Nasopharyngeal Cancer Early Detection, Diagnosis, and Staging

Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- Can Nasopharyngeal Cancer Be Found Early?
- Signs and Symptoms of Nasopharyngeal Cancer
- How Is Nasopharyngeal Cancer Diagnosed?

Stages and Outlook (Prognosis)

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

- How Is Nasopharyngeal Cancer Staged?
- Survival Rates for Nasopharyngeal Cancer by Stage

Questions to Ask About Nasopharyngeal Cancer

Here are some questions you can ask your cancer care team to help you better understand your cancer diagnosis and treatment options.

- What Should You Ask Your Doctor About Nasopharyngeal Cancer?

Can Nasopharyngeal Cancer Be Found Early?
In the United States and other countries where nasopharyngeal cancer (NPC) is fairly rare, most doctors do not recommend routine screening for this cancer (screening is testing for cancer in people without any symptoms). There are no simple, non-invasive exams or blood tests that can reliably find this cancer early.

But in some parts of the world such as China, where NPC is common, some people are being screened routinely for this cancer. They are first selected because their blood shows evidence of infection with the Epstein-Barr virus, although EBV infection is much more common than NPC. They are given regular exams of the nasopharynx and neck. This approach can also be used in families when one member has developed NPC. It isn't known if this strategy lowers the death rate from this cancer.

Sometimes NPC can be found early if it causes symptoms that make patients seek medical attention. The symptoms may even seem unrelated to the nasopharynx (for example, a constant feeling of fullness in one ear). But in most people, NPCs may not cause symptoms until they have reached an advanced stage.

- References
See all references for Nasopharyngeal Cancer

Signs and Symptoms of Nasopharyngeal Cancer

About 3 out of 4 people with NPC complain of a lump or mass in the neck when they first see their doctor. There may be lumps on both sides of the neck towards the back. The lumps are usually not tender or painful. This is caused by the cancer spreading to lymph nodes in the neck, making them larger than normal. Lymph nodes are glands or organs that contain collections of immune system cells that are found throughout the body. Normally, they are smaller than the size of a pea.

Other possible symptoms of NPC include:
Hearing loss, ringing in the ear, or feeling of fullness in the ear (especially on one side only)
- Ear infections that keep coming back
- Nasal blockage or stuffiness
- Nosebleeds
- Headache
- Facial pain or numbness
- Trouble opening the mouth
- Blurred or double vision

Ear infections are common in children, but are less common in adults. If you develop an infection in one ear and you have not had ear infections in the past, it is important to have a specialist examine your nasopharynx. This is especially true if you don't have an upper respiratory tract infection (like a “cold”) along with the ear infection.

Many of the symptoms and signs of NPC are more often caused by other, less serious diseases. Still, if you have any of these problems, it's important to see your doctor right away so the cause can be found and treated, if needed.

- References

See all references for Nasopharyngeal Cancer

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How Is Nasopharyngeal Cancer Diagnosed?

Nasopharyngeal cancer (NPC) is most often diagnosed when a person goes to a doctor because of symptoms such as a lump in the neck. The doctor will take a history, do an exam, and then may refer the patient to a specialist and/or order some tests.

Medical history and physical exam
If you have any signs or symptoms that suggest you might have nasopharyngeal cancer, your doctor will want to get your complete medical history to learn about your symptoms and any possible risk factors, including your family history.

A physical exam will be done to look for signs of NPC or other health problems. During the exam, the doctor will pay special attention to the head and neck area, including the nose, mouth, and throat; the facial muscles, and the lymph nodes in the neck.

If your doctor suspects you may have a tumor or other problem in the nose or throat, he or she may order imaging tests (such as CT or MRI) to look at the head and neck area more closely. Your doctor may also refer you to an otolaryngologist (a doctor specializing in ear, nose, and throat problems, also sometimes called an ENT doctor), who will do a more thorough exam of the nasopharynx. The nasopharynx is a difficult area to examine. Most other kinds of doctors do not have the specialized training or equipment to do a thorough exam of this part of the body.

**Exams of the nasopharynx**

The nasopharynx is located deep inside the head and is not easily seen, so special techniques are needed to examine this area. There are 2 main types of exams used to look inside the nasopharynx for abnormal growths, bleeding, or other signs of disease. Both types of exams are usually done in the doctor's office.

