

Hypopharynx

a. Anatomy

- i. The hypopharynx is the lowest portion of the throat. The hypopharynx funnels food and water into the esophagus. Air in the hypopharynx is diverted to the front, through the larynx, or voicebox, just in front of the hypopharynx.
- ii. The hypopharynx is intimately related to the larynx. In fact, distinguishing larynx and hypopharynx may be difficult if a cancer involves overlapping sites. Fortunately, the treatments are often very similar.
- iii. Squamous cells make up the lining, also known as the mucosa, of the hypopharynx. That is why squamous cell carcinoma is the most common type of hypopharynx cancer.

b. Risk Factors

- i. Hypopharyngeal tumors are more common in males
- ii. Alcohol use has been found to increase the risk of cancers of the hypopharynx
- iii. Nutritional factors that predispose to this cancer include Plummer Vinson Syndrome
- iv. Chronic acid reflux (GERD)
- v. Occupational exposures
 1. Asbestos, wood dust, welding fumes, nickel, leather, and polycyclic aromatic hydrocarbons
- vi. Human Papilloma Virus (HPV)

c. Symptoms

- i. Difficulty swallowing, pain with swallowing, sore throat, ear pain, and weight loss
- ii. Some patients may present with a neck mass
- iii. Some patients may have hoarseness, or change in voice, and difficulty breathing

d. Diagnosis

- i. Diagnosis of a cancer within the hypopharynx can be challenging due to the difficulty with visualizing this area of the throat. This sometimes results in delays in diagnosis. Once a lesion is suspected, a biopsy will be required to confirm the diagnosis. This can occasionally be accomplished in the clinic with specialized equipment. To effectively biopsy and evaluate the extent of the hypopharyngeal cancer, you may require biopsy under general anesthesia in the ambulatory outpatient setting. Prior to scheduling your biopsy under general anesthesia, a complete head and neck exam including in-office fiberoptic camera exam may be performed. Patients presenting with a neck, mass may undergo a needle biopsy in the office, with or without radiologic image guidance.
- ii. Your doctor may also order a variety of medical imaging:
 1. Computerized tomogram imaging (CT scan)
 2. Magnetic resonance imaging (MRI)
 3. Positron emission tomography (PET)

These images will help to further delineate the extent of the cancer. Different types of imaging help to visualize different anatomic structures. Intravenous contrast enhanced CT scan and MRI can identify abnormalities in the throat or neck that suggest a primary tumor or lymph node metastases. PET imaging is a

special technology that identifies a glucose (sugar) molecule being absorbed by the cancer cells and help determine whether the tumor has spread to other parts of the body. CT scan imaging of the chest may be required to visualize any spread of disease to the lungs.

e. Staging

- i. The American Joint Committee on Cancer (AJCC) has developed a staging system (TNM staging) to help guide treatment. The staging system groups cancers into stages based on their anatomic extent. The staging helps to determine the optimal treatment for a specific cancer, and provides information about expected survival rates.
- ii. The staging system includes information about the extent of the original or local tumor (T classification or primary tumor extent), spread to lymph nodes (N-classification or nodal metastases), and spread to distant parts of the body (M classification or distant metastases). Combinations of T, N and M-classifications produce an overall stage. There are four stages (Stage 1-4) reported with increasing disease burden and potentially worse survival as the AJCC overall stage number increases. Factors that play a role in overall stage include: destruction of adjacent structures (ie. voice box or larynx, esophagus, involvement of the paraspinal musculature and spine and blood vessels of the neck), appearance of the cancer cells under microscopic examination by the pathologist and involvement of lymph nodes within the neck.
- iii. Lymph nodes are small oval shaped structures found within the fat of the neck that harbor specialized immune cells that filter and fight infection and disease. Cancer cells from the hypopharynx detach from the primary and travel through lymphatic vessels to become trapped within the individual nodes. Once an oral cancer spreads to lymph nodes, it is considered more advanced, and is considered overall stage 3 or higher. In addition, the number of abnormal lymph nodes and their size is important. Sometimes, the cancer in a lymph node grows out of the lymph node, a property known as extranodal extension (ENE). Particular attention is given to identifying extranodal extension (ENE) which is defined as cancer that has breached the outside capsule of the involved lymph node. The presence of ENE suggests the cancer is a “bad actor” and treatment should be intensified.

