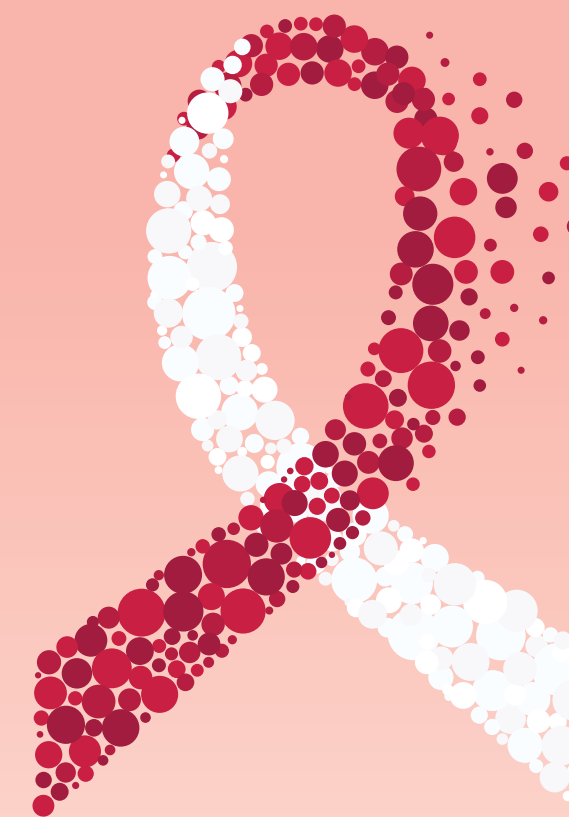


# РЕЖИИТ CANCER



## HEAD & NECK RISK FACTORS & RECONSTRUCTION



### Super Surgical Hospital

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Dear Doctor,

We are pleased to bring before you 2<sup>nd</sup> issue of "RETHINK CANCER". We hope that the 1<sup>st</sup> issue on RISK ASSESSMENT OF BREAST CANCER was well received and informative.

Pink initiative was celebrated at Super Surgical during the whole month of October 2017, all the patients attending OPD were made aware of importance of breast cancer awareness. 107 women above the age of 40 underwent complete health check up including mammography free of cost to the patient. A program for Breast Cancer Awareness and Meet the Breast Cancer Winners was arranged on the 5th November 2017. It was a well attended program with more than 175 participants including breast cancer winners. The program included a brief presentation on EARLY DETECTION OF BREAST CANCER by Dr. Shakuntala V Shah followed by MYTH ABOUT CHEMOTHERAPY presented by Dr. Bharat J Parikh. The breast cancer WINNERS shared their views on fears before getting treated and post treatment.

The program was followed by a very live theme based musical program by famous artist and philanthropist Ms Namrata Shodhan. The musical program was very lively conducted by Dr. Darshana Thakkar, a very eminent gynaecologist and philanthropist. The whole program was well covered in lively manner by Dr. Jayant Dehadrai, a very prominent orthodontist of Ahmedabad.

This issue is on Head & Neck Cancer. It includes risk factors for head and neck cancer and newer trends in reconstruction of various defects after surgery,

The year 2018 has started. Every one must have enjoyed with their family the traditional festival of Gujarat "UTTARAYAN". We wish all our Doctor friends A VERY PROMISING & PROSPEROUS NEW YEAR.

# Editorial

**Editor :**



Dr. Viren A Shah

**Editorial Board :**



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(Surgical Oncologist)



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Dr. Himanshu Mehta  
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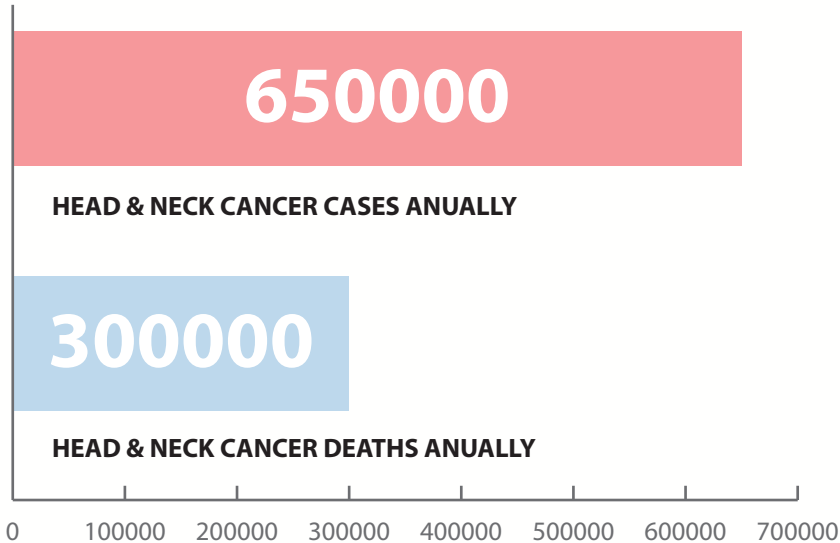
# Head & Neck Cancer Awareness Month: April