- For *indirect nasopharyngoscopy*, the doctor uses special small mirrors and lights placed at the back of your throat to look at the nasopharynx and nearby areas.
- For *direct nasopharyngoscopy*, the doctor uses a fiber-optic scope known as a *nasopharyngoscope* (a flexible, lighted, narrow tube inserted through the nose) to look directly at the lining of the nasopharynx. You will have numbing medicine sprayed into your nose before the exam to make it easier. This is the method most often used to carefully examine the nasopharynx.

If a tumor starts under the lining of the nasopharynx (in the tissue called the *submucosa*), it may not be possible to see it directly on physical exam, which is why imaging tests such as CT scans (see below) may be needed as well.

**Biopsy**

Symptoms and the results of exams can suggest that a person might have NPC, but the actual diagnosis is made by removing cells from an abnormal area and looking at them under a microscope. This is known as a *biopsy*. Different types of biopsies may be done, depending on where the abnormal area is.
**Endoscopic biopsy**

If a suspicious growth is found in the nasopharynx during an exam, the doctor may remove a biopsy sample with small instruments and the aid of a fiber-optic scope. Often, biopsies of the nasopharynx are done in the operating room as an outpatient procedure. The sample is then sent to a lab, where a pathologist (a doctor who specializes in diagnosing and classifying diseases in the lab) looks at it under a microscope. If the biopsy sample contains cancer cells, the pathologist sends back a report describing the type of the cancer.

NPC is not always visible during an exam. If a person has symptoms suggesting NPC but nothing abnormal is seen on exam, the doctor may biopsy normal-looking tissue, which may be found to contain cancer cells when looked at under the microscope.

**Fine needle aspiration (FNA) biopsy**

An FNA biopsy may be used if you have a suspicious lump in or near your neck. For this procedure, the doctor uses a thin, hollow needle attached to a syringe to aspirate (withdraw) a few drops of fluid containing cells and tiny fragments of tissue. A local anesthetic (numbing medicine) may be used on the skin where the needle will be inserted might be numbed with a local anesthetic but sometimes this is not needed.

The doctor places the needle directly into the mass for about 10 seconds and withdraws cells and a few drops of fluid. The cells are then looked at under a microscope to see if they are cancerous.

An FNA biopsy can help determine if an enlarged lymph node in the neck area is caused by a response to an infection, the spread of cancer from somewhere else (such as the nasopharynx), or a cancer that begins in lymph nodes — called a lymphoma. If the cancer started somewhere else, the FNA biopsy alone might not be able to tell where it started. But if a patient already known to have NPC has enlarged neck lymph nodes, FNA can help determine if the spread of NPC caused the lymph node swelling.

**Imaging tests**

Imaging tests use x-rays, magnetic fields, sound waves, or radioactive particles to create pictures of the inside of your body. Imaging tests may be done for a number of reasons, including to help find a suspicious area that might be cancerous, to learn how far cancer may have spread, and to help determine if treatment has been effective.
Chest x-ray

If you have been diagnosed with NPC, a plain x-ray of your chest may be done to see if the cancer has spread to your lungs. This is very unlikely unless your cancer is far advanced. This x-ray can be done in any outpatient setting. If the results are normal, you probably don’t have cancer in your lungs.

Computed tomography (CT) scan

The CT scan is an x-ray test that produces detailed cross-sectional images of your body. Instead of taking one x-ray, a CT scanner takes many pictures as it rotates around you. A computer then combines them into images of slices of the part of your body that is being studied.

Before the pictures are taken, you may get an IV (intravenous) line through which a kind of contrast dye (IV contrast) is injected. This helps better outline structures in your body. You may also be asked to drink 1 to 2 pints of a liquid called oral contrast. This helps outline the intestine so that certain areas are not mistaken for tumors. It may not be needed for CT scans of the nasopharynx.

The injection can cause some flushing (redness and warm feeling). Some people are allergic and get hives or, rarely, more serious reactions like trouble breathing and low blood pressure. Be sure to tell the doctor if you have any allergies or have ever had a reaction to a contrast material used for x-rays.

