DIAGNOSIS AND MANAGEMENT OF NASOPHARYNGEAL CARCINOMA

Dr. dr. Farhat, M.Ked(ORL-HNS), Sp.T.H.T.K.L(K)

The 1st International Conference of Nasopharyngeal Carcinoma

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Department of Otorhynolaryngology
Head and Neck Surgery
Faculty of Medicine, Universitas Sumatera Utara
INTRODUCTION

DIAGNOSIS AND MANAGEMENT OF NASOPHARYNGEAL CARCINOMA

Nasopharyngeal carcinoma (NPC) is a squamous cell carcinoma originating from nasopharyngeal epithelial cells. NPC has a high potential for regional metastases to the cervical lymph nodes and distant metastases. About 90% of NPC patients show malignancy of the cervical lymph nodes.

Brennan, 2016
Most of NPC patients come at an advanced stage (III and IV)

Poor prognosis

Early diagnosis is difficult

Mulyarjo, 2002; Jeyakumar et al, 2006; Brennan, 2006
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ANATOMY

- Space located behind the nasal cavity
- Trapezoidal
- Size 4 cm high, 4 cm wide and 3 cm anteroposterior dimension.
- The nasopharyngeal mucosa is coated by pseudostratified columnar respiratory type epithelium and non-keratinizing stratified squamous epithelium

(Cottrill & Nutting, 2003; Wei, 2006)
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- Upper jugular chain area or jugulodigastric area (posterior auricular nodes): nasopharynx
- Posterior triangle lymph nodes:
  - nasopharynx, posterior scalp, ear, temporal bone, or skull base
- Posterior cervical triangle
- Submandibular triangle
  - (submandibular group): anterior two-thirds of the tongue, floor of the mouth, gums, mucosa of the cheek
- Submental triangle
  - (submental nodes): rarely involved early except from cancer of the lip
- Midjugular chain area
  - (deep lateral cervical nodes): any portion of the oral cavity, pharynx, or larynx, especially growths in the Waldeyer ring (nasopharynx, tonsil, base of the tongue)
- Lower jugular chain area
  - (supracleavicular nodes): thyroid, piriform sinuses, upper esophagus; rarely from primary below the clavicle
- Anterior cervical triangle
The highest incidence of NPC happened in Chinese around Guangdong province, namely 20-30 cases per 100,000 male population and 15-20 cases per 100,000 female population.

In addition, NPC also highly occurred in the regions of South Asia, North Africa, the Middle East and Eskimo populations in Alaska.

NPC is rarely found in the white population.

(Wei WI & Kwong DLW, 2010)
Mortality ASR
Both sexes
Asia

Nasopharyngeal cancer
1.2+
0.54-1.2
0.32-0.54
0.20-0.32
<0.20
No Data

Source: GLOBOCAN 2012 (IARC)
Nasopharyngeal cancer ranks 5th out of 10 major malignant tumors throughout the body.

Ear Nose Throat Head and Neck Surgery ➔ Nasopharyngeal cancer ranks first.

Nearly 60% of head and neck malignant tumors are nasopharyngeal cancers.
Based of the data from the Ministry of Health (2007), NPC is one of 10 most types of cancer found in Indonesia (2004-2006) and continued to increase.

Tan (2010) reports that the incidence of NPC in Indonesia has increased to 6 per 100,000 population each year with an average of 12,000 new cases per year.

Bimodal age with an initial peak between 15 to 25 years, and the peak age of 4\textsuperscript{th} and 5\textsuperscript{th} decades. The ratio of men to women = 3: 1
ETIOLOGY

The exact and specific causes of NPC are still unknown.

Genetic and environmental factors, such as Epstein Barr virus infection and consumption of salted fish are believed to be the cause.
Genetic Factors

- In Chinese, NPC is associated with the discovery of HLA types A2 and Bw46

Research in Medan - the cause of susceptibility to NPC in the Batak tribe is the HLA-DRB1 * 08 gene allele

EBV infection

- This virus is a DNA virus that is classified as a member of the Herpes virus family (Herpesviridae). It can replicate in nasopharyngeal epithelial cells, oropharynx and parotid glands.
Food Factors

- Several epidemiological studies → early consumption of salted fish have caused NPC in South China and Hong Kong.

- Case control study → often consuming salted fish before the age of 10 years → increases the risk of developing NPC.