Head and neck cancers are among the 10 most common cancers globally and are the most common cancers in developing countries, especially in Southeast Asia.

Accounts for 30% of all Cancers in Indian Sub continent, 20 out of 100000 population. Highest across the globe in India

Oral cancer is the commonest of all Head & Neck Cancer especially in Gujarat

Third most common malignancy seen in both the sexes across the globe but is the commonest malignancy encountered in Indian males



Annual incidence of head and neck cancers worldwide

# Risk Factors: Oral Cancer

# Risk Factors:



**Dr. Shakuntala Shah M.S.**  
**Consultant Surgical Oncologist**



Alcohol consumption



Tobacco consumption



Aging



Gender



Genetic Family history



Radiation



Pre-existing conditions and Infection : HPV



Nutrition



Work Place

## TOBACCO USE AND ALCOHOL CONSUMPTION

These are the two most common risk factors for head and neck cancer, especially cancers of the oral cavity, oropharynx, hypopharynx and larynx. Tobacco alone accounts for more than 75% of all cases of head and neck cancer. Heavy drinkers are also more likely to develop head and neck cancer. Combined, these two factors create the greatest risk of all and people who both smoke and drink are many times more likely to develop head and neck cancer than people who only do one or neither.

Burning tobacco releases polycyclic aromatic hydrocarbons, which are known carcinogens. These carcinogens reach epithelial surfaces through smoke or get dissolved in saliva. Breakdown of these carcinogens by aryl hydrocarbon hydroxylase produces the actual carcinogenic epoxides that bind to the DNA and RNA molecules. Tobacco smoke acts as a direct carcinogen - delivery system, with alcohol providing more ready access to cells for tobacco carcinogens via its solvent properties, and more DNA damage. Both tobacco and alcohol increase the risk likelihood of promotion because of their capacity to damage and kill cells, as a result of oncogene mutation, or loss of tumour suppressor genes.

*"Tobacco alone accounts for more than 75% of all cases of head and neck cancer."*

## ORAL HYGIENE

Poor dental hygiene- broken teeth cause traumatic ulcers on tongue and cheek mucosa which converts to carcinoma. Tartar around teeth causes chronic irritation and cause gum cancer. Ill fitting dentures cause trauma and chronic ulceration, which leads to cancer.

Using mouthwash containing too much alcohol has been debatably linked to a higher risk of oral cancer



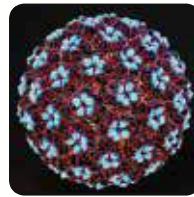
# Risk Factors:

## PRE-EXISTING CONDITIONS OR INFECTIONS

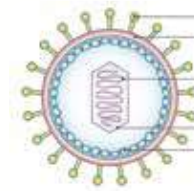
Certain pre-existing conditions or infections can be risk factors for specific types of head and neck cancer.

The infection most highly linked with the most types of head and neck cancer:

**Human Papilloma Virus (HPV)** : HPV causes warty growths called papillomas around the affected area. Different types of HPV are found in different areas of the body; the type that causes head and neck cancers is HPV16. While it is rare for people to develop oropharyngeal cancer from an HPV infection, the number of cases linked to HPV has increased dramatically and 2 out of 3 cases are found to contain HPV DNA.



**Epstein-Barr virus** : This virus most commonly known to cause mononucleosis has also been linked to many cases of head and neck cancer. It can cause salivary gland cancer and nasopharyngeal cancer.



There are many less associated conditions and diseases that can also cause certain types of head and neck cancer. Fanconi anaemia and Dyakeratosis congenital are both conditions caused by inherited defects in certain genes and people with these genetic disorders have a very high risk of oral, oropharyngeal, laryngeal and hypopharyngeal cancer.

**Graft-versus-host disease (GVHD)** : It sometimes occurs after a stem cell transplant, has been linked to oral cancer. Lastly, in a few rare cases, Lichen planus, a disease that affects the skin in middle-aged people has been shown to slightly increase the risk of oral cancer.