Primary Tumor Stage: Hypopharynx	
Stage	Description
Tx	Primary tumor cannot be assessed
Tis	Carcinoma <i>in situ</i>
T1	Tumor limited to one subsite of the hypopharynx; and/or , Tumor 2 cm or smaller
T2	Tumor invades more than one subsite of hypopharynx or an adjacent site; or , Tumor larger than 2 cm but not larger than 4 cm

T3	Tumor larger than 4 cm; or , Fixation of the hemilarynx; or , Extension to esophageal mucosa
T4a	Tumor invades thyroid or cricoid cartilage, hyoid bone, thyroid gland, esophageal muscle, or central compartment soft tissue
T4b	Tumor invades prevertebral fascia, encases carotid artery, or involves mediastinal structures

Regional Nodal Stage: Hypopharynx	
Clinical Stage	Description
Nx	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral node, 3 cm or smaller and ENE (-)
N2a	A single ipsilateral node larger than 3 cm but not larger than 6 cm and ENE (-)
N2b	Metastases in multiple ipsilateral lymph nodes, none larger than 6 cm and ENE (-)
N2c	Metastasis in bilateral or contralateral lymph nodes, none larger than 6 cm and ENE (-)
N3a	Metastasis in a lymph node larger than 6 cm and ENE (-)
N3b	Metastasis in any nodes and ENE (+)

Regional Nodal Stage: Hypopharynx	
Pathologic Stage	Description
Nx	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral node, 3 cm or smaller and ENE (-)
N2a	Metastasis in a single ipsilateral node 3 cm or less and ENE (+); or , A single ipsilateral node larger than 3 cm but not larger than 6 cm and ENE (-)
N2b	Metastases in multiple ipsilateral lymph nodes, none larger than 6 cm and ENE (-)
N2c	Metastasis in bilateral or contralateral lymph nodes, none larger than 6 cm and ENE (-)
N3a	Metastasis in a lymph node larger than 6 cm and ENE (-)
N3b	Metastasis in a single ipsilateral node larger than 3 cm and ENE (+); or ,

	Multiple ipsilateral, contralateral or bilateral nodes, any with ENE (+); or , A single contralateral node any size and ENE (+)
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AJCC Prognostic Stage Groups: Hypopharynx	
Pathologic Stage	Description
0	TisN0M0
I	T1N0M0
II	T2N0M0
III	T3N0M0, T1-3N1M0
IVA	T4aN0-1M0, T1-4aN2M0
IVB	Any T, N3, M0; or , T4b, any N, M0
IVC	Any T, any N, and M1

f. Treatment

- i. Cancers of the hypopharynx can be treated in a variety of ways. The type of treatment your doctor feels is best is based on the location of the tumor within the hypopharynx and its size, spread to any lymph nodes or other tissues in the neck, the overall stage of your tumor, and the impact those treatments may have on your voice, swallowing and breathing. Combined radiation and chemotherapy, or surgery followed by radiation are the two most commonly employed treatments. Surgery to remove hypopharyngeal cancers is typically called a pharyngectomy (removal of a part of the throat known as the pharynx) or laryngopharyngectomy (removal of both the voice box and the part of the throat known as the pharynx). At the time of surgery, lymph nodes are frequently also removed, through a procedure called a neck dissection. Reconstructive surgery to the pharynx may be required depending on the amount of tissue that needs to be removed.
- ii. Chemotherapy or immunotherapies are used to treat advanced or recurrent hypopharyngeal cancers. Some institutions offer clinical trials to treat advanced or incurable cases.

