

Treatment for mouth and throat cancer

Exploring treatment options for better management and recovery

Mouth and throat cancers, also known as oral and oropharyngeal cancers, are types of cancer that develop in the tissues of the mouth, tongue, gums, lips, throat, and the back of the mouth. These cancers can occur in various parts of the mouth and throat and may affect the ability to speak, eat, and swallow.

Treatment for mouth and throat cancers depends on the stage and location of the cancer. Surgery is often performed to remove tumors or affected tissues, while radiation therapy uses high-energy rays to target and destroy cancer cells. Chemotherapy involves drugs that kill or inhibit the growth of cancer cells, and targeted therapy focuses on blocking specific molecules responsible for cancer growth. In advanced cases, immunotherapy helps strengthen the immune system to fight the disease. Palliative care is essential for managing symptoms and improving the quality of life, and supportive therapies like speech and swallowing therapy aid recovery. For more advanced stages, a combination of surgery, radiation, and chemotherapy (multimodal treatments) is commonly used to enhance effectiveness. Although these treatments are effective, they may have side effects, so discussing expectations and recovery plans with healthcare providers is crucial. [1]

Let's explore the various treatment options for mouth and throat cancer, categorized based on their purpose and approach

Treatments for Mouth and Throat Cancer

Primary Treatments

Primary treatments for mouth and throat cancer include surgery to remove tumors and lymph nodes, radiation therapy to target and destroy cancer cells, and chemotherapy to kill or slow the growth of cancer. These treatments may be used alone or in combination, especially for more advanced stages.[2]

1. Surgery

Surgery is a key treatment for mouth and throat cancers, especially in the early stages when the cancer is localized. The primary goal is to remove cancerous tissue and prevent the cancer from spreading. [3]

Types of surgery used for treating mouth and throat cancer .

- Tumor Resection

Tumor resection is a surgery to remove cancerous tumors from the mouth or throat. The tumor is taken out along with

some healthy tissue around it to ensure all cancer cells are removed. For small tumors, the surgery is less complex, but larger tumors may require removing parts of the tongue, jaw, or other areas. The goal is to get rid of all cancerous tissue to stop the cancer from spreading or growing. This surgery is often the first treatment for localized mouth and throat cancers.[4]

- **Neck Dissection**

Neck dissection is a surgery to remove lymph nodes in the neck if cancer has spread to them. Lymph nodes are part of the immune system, and cancer can spread through them to other parts of the body. This procedure is done to stop the cancer from spreading further. It is often performed along with tumor resection if tests show that cancer has spread beyond the primary tumor. Removing the affected lymph nodes helps improve the chances of successful treatment . [5]

- **Reconstructive Surgery**

Reconstructive surgery is done after the removal of large tumors to restore functions like speaking, swallowing, and appearance. It uses tissue from other parts of the body, such as skin, muscle, or bone, to rebuild the affected areas. This surgery helps improve the patient's quality of life by restoring physical appearance and essential functions. While recovery can be challenging, reconstructive surgery is an important part of the treatment and recovery process. [6]

2.Radiation Therapy

Radiation therapy is a treatment that uses high-energy rays or particles to target and destroy cancer cells. It is commonly used to treat mouth and throat cancers. Radiation therapy works by damaging the DNA inside cancer cells, which prevents them from growing and dividing. [7]

Types of Radiation Therapy used for treating mouth and throat cancer .

- External Beam Radiation Therapy (EBRT)

External Beam Radiation Therapy (EBRT) is a common treatment for mouth and throat cancers. In this method, radiation is aimed at the tumor from outside the body using a machine called a linear accelerator. It is used for localized cancers, either alone for early stages or with surgery to remove any leftover cancer cells. For advanced cancers, it may be combined with chemotherapy. EBRT is precise, targeting tumors accurately, but it can also affect nearby healthy tissues, causing potential side effects. [8]

- Proton Beam Therapy

Proton therapy is an advanced radiation treatment that uses protons instead of X-rays to target cancer cells. Protons can be precisely controlled to deliver radiation directly to the tumor, minimizing harm to surrounding healthy tissues. This makes it especially useful for tumors near sensitive areas like the brain, spine, or

mouth and throat. While still relatively new and not available everywhere, proton therapy can help reduce side effects by protecting healthy tissues. [9]

- Brachytherapy

Brachytherapy is a type of radiation treatment where radioactive material is placed directly inside or close to the tumor. This allows for a high dose of radiation to target the cancer cells while minimizing damage to healthy tissues nearby. It's often used for smaller mouth or throat tumors or in areas difficult to reach with external radiation. While effective, brachytherapy is less commonly used for mouth and throat cancers compared to other radiation methods. [10]

3. Chemotherapy

Chemotherapy uses strong medicines to kill cancer cells or slow their growth. These medicines travel through the blood, reaching cancer cells in different parts of the body. It's mainly used for advanced cancers or along with treatments like radiation to improve results. Chemotherapy can also be given before surgery to shrink tumors or after surgery to kill any remaining cancer cells and prevent the cancer from returning.

Chemotherapy for mouth and throat cancer can be classified into different types based on the drugs used, including Cisplatin, Carboplatin, and 5-Fluorouracil (5-FU).[11]

- Cisplatin

Cisplatin is a strong chemotherapy drug used with treatments like radiation. It stops cancer cells from growing by affecting their DNA. It's often used for advanced cancers or to shrink tumors before surgery. However, cisplatin can cause side effects like nausea, kidney problems, hearing loss, and a weakened immune system.[12]

- Carboplatin

Carboplatin is a chemotherapy drug similar to cisplatin but has fewer severe side effects, especially on the kidneys. It works by damaging the DNA of cancer cells to stop their growth. It's used for patients who may not tolerate cisplatin well or have concerns about kidney damage. However, carboplatin can still cause side effects like nausea, hair loss, and a lower blood cell count, increasing the risk of infections.[13]

- 5-Fluorouracil (5-FU)

5-FU is a chemotherapy drug that stops cancer cells from making DNA, which slows their growth. It's often used with other chemotherapy drugs or radiation for advanced cancers. It can be given through an IV or as an infusion over several days. Side effects include mouth sores, nausea, vomiting, and lower blood cell counts, which can raise the risk of infections. [14]

Advanced and Targeted Treatments

Advanced treatments for mouth and throat cancer include targeted therapy, like Cetuximab, which blocks proteins that promote cancer growth, and immunotherapy, such as nivolumab and pembrolizumab, which boost the immune system to fight cancer. These therapies are used for advanced or recurrent cancers when other treatments are less effective. [15]

1. Targeted Therapy

It is a type of treatment that focuses on specific molecules involved in cancer growth and spread. Unlike traditional chemotherapy, which affects both cancerous and healthy cells, targeted therapy is designed to interfere with the specific processes that allow cancer cells to grow. This results in more precise treatment with fewer side effects.

One common targeted therapy drug used for mouth and throat cancers is Cetuximab (Erbix). Cetuximab works by targeting the epidermal growth factor receptor (EGFR), a protein that is often overactive in cancer cells. [16]

- **Epidermal Growth Factor Receptor (EGFR)**

EGFR is a protein found on the surface of many cells, including cancer cells. It helps cells grow and divide. In some cancers, like mouth and throat cancers, EGFR is overactive, causing the cancer cells to keep growing and dividing, which helps the tumor grow. [17]