## FAMILY HISTORY

People with a family history of nasopharyngeal and salivary gland cancer may be more likely to contract those two types of head and neck cancer. However, most cases of salivary gland cancer do not have any family history.



# Risk Signals:

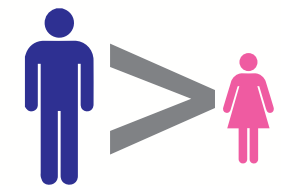
## AGE

For all types of head and neck cancer, like most other cancers, risk increases with age. Most cases of head and neck cancer are found in people 50 years or older. However, because of the prevalence of the use of tobacco and HPV virus among teens, the average patient with head and neck cancer is getting younger.

50+

## GENDER

It has been found that men are more likely to contract head and neck cancer than women.



## NUTRITION

Vitamin deficiencies, because of excessive alcohol consumption or a diet high in fat and low in vegetables, can increase risk of getting head and neck cancer. Furthermore, certain practices of preserving food in salt, which is common in eastern Asia, or consumption of mate, a tea like beverage in South America, can increase this risk of getting head and neck cancer.

## WORK PLACE EXPOSURE

Exposure to dusts from certain substances, including wood, textiles, leather, nickel and chromium, can increase risk. Flour, formaldehyde, mustard gas, radium, glue and asbestos can also contribute to higher risk.

## RADIATION

Prolonged exposure to sunlight or x-rays can increase risk of cancer.



## THE PRECANCEROUS LESIONS

1. Leukoplekia- A white patch on oral mucosa, any size and of various types having potential for cancer.
2. Erythroplekia- A velvety reddish patches- highly pre malignant lesion.
3. Chronic ulceration on cheek, oral tongue margins.
4. Submucous fibrosis- As the name the mucosa turns fibrotic, looses suppleness and shrinks causing trismus. This is seen as white parched mucosa, fibrous bands on soft palate and cheek, various degrees of trismus and in-drawing of mandibular arch with ankyloglossia.



Leukoplekia



Erythroplekia



Chronic ulceration



Submucous fibrosis

# Microsurgical Free Flap in Head and Neck Reconstructions:



**Hemant Saraiya M.S., M.Ch.**  
**Cosmetic, Plastic & Oncoplastic Surgeon, Ahmedabad, India**

## Introduction:

The terms free flap, free autologous tissue transfer and microvascular free tissue transfer are synonymous terms used to describe the "transplantation" of tissue from one site of the body to another, in order to reconstruct an existing defect. "Free" implies that the tissue is completely detached from its blood supply at the original location ("donor site") and then transferred to another location ("recipient site") and the circulation in the tissue re-established by anastomosis of artery(s) and vein(s). This is in contrast to a "pedicled" flap in which the tissue is left partly attached to the donor site ("pedicle") and simply transposed to a new location; keeping the "pedicle" intact as a conduit to supply the tissue with blood. Various types of tissue may be transferred as a "free flap" including skin and fat, muscle, nerve, bone, cartilage (or any combination of these), lymph nodes and intestinal segments. For all "free flaps", the blood supply is reconstituted using microsurgical techniques to reconnect the artery and vein.

## History:

Although microsurgery dates back to early 1921, when Nysten used a microscope for ear surgery. Microvascular surgery did not begin until technological advances in equipment allowed small vessel re-approximation, first performed by Jacobsen and Suarez in early 1960. Multiple reports of microsurgical replantation of severed body parts followed. With the success of these procedures, microscopes, suture material, instruments, and techniques all improved dramatically. This era of research and development culminated in the first free tissue transfer being performed in 1972 by McClean and Buncke who transferred omentum for the coverage of a scalp defect. The 1970s saw the expansion of donor site choices to meet the many different needs of reconstruction: toe to hand transfers, skin flap transfers, muscle transfers, bone transfers, as well as a combination of all the above. By the 1980s, microvascular surgery became a routine part of the plastic surgery armamentarium in many major medical centres.

# Microsurgical Free Flap in Head and Neck Reconstructions:

## Advantages and Disadvantages of free flaps:

Reconstruction of defects in the head and neck poses a unique challenge. Immediate or early closure of head and neck defects is vital for various reasons. Maintaining the integrity of the alimentary tract, and as such, the patient's ability to eat is an issue of paramount importance. Reconstruction of the face is essential for a person to communicate through facial expression. The coverage of the neck and maintenance of an intact intraoral seal prevents life-threatening complications such as blowout of the great vessels of the neck. Thus the preservation of function, including speech and swallowing, and restoration of appearance are the goals in every reconstruction.

