ORAL CANCER

Oral cancer appears as a growth or sore in the mouth that does not heal. Oral cancer, which includes cancers of the lips, tongue, cheeks, floor of the mouthhard and soft palate, sinuses, and pharynx (throat), can be life threatening if not diagnosed and treated early. Oral or mouth cancer most commonly involves the tongue. It may also occur on thefloor of the mouth, cheek lining, gingiva (gums), lips, or palate (roof of the mouth.Oral cancer is particularly dangerous because in its early stages it may not be noticed by the patient. It can be painless with slight physical changes. But the precursor tissue changes, can be noticed by the doctors.

Early stage symptoms can include persistent red or white patches, a non-healing ulcer, progressive swelling or enlargement, unusual surface changes, sudden tooth mobility without apparent cause, unusual oral bleeding or epitaxis and prolonged hoarseness

Chewing betel, paan and Areca is known to be a strong risk factor for developing oral cancer. In India where such practices are common, Oral cancer often presents as a non-healing ulcer

Premalignant lesions

leukoplakia,erythroplakia, oral lichen planus oral submucous fibrosis

smoking and other tobacco use was associated with about 75 percent of oral cancer cases, Use of chewing tobacco or snuff causes irritation from direct

contact with the mucous membranes. Alcohol, Human papillomavirus are other causes.

Diagnosis

An examination of the mouth shows a visible and/or palpable lesion of the lip, tongue, or other mouth area. chest x-ray, CT or MRI scans and tissue biopsy.

A tissue biopsy and microscopic examination of the lesion confirm the diagnosis of oral cancer or precancer.

Management

Oral cancer stages

Once mouth cancer is diagnosed, your doctor works to determine the extent, or stage, of your cancer. Mouth cancer staging tests may include:

- **Using a small camera to inspect your throat.** During a procedure called endoscopy; your doctor may pass a small, flexible camera equipped with a light through your nose to examine your throat and voice box. Your doctor looks for signs that cancer has spread beyond your mouth. Endoscopy can be done in the doctor's office and causes very little discomfort.

- **Imaging tests.** A variety of imaging tests may help determine whether cancer has spread beyond your mouth. Imaging tests may include X-rays, computerized tomography (CT) scans, magnetic resonance imaging (MRI) and positron emission tomography (PET) scans, among others. Not everyone needs each test. Your doctor determines which tests are appropriate based on your condition.

Oral cancer stages are indicated using Roman numerals I through IV. A lower stage, such as stage I, indicates a smaller cancer confined to one area. A higher stage, such as stage IV, indicates a larger tumor or that cancer has spread to other areas of the head or neck, or to other areas of the body. Your cancer's stage helps your doctor determine your treatment options.

Treatment

Treatment for oral cancer depends on your cancer's location and stage, as well as your overall health and personal preferences. You may have just one type of treatment, or you may undergo a combination of cancer treatments. Treatment options include surgery, radiation and chemotherapy. Discuss your options with your doctor.

Surgery

Surgery for mouth cancer may include:

- **Surgery to remove the tumor.** Your surgeon may cut away the tumor and a margin of healthy tissue that surrounds it to ensure all of the cancer cells have been removed. Smaller cancers may be removed through minor surgery. Larger tumors may require more-extensive procedures. For instance, removing a larger tumor may involve removing a section of your jawbone or a portion of your tongue.

- **Surgery to remove cancer that has spread to the neck.** If cancer cells have spread to the lymph nodes in your neck or if there's a high risk that this has happened based on the size of your cancer, your surgeon may recommend a procedure to remove cancerous lymph nodes and related tissue in the neck (neck dissection). Neck dissection removes any cancer cells that may have spread to your lymph nodes.

  Neck dissection surgery will leave a scar on your neck. It won't affect your body's ability to fight infections in the future.

- **Surgery to reconstruct the mouth.** After an operation to remove your cancer, your surgeon may recommend reconstructive surgery to rebuild your mouth to help you regain the ability to talk and eat. Your surgeon may transplant grafts of skin, muscle or bone from other parts of your body to reconstruct your mouth. Dental implants may be used to replace your natural teeth. Implants may be placed at the Surgery carries a risk of bleeding and infection. Surgery for mouth cancer often affects your appearance, as well as your ability to speak, eat and swallow.

You may need a tube to help you eat, drink and take medicine. For short-term use, the tube may be inserted through your nose and into your stomach. Longer term, a tube may be inserted through your skin and into your stomach.