You need to lie still on a table while the scan is being done. During the test, the table slides in and out of the scanner, a ring-shaped machine that completely surrounds the table. You might feel a bit confined by the ring you have to lie in while the pictures are being taken.

A CT scan of the head and neck can provide information about the size, shape, and position of a tumor and can help find enlarged lymph nodes that might contain cancer. CT scans or MRIs are important in looking for cancer that may have grown into the bones at the base of the skull. This is a common place for nasopharyngeal cancer to grow. CT scans can also be used to look for tumors in other parts of the body.

Magnetic resonance imaging (MRI) scan

Like CT scans, MRI scans provide detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of body tissue and
by certain diseases. A computer translates the pattern into very detailed images of parts of the body. A contrast material called gadolinium is often injected into a vein before the scan to better see details.

MRI scans may be a little more uncomfortable than CT scans. They take longer – often up to an hour. You may be asked to lie on a table that slides inside a large tube, which is confining and can upset people with a fear of enclosed spaces. Special, “open” MRI machines can sometimes help with this if needed, but the drawback is that the images may not be as clear. The MRI machine makes buzzing and clicking noises that you may find disturbing. Some places will provide earplugs to help block this noise out.

Like CT scans, MRIs can be used to try to determine if the cancer has grown into structures near the nasopharynx. MRIs are a little better than CT scans at showing the soft tissues in the nose and throat, but they’re not quite as good for looking at the bones at the base of the skull, a common place for nasopharyngeal cancer to grow.

Positron emission tomography (PET) scan

For a PET scan, you receive an injection of a form of radioactive sugar (known as fluorodeoxyglucose or FDG). The amount of radioactivity used is low. Because cancer cells in the body are growing rapidly, they absorb large amounts of the sugar. After about an hour, you are moved onto a table in the PET scanner. You lie on the table for about 30 minutes while a special camera creates a picture of areas of radioactivity in the body. The picture is not finely detailed like a CT or MRI scan, but it provides helpful information about your whole body.

Your doctor may use this test to see if the cancer has spread to your lymph nodes. It can also help give the doctor a better idea of whether an abnormal area on a chest x-ray may be cancer. A PET scan can also be useful if your doctor thinks the cancer may have spread but doesn’t know where.

Some machines are able to do both a PET and CT scan at the same time (PET/CT scan). This lets the doctor compare areas of higher radioactivity on the PET with the more detailed appearance of that area on the CT.

Blood tests

Blood tests are not used to diagnose NPC, but they may be done for other reasons, such as to help determine whether the cancer may have spread to other parts of the body.
Routine blood counts and blood chemistry tests

Routine blood tests can help determine a patient's overall health. These tests can help diagnose malnutrition, anemia (low red blood counts), liver disease, and kidney disease. And they may suggest the possibility of spread of the cancer to the liver or bone, which may prompt further testing.

In people getting chemotherapy, blood tests are important to see if the treatment is damaging the bone marrow (where new blood cells are made), liver, and kidneys.

Epstein-Barr virus (EBV) DNA levels

In some patients, the blood level of EBV DNA may be measured before and after treatment to help show how effective treatment is.

- References

See all references for Nasopharyngeal Cancer

How Is Nasopharyngeal Cancer Staged?

The stage of a cancer is a description of how far it has spread. The stage of nasopharyngeal cancer (NPC) is one of the most important factors in selecting treatment options and estimating a patient's outlook for recovery and survival (prognosis).

The stage of NPC is determined by the results of the physical exam, imaging tests (CT or MRI scan, etc.) and other tests, which are described in the section How Is Nasopharyngeal Cancer Diagnosed?, and by the results of surgery if it has been done.

If you have NPC, ask your cancer care team to explain the stage in a way you can understand. By knowing all you can about the stage of your cancer, you can take a more active role in making informed decisions about your treatment.
The American Joint Committee on Cancer (AJCC) TNM system

A staging system is a standard way for the cancer care team to sum up the extent of a cancer’s spread. The most common system used to describe the spread of NPC is the TNM system created by the American Joint Committee on Cancer (AJCC). This system contains 3 key pieces of information:

- **T** describes whether the main (primary) tumor has invaded other organs or tissues near the nasopharynx.
- **N** describes whether the cancer has spread to nearby (regional) lymph nodes (bean-sized collections of immune system cells throughout the body).
- **M** indicates whether the cancer has metastasized (spread) to other parts of the body. (The most common sites of distant NPC spread are the lungs, liver, and bones.)