Advances made in the last decade are mostly secondary to the expanded use of microvascular free flaps. In the head and neck, however, aside from some small and superficial defects, free tissue transfer should be the first choice for reconstruction of large or composite defects involving bone, soft tissue, and skin. Free flap transfer provides a single stage reconstructive options that allow precise tailoring of the flap for a specific defect. Unlike local or regional tissues, the free flap is not limited by flap size, geometry or pedicle length. Blood supply is immediately re-established by anastomosis with the recipient vessels in the neck. Free tissue transfer brings in robust new tissue with its own blood supply, providing enough volume to restore function in critical areas such as the mandible or tongue. As such, vascularized tissue, which is resistant to radiation, is essential in many reconstructions. An example is the use of vascularized bone for reconstruction of mandibular defects. Use of free tissue transfer to achieve an optimal reconstruction during the first surgery also reduces the cost and morbidity often associated with locoregional flaps.

However, free tissue transfer requires special set up, precise instruments and good surgical skill. Personal interest and dedications are the keys to success. It is time-consuming and little costly. It is not a good option for aged and critically ill patients where the regional flaps such as the pectoralis major and deltopectoral flaps would provide good options for reconstruction.

# Microsurgical Free Flap in Head and Neck Reconstructions:

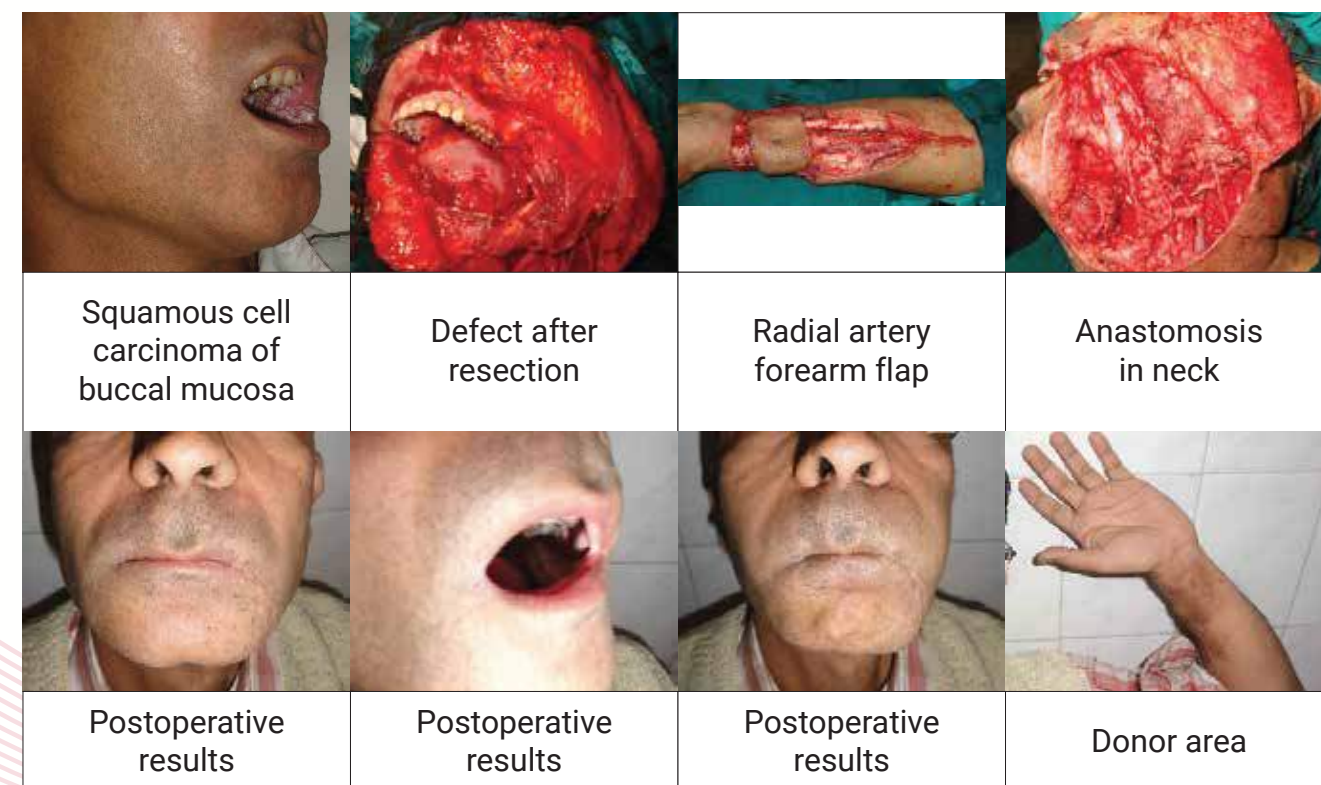
## Pre-surgery Workup:

