

What is Nose Cancer (Nasopharyngeal Cancer)?

Nasopharyngeal cancer (NPC) or commonly called 'nose cancer', develops in the nasopharynx, an area in the back of the nose toward the base of skull. The nasopharynx lies just above the soft palate, just in the back of the entrance into the nasal passages. NPC is the most common head & neck cancer in Singapore, with 350 to 400 new cases of NPC being diagnosed each year.

What are the risk factors for NPC?

Several risk factors have been identified that make a person more likely to develop NPC:

- 1. Epstein-Barr virus infection:** Almost all NPC cells contain the Epstein-Barr virus (EBV). This virus is very widespread and common and in most cases, infection with this virus causes mild symptoms of fever and sore throat in an illness called infectious mononucleosis. However in cellular interactions that are still not completely understood, there is a complex link between EBV infection and NPC. While the virus is found in almost all NPC cells, EBV infection alone is not sufficient to cause NPC, since this cancer is rare whereas infection with this virus is so common.
- 2. Genetic factors:** NPC commonly affects Asians, in particular men between the ages of 20 to 50. People originating from Southeast Asia and Southern China are at particular risk for developing NPC.
- 3. Diet:** People who live in areas of Asia, northern Africa, and the Arctic region, where NPC is common, typically eat diets very high in salt-cured fish and meat. Indeed, the rate of this cancer is dropping in some parts of southeast China as people begin eating a more "Western" diet.

What are the signs and symptoms of NPC?

Persistently enlarged masses or lymph nodes in the neck

Hearing loss or tinnitus (ear ringing) especially on one side only

Nasal blockage or stuffiness

Nosebleeds or blood-stained phlegm from the nose and throat

Blurred or double vision (related to invasion of the nerves that control eye movement).

How is NPC diagnosed?

The first step involves taking a complete medical history to check for risk factors and symptoms. A **full head & neck examination** is then done, paying special attention to any lymph node enlargement in the neck area, facial numbness or muscle weakness. Because the nasopharynx is located deep inside the head and not easily seen, special techniques are needed to examine this area. A **flexible fiberoptic endoscope** is used to look inside the nose directly at the nasopharynx for abnormal growths, bleeding, or other signs of disease. If a suspicious growth is found, a **biopsy** is usually done to obtain a sample of tissue. This biopsy sample can then be sent to the pathology laboratory for analysis and if cancer cells are present, the pathologist will send back a report describing the type and extent of the cancer. If NPC is diagnosed, further imaging tests need to be done to fully assess the extent of the tumour and if there is any metastases or spread of cancer to other parts of the body. These tests may include CT scans, MRI scans, and more recently PET-CT scans.

What is the treatment for NPC?

Radiation therapy is the main form of treatment for NPC because most cases respond well to radiotherapy. The most common way to deliver radiation to an NPC is to carefully focus a beam of radiation from a machine outside of the body. This is known as external beam radiation. To reduce the risk of side effects, doctors carefully figure out the exact dose needed and aim the beam as accurately as they can to hit the target area. External beam radiation therapy usually involves having treatments 5 days a week for a period of about 6 to 7 weeks. Many radiation therapists are using a new form of external beam radiation therapy called **intensity modulated radiation therapy (IMRT)**. IMRT changes the radiation beam so it is better shaped to the contours of the tumour and reduces the dose of radiation to the surrounding normal tissue, thus reducing unwanted side effects. **Brachytherapy** is another method of delivering radiation by inserting very thin metal rods containing radioactive materials into or near the cancer. Sometimes, both brachytherapy and external beam radiation therapy are used together.

Chemotherapy is given by using special drugs to treat the cancer and may involve the use of 2 or more drugs, called combination chemotherapy for additional effect. Chemotherapy is often used together with radiation therapy as the first line treatment for this cancer. It is also used alone for patients whose NPC has spread to lymph nodes and/or distant organs such as the lungs, bones, or liver. Chemotherapy drugs kill cancer cells but also can kill rapidly growing normal cells (like the blood-producing cells of the bone marrow, the cells lining the gastrointestinal tract, and hair follicles). Therefore, patients may have side effects such as low blood cell counts, mouth sores, or hair loss. Low blood cell counts result in an increased chance of infection (due to a shortage of white blood cells), bleeding or bruising after minor cuts or injuries (due to a shortage of blood platelets), and fatigue (due to low red blood cell counts). In addition, most chemotherapy drugs may cause nausea and vomiting.

Is surgery necessary for the treatment of NPC?

Surgery is seldom done for patients with nasopharyngeal cancer. New surgical techniques can completely remove some nasopharyngeal tumors, but this strategy is appropriate only for a relatively small number of patients. These complex procedures are usually done by specially trained ENT-Head & Neck surgeons. The advantages of surgical removal include the ability of the pathologist to examine the entire cancer, as well as additional tissue removed during surgery,

and of the surgeon to repair/reconstruct the cancer site. Cancers of the nasopharynx often spread to the lymph nodes in the neck. If surgery is done on the primary tumor, it may be necessary to remove these lymph nodes by an operation called a neck dissection. The goal of surgery is to remove lymph nodes proven or likely to contain metastatic cancer. Neck dissections are an important part of treating many types of head and neck cancer that have spread or have a high chance of spreading into the neck. As mentioned earlier, most cases of NPC are sensitive to radiation, so neck dissection is usually recommended only if the cancer has persisted after radiation treatment or has come back after a period of time (a recurrence).

Useful links:

http://www.cancer.org/docroot/CRI/content/CRI_2_4_1X_What_is_nasopharyngeal_cancer_17.asp
<http://www.merck.com/mmhe/sec19/ch223/ch223d.html>

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