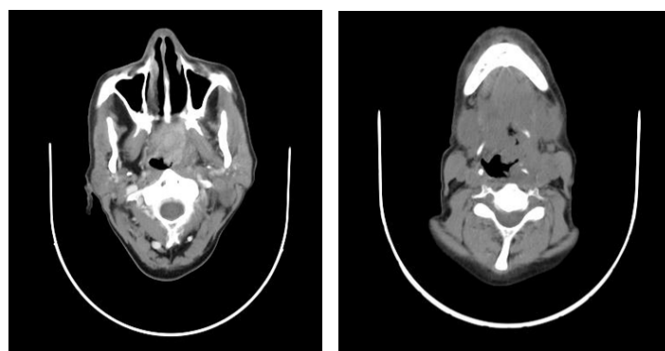


Fig 2 CECT Neck: Plain & post contrast images showing left lateral recess soft tissue density enhancing mass lesion extending into inferior-anterior aspect with multiple level I,II cervical lymphadenopathy.

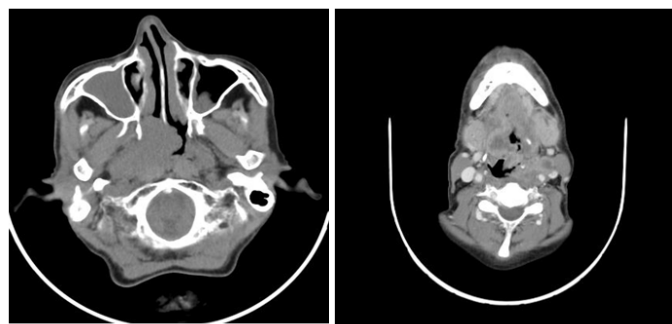


Fig 3 Right lateral nasopharynx mass lesion with bilateral maxillary sinusitis

Lack of oncology department in our rural setup compelled us to refer the patients for the proper & planned management & treatment.

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