Evaluation of the patient's medical history, including oncologic status, trauma, previous surgery, comorbidities, atherosclerosis, diabetes, alcohol consumption, smoking status, and radiotherapy is important. Generally, the age is no bar for free flap reconstruction. Apart from routine investigations CT scan of the face especially 3D CT scan can be very helpful when mandibular reconstruction is required. Vascular Doppler is helpful to know the patency of radial, ulnar and peroneal vessels, the diameter of vessels and presence of any atheromatous plaques. Past history of trauma is an indication for lower limb angiography. Above all the clinical examination is of paramount importance.

## Evaluation of the defect and flap selection:

Defects in the head and neck can be classified into six anatomical sub areas for reconstructive considerations: intraoral, mandibular, midfacial, cranial, cutaneous, and scalp. Intraoral defects comprise the tongue, floor of mouth, oropharynx, hypopharynx, larynx, and cervical esophagus.

## Radial artery forearm free flap for carcinoma of buccal mucosa



# Microsurgical Free Flap in Head and Neck Reconstructions:

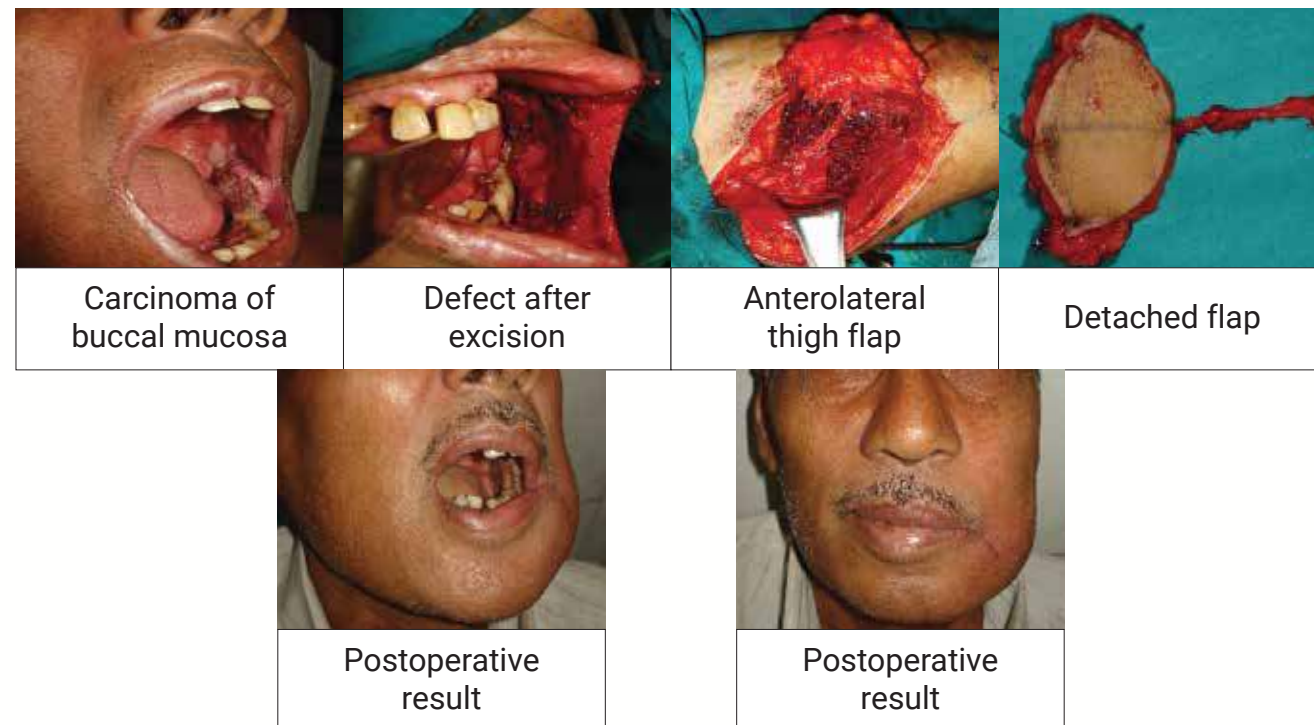
Ideal flaps for head and neck reconstruction should fulfil the following criteria: versatility in design, adequate tissue volume, superior texture, availability of diverse tissue types on one pedicle, potential for reinnervation, large and long pedicle with consistent anatomy, easy and safe flap dissection, feasibility of a two-team approach, and negligible donor site morbidity. Many flaps have been described in the literature includes free radial artery forearm flap, ulnar artery forearm flap, lateral arm flap, anterolateral thigh flap, dorsalis pedis flap, scapular flap, groin flap, rectus abdominis myocutaneous flap, latissimus dorsi flap, free fibular osseous or osteoseptocutaneous flaps, iliac crest free flap, etc. Currently, our workhorse flaps are the anterolateral thigh, radial forearm, and fibula osteoseptocutaneous free flaps. These flaps are selected because they allow the versatility of harvesting a variable amount of soft tissue of various components, and they reliably provide along and sizable vascular pedicle. For example, free radial artery forearm flap, lateral arm flap provide thin, supple skin for buccal mucosa replacement. Whereas anterolateral thigh flap provides the great amount of tissue for buccal mucosa, maxilla as well as skin replacement. The fibula provides an unparallel quantity and quality of bone when bony reconstruction is needed. These workhorse flaps have enabled us to reconstruct virtually all types of head and neck defects. Further more, because of our familiarity with these flaps, the flaps can be harvested more quickly and more reliably, despite anatomical variations that may be present. Thus in the head and neck, however, aside from some small and superficial defects, free tissue transfer should be the first choice for reconstruction of large or composite defects involving bone, soft tissue, and skin.