Work environment and life habits

- Heavy smokers are 2-4 times more at risk than non-smokers.

- A matching case control study in Semarang reported that exposure to formaldehyde in the form of inhaled vapors and smoke had the greatest chance of occurrence of NPC.
ETIOLOGY

- GENETICS
- WORK & LIFE HABITS
- FOOD FACTORS
- EBV INFECTION

(Zou, 2007)
CLINICAL SYMPTOMS

- Because of the rich lymphatic supply and its difficult-to-check area → cervical metastasis is often seen in the initial appearance.

- Like other head and neck malignancies, there is no relationship between the size of the primary tumor and the cervical lymph nodes.

- Early and nonspecific signs and symptoms of NPCF come at an advanced stage.
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**NASAL SYMPTOMS**

- Epistaxis
- Nasal congestion

**EAR SYMPTOMS**

- Hearing disorders
- Tinnitus
- Otalgia
- Serous otitis media
- Perforation

Cotrill dan Nutting, 2003
Wei, WI dan Kwong DL, 2010
Neurological Symptoms

Petrosphenoidal syndrome:

N.II → Vision disorders
N.III → Ptosis
N.III, IV, VI → Diplopia
N.V → Unilateral numbness

(Ahmad, 2002)
Parapharyngeal Syndrome

- N.IX → Difficulty swallowing

- N.X → motor disorders such as aphonya, dysphonia, dysphagia and esophageal spasm. Sensory disorders include pain in larynx and pharynx, dyspnea and hypersalivation

- N.XI → paralysis or atrophy m. trapezius, sternocleidomastoid serta hemiparesis soft palate

- N.XII → hemiparesis and atrophy next to the tongue

(Ahmad, 2002)
Diplopia
Cervical lymphadenopathy

- Frequent symptoms
- The location at the end of the mastoid process, behind the mandibular angles is the jugulodigastric gland and the posterior cervical gland (upper and middle), then followed by the middle cervical gland

Distant Metastasis

- Bones, lungs, liver and supraclavicular lymph nodes
- Poor prognosis
Lump on the neck
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DIAGNOSIS

ANAMNESIS

Examination

- Posterior rhinoscopy
- Nasopharyngoscopy + biopsy
- Radiology
- Anatomical pathology

Histopathology, immunohistochemistry

CT-Scan, MRI, PET Scan
NPC Histopathology

WHO

Type I. Keratinizing squamous cell carcinoma
Type II. Non keratinizing squamous cell carcinoma
Type III. Undifferentiated carcinoma
<table>
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<th>Staging</th>
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Radiotherapy has been the primary therapeutic modality for NPC for many years. This is because the nasopharynx is adjacent to the important structures and infiltration properties of NPC, so surgery for primary tumors is difficult.

Radiotherapy has managed to control T1 and T2 tumors in 75-90% of cases and tumors of T3 and T4 in 50-75% of cases.

Chemotherapy functions as a radiosensitizer and helps in reducing distant metastases.
NPC MANAGEMENT (NCCN 2010)

Head and Neck Cancers
Cancer of the Nasopharynx

**CLINICAL STAGING**

| T1, N0, M0 | Definitive RT to nasopharynx and elective RT to neck |
| T1, N1-3; T2-T4, any N | Cisplatin 100 mg/m² on days 1, 22, 43 or cisplatin 40 mg/m² every wk + RT (≥ 70 Gy) to primary and gross nodal disease (category 1) and bilateral neck: ≥ 50 Gy or induction chemotherapy followed by chemo/RT (category 3) |

**TREATMENT OF PRIMARY AND NECK**

| Cisplatin, 80 mg/m² day 1 + 5-FU, 1,000 mg/m², CI x 4 days; repeat every 4 wk x 3 courses |
| Neck: residual tumor |
| Neck: complete clinical response |
| Follow-up (See FOLL-A) |

**FOLLOW-UP**

| Neck dissection |
| Observe |
| Definitive RT to primary and neck or Chemo/RT |

| Any T, any N, M1 | Platinum-based combination chemotherapy |
| If complete clinical response |

Guidelines Index: Head and Neck Cancers TOC
Staging, Discussion, References
In Plant (2009) study, NPC treated between 1996 and 2000 had a 5-year disease-specific survival.

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<tr>
<th>Stage</th>
<th>Survival Rate</th>
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<td>IV</td>
<td>65%</td>
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THANK YOU

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