g. Survival

- i. Patients with cancer of the hypopharynx have a 5 year survival rate of approximately 30-50%. Those with earlier staged tumors and no spread outside of the neck have better survival rates. Delays in diagnosis and treatment contribute to poorer survival. Approximately 50% of patients treated for hypopharynx cancers will have a return of their cancer within the first year after their diagnosis. Your doctors will watch closely for signs of recurrence or spread of disease elsewhere.
- ii. Treatment of cancers of the hypopharynx may affect swallowing, breathing and speaking. Maintaining good nutrition through treatment is very important and your doctor may recommend placement of a feeding tube. Some patients may

require a temporary tracheostomy tube in the neck to help them breathe. Others may have permanent changes in the way they breathe. If radiation is part of your treatment plan you may experience side effects such as dry mouth, skin changes, and neck swelling. Your doctor may recommend consultations with speech, physical and occupational therapists, and dietitians to help with your side effects during and after treatment.

h. Surveillance/Survivorship

- i. [Surveillance](#): As with any cancer, there is a risk that hypopharynx cancer will come back ('recur') after treatment. 'Surveillance' means that your doctor(s) will monitor you after treatment with a combination of physical examination and imaging studies in order to detect disease that has recurred. Protocol details will vary from institution to institution. Surveillance typically lasts for at least 5 years. Once cleared by the treating physician, patients may transition into a cancer surveillance/survivorship clinic, often run by an advanced practice provider (APP) that is well trained in head and neck cancer surveillance.

1. Physical examination: Your doctor(s) will examine you according to the following schedule:
 - a. Year One: every 1-3 months
 - b. Year Two: every 2-6 months
 - c. Years Three through 5: every 4-8 months
 - d. After 5 years: every 12 months or as needed
2. Imaging: The timing and type of imaging you have will be based on your doctor's judgment.
 - a. Baseline imaging within 6 months of completing treatment may be recommended.
 - b. Imaging may include CT scans, PET/CT scans, MRI, or sometimes ultrasound.
 - c. Additional imaging will be based on your symptoms, exam, and your doctor's judgment.
 - d. It is important to let your doctor know if you feel a new persistent pain or neck mass or if you feel that you are having more trouble swallowing.

- ii. [Survivorship](#): Hypopharynx cancer and its treatment can affect many areas of your health and quality of life. 'Survivorship' refers to caring for your health and well-being from the moment you receive your diagnosis, and for the rest of your life. Depending what your treatment involves, important parts of survivorship for hypopharynx cancer may include:

1. [Speech and swallowing evaluation and therapy](#): This is typically with a Speech-Language Pathologist, or SLP, with expertise in speech and swallowing for head and neck cancer patients.
 - a. Swallowing: Safe swallowing is important for your health and quality of life. Poor swallowing function, called 'dysphagia', can lead to health problems such as pneumonia or malnutrition, and

may lead to the need for a feeding tube in order to stay healthy. You may also be referred to a dietician for guidance on how to maintain a nutritious diet even if you have dysphagia.

- b. Esophageal stricture: You may be at risk for narrowing of your esophagus, called an 'esophageal stricture'. This can be diagnosed with a swallowing testing. Some patients have improvements in their swallowing once their esophageal stricture is stretched.
 - c. Speech: Rehabilitation of your speaking is important for your communication and quality of life.
2. Oral and dental health: Hypopharynx cancer and its treatment can have a major impact on your teeth, taste, saliva and jaw bone.
- a. [Dental cleaning and care](#): Hypopharynx cancer patients should establish care early after diagnosis, ideally before treatment, with a dentist who has experience in head and neck cancer. Some dental work may be necessary prior to treatment. In the long term, patients should have routine cleaning and examination. Routine fluoride treatments may be recommended.
 - b. Radiation and dental health: Radiation can be detrimental to your dental health. It is especially important for patients who undergo radiation to have regular dental care and excellent dental hygiene.
 - c. [Dry mouth](#): Dry mouth, or 'xerostomia', is common after radiation therapy and can have a significant negative impact on quality of life. There is no cure for xerostomia. If you have xerostomia, you can decrease the symptoms by staying hydrated, using salivary substitutes, and maintaining excellent dental hygiene.
 - d. [Chondronecrosis of the larynx](#): Patients who undergo radiation are at risk for damage to the larynx or voicebox, which is located just in front of the hypopharynx. The cartilage of the larynx which preserves the structural integrity of the voicebox becomes severely damaged and dysfunctional. The larynx no longer separates breathing and swallowing functions. Saliva and foods go into the breathing passages, causing coughing, choking and pneumonia. Patients may not be able to take their nutrition by mouth, due to the severity of the swallowing problem. In severe cases, they may require surgical removal of a dysfunctional larynx which is causing life threatening pneumonias due to aspiration.
3. [Thyroid function testing](#): If you have had radiation therapy or surgery for hypopharynx cancer, you have an increased risk of low thyroid function, or 'hypothyroidism'. Symptoms of hypothyroidism may include fatigue, weight gain, constipation and depression. Your thyroid function should be tested every 6-12 months to determine whether you need treatment with thyroid hormone supplementation.
4. [Tobacco use](#):