## Tongue reconstruction with radial artery forearm free flap



# Microsurgical Free Flap in Head and Neck Reconstructions:

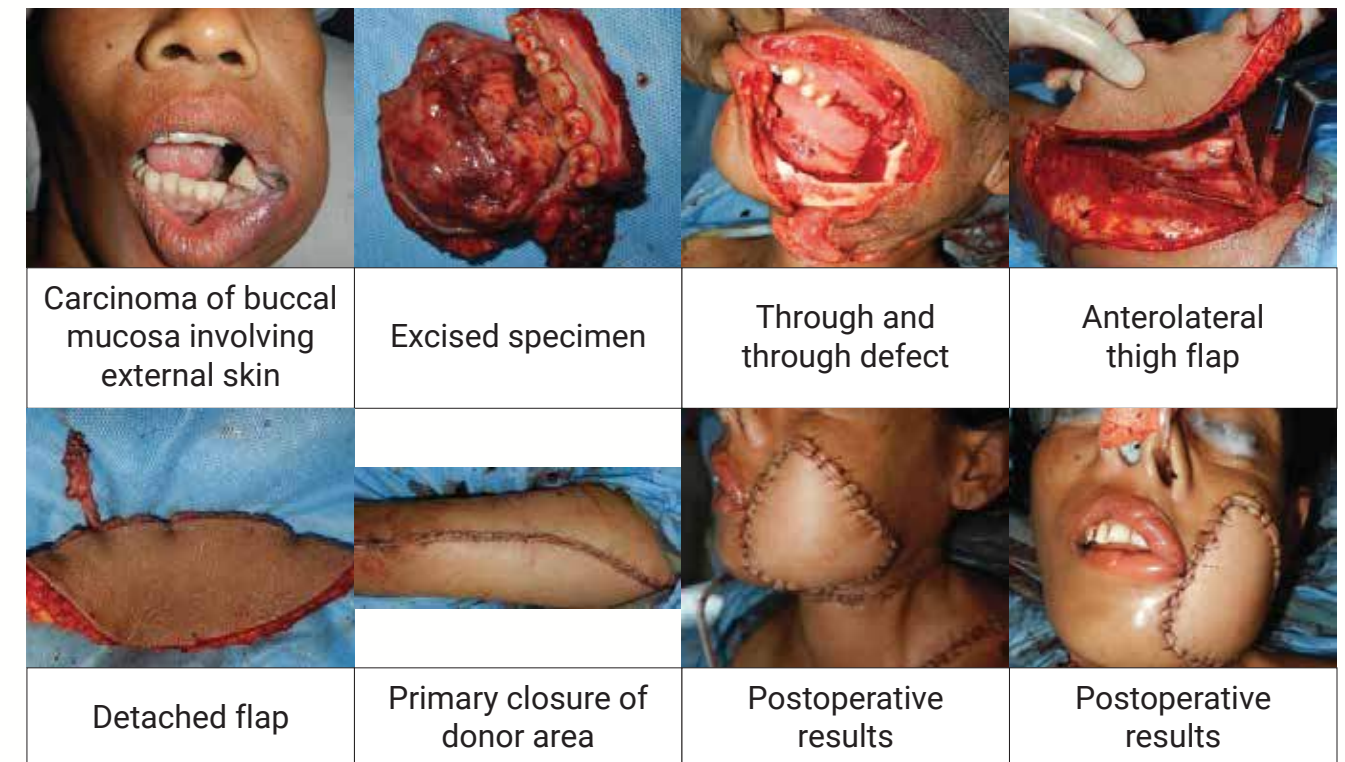
## Free fibular flap for mandibular defect