You may also require a procedure to insert a breathing tube through your neck (tracheostomy). This breathing tube is usually temporary.

Your doctor may refer you to specialists who can help you cope with these changes. Most people are able to speak, eat, swallow and breathe normally following treatment.

Radiation therapy

Radiation therapy uses high-energy beams, such as X-rays, and protons to kill cancer cells. Radiation therapy is most often delivered from a machine outside of your body (external beam radiation), though it can also come from radioactive seeds and wires placed near your cancer (brachytherapy).

Radiotherapy is broadly divided into two types:

1. Teletherapy
2. Brachytherapy

Teletherapy(ExternalRadiotherapy) consists of treating the patient from distance. This is one of the earliest forms of radiotherapy treatments. Technology innovations in the field of medicine for diagnosis, identification and imaging of tumors coupled with explosion of advancements in accelerator technology and tracking software's led to more precise and accurate delivery of treatment by External Radiotherapy (XRT).

Different types of delivery of XRT are:

1. 3-dimensional conformal radiotherapy(3-DCRT)
2. Intensity modulated radiotherapy(IMRT)
3. Volumetric modulated radiotherapy(VMAT)
4. Image Guided radiotherapy(IGRT)

IMRT:- Intensity Modulated Radiotherapy is an advanced form of radiotherapy that evolved from 3DCRT in which the radiation beams are modulated at different angles to achieve a desired dose distribution more uniform inside a target and at the same time sparing a critical structure in the vicinity of the target. The technique requires great skill and technical expertise in planning and delivery of radiation. In this type of delivery of radiation, doses are given in such a way that it takes the shape of the target thus giving us the opportunity of saving even the normal organs that are very close to the target.
VMAT:- Evolved from and a type of IMRT, this is a highly advanced technique in which the beams are modulated same as IMRT but there are critical differences between them making it highly advanced technique of delivery of radiation. In this type, there will be continuous rotation of the gantry with varying speed, continuous variable dose rate, shaping of the target during this process. This helps in faster treatment delivery (treatment time generally varies between 3 to 4 minutes) depending on the location and size of the target. The technique is especially use in structures that move with respiration like lungs, prostate, liver etc.

Radiation therapy may be the only treatment you receive if you have an early-stage mouth cancer. Radiation therapy can also be used after surgery. In other cases, radiation therapy may be combined with chemotherapy. This combination increases the effectiveness of radiation therapy, but it also increases the side effects you may experience. In cases of advanced mouth cancer, radiation therapy may help relieve signs and symptoms caused by the cancer, such as pain.

The side effects of radiation therapy to your mouth may include dry mouth, tooth decay, damage to your jaw bone, mouth sores, bleeding gums, jaw stiffness, fatigue and red, burn-like skin reactions.

Your doctor will recommend that you visit a dentist before beginning radiation therapy to be sure your teeth are as healthy as possible. Any unhealthy teeth may need treatment or removal. A dentist can also help you understand how best to care for your teeth during and after radiation therapy to reduce your risk of complications.

Chemotherapy

Chemotherapy is a treatment that uses chemicals to kill cancer cells. Chemotherapy drugs can be given alone, in combination with other chemotherapy drugs or in combination with other cancer treatments. Chemotherapy may increase the effectiveness of radiation therapy, so the two are often combined.

The side effects of chemotherapy depend on which drugs you receive. Common side effects include nausea, vomiting and hair loss. Ask your doctor which side effects are likely for the chemotherapy drugs you'll receive.

Targeted drug therapy

Targeted drugs treat mouth cancer by altering specific aspects of cancer cells that fuel their growth. Cetuximab is one targeted therapy approved for treating head and neck cancers in certain situations. Cetuximab stops the action of a protein that's found in many types of healthy cells, but is more prevalent in certain types of cancer cells.

Targeted drugs can be used in combination with chemotherapy or radiation therapy. Other targeted drugs are being studied in clinical trials, including drugs that target the immune system (immunotherapy).

Reconstruction and rehabilitation after oral cancer treatment

People who are diagnosed with advanced oral cancer will likely need reconstructive surgery and some rehabilitation to assist with eating and speaking during recovery.

Reconstruction can involve dental implants or grafts to repair the missing bones and tissues in the mouth or face. Artificial palates are used to replace any missing tissue or teeth.

Rehabilitation is also necessary for cases of advanced cancer. Speech therapy can be provided from the time you get out of surgery until you reach the maximum level of improvement.