- a. Most head and neck cancers are associated with tobacco use, especially smoking cigarettes.
 - b. Continued tobacco use after treatment is associated with worse survival and higher risk of other cancers, among many other negative health effects.
 - c. Quitting tobacco at any time will improve your overall health and chances of survival from head and neck cancer.
 - d. If you still use tobacco after head and neck cancer treatment, we strongly encourage you to consider quitting. Your doctor can help you find resources, including medications and counseling programs, that have been proven to help.
5. [Lymphedema](#): Lymphedema is swelling of the soft tissue that is common for patients who have had surgery and/or radiation. Specialized Physical Therapy called Lymphedema Therapy, including massage, compression garments, exercises and skin care, is available and can significantly improve lymphedema.
 6. [Shoulder dysfunction](#): Many head and neck cancer survivors have shoulder dysfunction, including decreased range of motion, weakness and stiffness as a result of surgery and/or radiation. Physical therapy is very helpful in improving shoulder function. If you have problems with your shoulder, ask your doctor about a referral to a physical therapist.
 7. [Obstructive sleep apnea](#): Survivors of head and neck cancer treatment are at risk for obstructive sleep apnea (OSA) because of changes to the upper airway anatomy. Symptoms may include daytime sleepiness, snoring, gasping or choking during sleep, daytime headaches, and irritability. OSA is diagnosed with a sleep study, and there are several options for treatment. Discuss your risk of OSA with your doctor, to decide whether you should have a sleep study.
 8. [Carotid artery stenosis evaluation](#): Radiation therapy to the neck increases the risk of carotid artery narrowing (stenosis) later in life. Carotid artery stenosis increases the risk of stroke. If you have had radiation to your neck, ask your doctor about an ultrasound to look for carotid artery stenosis.
 9. Mental and sexual health: Head and neck cancer and its treatment can result in [cognitive dysfunction](#), anxiety, [depression](#), [body image concerns](#), and changes in [sexual function and desire](#). If you suffer from any of these, you are not alone. Ask your doctor about meeting with a mental health professional to determine whether counseling and/or medication may be helpful for you.
 10. Hearing evaluation: Head and neck cancer treatments, especially with certain chemotherapy drugs, can cause hearing loss. If you have decreased hearing, you should have a hearing test to evaluate your hearing and determine whether you may benefit from hearing augmentation, such as with a hearing aid.

i. Questions for your doctor

i. Before/during treatment:

1. What types of treatment are recommended (such as surgery, radiation, and/or chemotherapy)?
2. Are there any other treatment options that I should learn about, such as clinical trials?
3. Should I see a dentist before treatment begins?
4. How long will treatment take? How long will it take to fully recover after treatment?
5. What are the risks and side effects of each part of treatment? Which side effects are temporary, and which might be permanent?
6. Will I need a feeding tube or a breathing tube (tracheostomy)? Will they be temporary or permanent?
7. What will my swallowing, speech and breathing be like after treatment?
8. Will I have any other functional problems after treatment?
9. Will I be able to keep doing my job after I've recovered?

ii. After treatment:

1. Should I have any imaging studies?
2. When should my next follow-up appointment be, and with whom?
3. Should I have my thyroid function tested?
4. Should I be referred to a speech and language pathologist (SLP), and or to a physical or occupational therapist?
5. Am I receiving appropriate dental care?
6. Should I have a sleep study?
7. Do I need a carotid artery ultrasound?
8. Should I have a hearing test?