We routinely perform the arterial anastomosis first because the completion of the arterial anastomosis allows the immediate evaluation of the venous return through the veins and helps in selecting the proper vein for anastomosis. It also ensures that the vein is orientated correctly with no twists or kinks. It reduces ischemia time also. Routinely any of the facial, lingual or superior thyroid is selected as recipient artery. Internal jugular, its tributaries, and external jugular veins are selected as recipient veins. We prefer to anastomose two veins and one artery. The anastomosis is done with 8/0,9/0 or 10/0 nylon sutures depending on the diameter of the vessels. In cases of moderate redundancy in the pedicle, multiple tagging sutures can be placed to secure the pedicle to prevent it from folding on itself and kinking. The drains are placed in dependent areas and the wound is closed. The flap is checked for its color and bleeding again upon completion of the surgery.

# Microsurgical Free Flap in Head and Neck Reconstructions:

## Anterolateral thigh flap for through and through defect



### Postoperative Care:

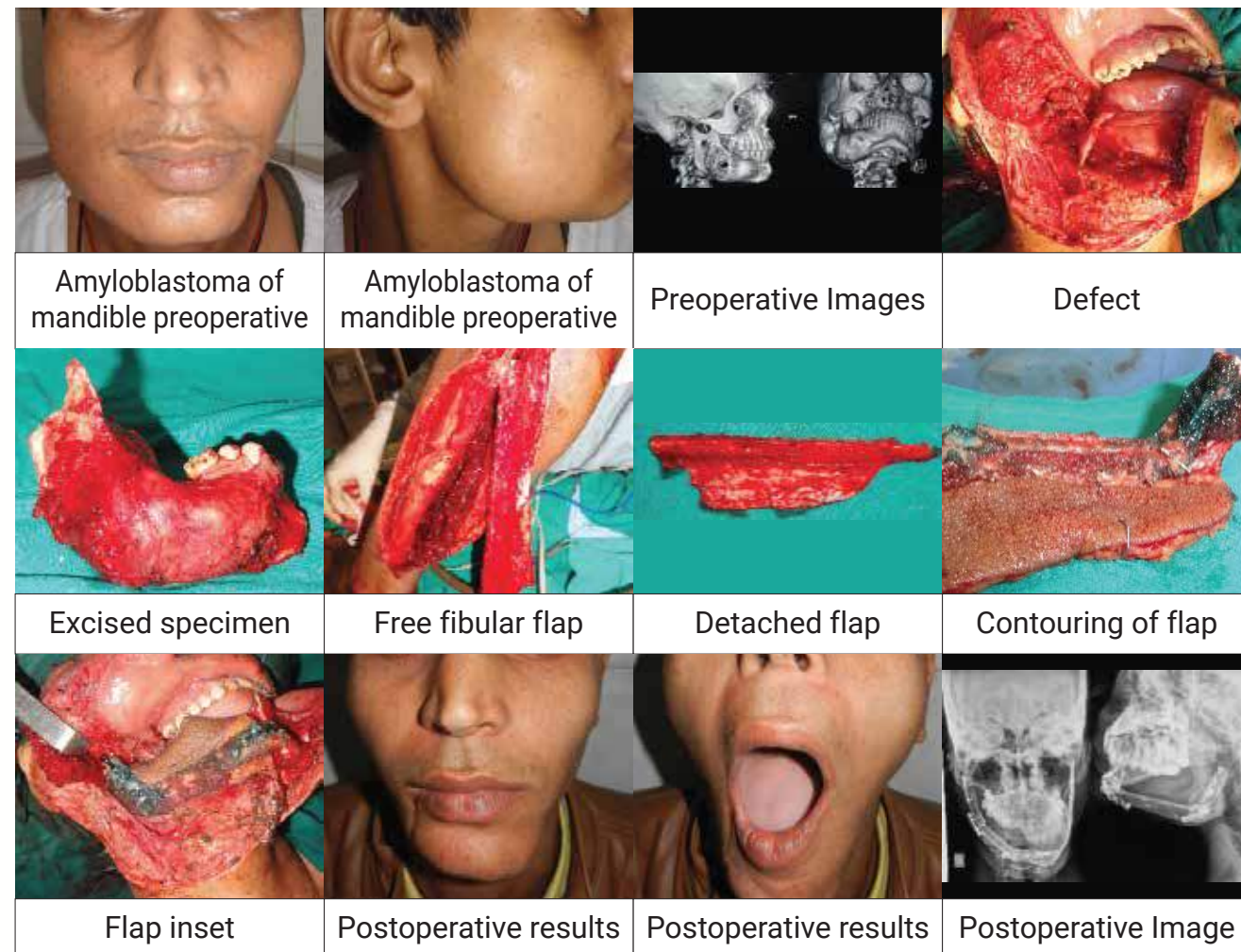
The patient is kept in the warm environment. The Patient is be kept well hydrated, and pain-free to maintain stable blood pressure. The hypotension is avoided at all costs. The head should be maintained in a neutral position. Excessive turning toward and away from the side of the micro surgical anastomotic site can result in kinking and tension on the pedicle. Any mechanical compression like tracheostomy bands, oxygen mask elastic bands in the neck must be strictly avoided. Though various devices such as implantable and percutaneous Doppler and laser Doppler scanners are available, we believe in the clinical examination to monitor the condition of the flap. The flap should be left exposed to allow regular inspection. Hourly monitoring should be done for the first 72 hours, with increasing intervals between inspections subsequent for the first five postoperative days.