The numbers or letters that appear after T, N, and M provide more details about each of these factors:

- The numbers 0 through 4 indicate further spread.
- The letter X means “cannot be assessed” because the information is not available.
- The letters “is” after the T stand for “in situ,” which means the tumor is still only in the layer of cells where it started and has not yet invaded deeper.

**T groups for nasopharyngeal cancer**

**TX:** Primary tumor cannot be assessed because of incomplete information.

**T0:** No evidence of a primary tumor.

**Tis:** Carcinoma in situ (cancer cells are found only in the surface layer of the nasopharynx but have not invaded into deeper layers).

**T1:** Tumor is in the nasopharynx. The cancer may also have grown into the oropharynx (the part of the throat in the back of the mouth) and/or nasal cavity but no farther.

**T2:** The cancer has grown into the tissues of left or right sides of the upper part of the throat (but not into bone).

**T3:** The tumor has grown into the sinuses and/or the bones nearby.
The tumor has grown into the skull and/or cranial nerves (nerves in the head that lie near the nasopharynx and have special functions such as vision, smell, and eye movement), the hypopharynx (lower part of the throat), or the eye or its nearby tissues.

**N groups for nasopharyngeal cancer**

**NX:** Nearby lymph nodes cannot be assessed due to incomplete information.

**N0:** No spread to nearby lymph nodes.

**N1:** Spread to 1 or more lymph nodes on one side of the neck; OR spread to lymph nodes behind the throat (called retropharyngeal lymph nodes) on either side of the neck. In either case, no lymph node is larger than 6 cm (about 2½ inches) across.

**N2:** Spread to lymph nodes on both sides of the neck, none larger than 6 cm across.

**N3:** Spread to lymph nodes that are either:

- **N3a:** larger than 6 cm across
- **N3b:** located in the shoulder area just above the collarbone (this area is called the supraclavicular fossa)

**M groups for nasopharyngeal cancer**

**M0:** The cancer has not spread to tissues or organs far away from the nasopharynx.

**M1:** The cancer has spread to tissues or organs far away from the nasopharynx.

**TNM stage grouping**

Once the T, N, and M categories have been determined, this information is combined in a process called *stage grouping*. The stage is expressed as the number 0 (zero) or the Roman numerals I to IV (1-4). Some stages are subdivided with letters.

**Stage 0: Tis, N0, M0:** The cancer is “in situ.” Cancer cells are only in the surface layer of the nasopharynx but have not yet grown into deeper layers (Tis). The cancer has not spread to nearby lymph nodes (N0) or distant sites (M0).

**Stage I: T1, N0, M0:** The tumor is in the nasopharynx and may have spread to soft tissues of the nasal cavity and/or the oropharynx (T1). It has not spread to nearby lymph
nodes (N0) or distant sites (M0).

**Stage II:** Either:

* **T2, N0, M0:** The tumor has grown into the tissues of the left or right sides of the upper part of the throat (T2). It has not spread to nearby lymph nodes (N0) or distant sites (M0).

OR

* **T1 or T2, N1, M0:** The tumor may still be confined to the nasopharynx, or it may have extended to the soft tissues of the nasal cavity or the oropharynx (T1), or the left or right sides of the upper part of the throat (T2). It has spread to one or more nearby lymph nodes, none of which is larger than 6 cm (about 2½ inches) across. These lymph nodes are either neck lymph nodes on one side or lymph nodes behind the throat (retropharyngeal lymph nodes) on either side (N1). The cancer has not spread to distant sites (M0).

**Stage III:** Either:

* **T3, N0 to N2, M0:** The tumor has spread to the sinuses or the bones near the nasopharynx (T3). It may or may not have spread to lymph nodes in the neck or behind the throat, but none of these lymph nodes is larger than 6 cm across (N0 to N2). It has not spread to distant sites (M0).

OR

* **T1 or T2, N2, M0:** The tumor may still be confined to the nasopharynx, or it may have grown into the soft tissues of the nasal cavity or the oropharynx (T1), or the left or right sides of the upper part of the throat (T2). The tumor has spread into nearby neck lymph nodes on both sides, but none of the lymph nodes is larger than 6 cm across (N2). The cancer has not spread to distant sites (M0).

**Stage IVA:** **T4, N0 to N2, M0:** The tumor has grown into the skull and/or cranial nerves, the hypopharynx (lower part of the throat), the eye, or its nearby tissues (T4). It may or may not have spread to nearby lymph nodes in the neck, none of which is larger than 6 cm across (N0 to N2). It has not spread to distant sites (M0).

**Stage IVB:** **Any T, N3, M0:** The tumor may or may not have extended into nearby soft tissues or bones (any T). It has spread to lymph nodes that are larger than 6 cm across and/or are located in the shoulder area above the collarbone (N3). The cancer has not spread to distant sites (M0).
Stage IVC: Any T, any N, M1: The tumor may or may not have extended into nearby soft tissues or bones (any T). It may or may not have spread to nearby lymph nodes (any N). It has spread to distant sites (M1).

- References

See all references for Nasopharyngeal Cancer

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Survival Rates for Nasopharyngeal Cancer by Stage

Survival rates are often used by doctors as a standard way of discussing a person’s prognosis (outlook). Some patients with cancer may want to know the survival statistics for people in similar situations, while others may not find the numbers helpful, or may even not want to know them. If you decide that you do not want to read about them, skip to the next section.

The 5-year survival rate refers to the percentage of patients who live at least 5 years after their cancer is diagnosed. Of course, many people live much longer than 5 years (and many are cured).

Relative survival rates (such as the numbers below) adjust for patients with nasopharyngeal cancer (NPC) who die from other causes, such as heart disease. They are considered to be a more accurate way to describe the outlook for patients with a particular type and stage of cancer.

In order to get 5-year survival rates, doctors have to look at people who were treated at least 5 years ago. Improvements in treatment since then may result in a more favorable outlook for people now being diagnosed with NPC.

Survival rates are often based on previous outcomes of large numbers of people who had the disease, but they cannot predict what will happen in any particular person’s case. Many other factors may affect a person’s outlook, such as their age, overall
health, the treatment received, and how well the cancer responds to treatment. Your doctor can tell you how the numbers above may apply to you, as he or she is familiar with your particular situation.

The numbers below were published in 2010 in the 7th edition of the AJCC Cancer Staging Manual and are based on people diagnosed between 1998 and 1999.

- **Stage**
  - I: 72%
  - II: 64%
  - III: 62%
  - IV: 38%

**What Should You Ask Your Doctor About Nasopharyngeal Cancer?**

As you deal with your cancer and the process of treatment, you need to have honest, open discussions with your cancer care team. You should feel free to ask any question, no matter how minor it might seem. Among the questions you might want to ask are:

- What kind of nasopharyngeal cancer do I have? Does this affect my options?
- Has my cancer spread beyond the nasopharynx?
- What is the stage of my cancer? What does the stage mean in my case?
- Are there other tests that need to be done before we can decide on treatment?
- Are there other doctors I need to see?
- How much experience do you have treating this type of cancer?
- What treatment choices do I have?
• What do you recommend and why?
• What is the goal of the treatment?
• What are the chances my cancer can be cured with treatment?
• How quickly do we need to decide on treatment?
• What should I do to be ready for treatment?
• How long will treatment last? What will it involve? Where will it be done?
• How will treatment affect my daily activities?
• What risks and side effects can I expect? How long are they likely to last?
• What are the chances that my cancer will recur?
• What would we do if the treatment doesn’t work or if the cancer recurs?
• What type of follow-up might I need after treatment?

Along with these sample questions, you might want to write down some of your own. For instance, you might want more information about recovery times so you can plan your work or activity schedule. Or you may want to ask about second opinions or about clinical trials for which you may qualify. Keep in mind, too, that doctors are not the only ones who can give you information. Other health care professionals, such as nurses and social workers, may have the answers you seek.

• References
See all references for Nasopharyngeal Cancer

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