We do not use dextran routinely. We use low-molecular-weight heparin for five days which is followed by aspirin tablet for another ten days in the perioperative period. Feeding through a nasogastric tube can be introduced progressively from the first postoperative day once active bowel sounds are present. Oral feeding can be started with clear liquids after seven days.



# Microsurgical Free Flap in Head and Neck Reconstructions:

## Anterolateral thigh flap for through and through defect



## Identification of complications and their treatment:

Free tissue transfer has high overall success rates. We have a success rate of more than 98%. Arterial or venous thrombosis in early postoperative phase requires re-exploration and often revision of anastomosis. Sometimes, additional venous grafts are also required. Venous thrombosis accounts for the majority of these problems noted at exploration(58%). Low flow, low intraluminal pressure, thin-walled and fragile walls of veins account for venous thrombosis. Nonthrombotic vascular events leading to flap vascular compromise include vessel vasospasm, problems related to flap inset, compression of the pedicle (by hardware such as the reconstruction plate, bone, or even hemoclips), or pedicle or perforator injury.

# Microsurgical Free Flap in Head and Neck Reconstructions:

A failed free flap can be managed by a second free flap, a pedicled flap, or conservative wound care followed by closure by either secondary intention, skin graft, or delayed local flap. Technically, the second free flap is more difficult and has a higher failure rate. The contralateral neck may be needed for recipient vessels, and the use of interposition vein grafts is needed more frequently.

Early signs of infection should be identified, and it should be treated aggressively. Necrotic infected tissue should be debrided to prevent the spread of infection. Oral mucosa should be debrided, and a water tight closure should be achieved by meticulous suturing, to separate the oral cavity from the neck.

## Conclusion:

Head and neck reconstruction is perhaps one of the most challenging and progressive areas in plastic surgery, with new advances virtually every day. Microsurgical free flaps have become the gold standard for reconstruction of head and neck defects after tumor resection. Advancements in reconstructive techniques have given surgeons greater ability to resect malignancies and thus to improve the chances of survival with better functional and aesthetic outcomes and less morbidity. Key to achieving the best long-term outcome is an optimal reconstruction performed at the first stage. The functional and aesthetic results are in general superior to those obtained with conventional methods. As a result, free tissue transfer should be the first choice for reconstruction, with a "reversed" reconstructive ladder helping to guide flap selection based on patient wishes and components of the defect.

*Introducing....*



Advance Laparoscopic Cancer Surgery

# BREAST CANCER WINNERS MEET

5-11-2017

