Oral Malignancy

Benign

or

malignant

Benign tumors	Malignant tumor
Slowly growing mass	Rapidly growing mass
Regular surface, capsulated, not attached to deep structures	Irregular surfaces, Non-capsulated attached to deep structures
Noninvasive to another organ or tissues	Invasive to other organs
No spread or metastasis	Spread and metastasis
Well differentiated all the them	Poorly differentiated, moderately or well differentiated
No recurrence after surgery	Recurrence after surgery
No bleeding in cut surfaces	Bleeding from cut surfaces is common
Named by adding suffix –oma	Named by adding suffix sarcoma or carcinoma
Slight pressure effect on the neighboring organ	Remarkable pressure effect on neighboring tissue

Carcinoma

Neoplasm of Epithelial Origin

Sarcoma

Neoplasm of Connective tissue Origin

The most common oral cancer is….

Squamous Cell Carcinoma

Most common cancer in Indian Males

3rd most common cancer in Indian Females

Etiology

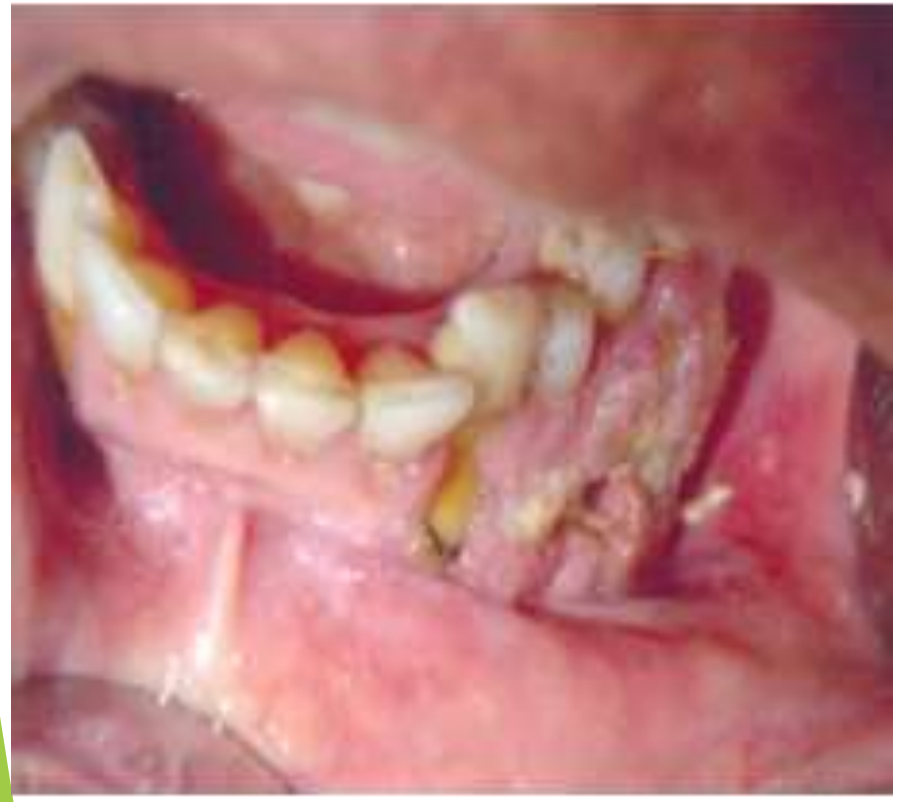
1) Tobacco

Smoked

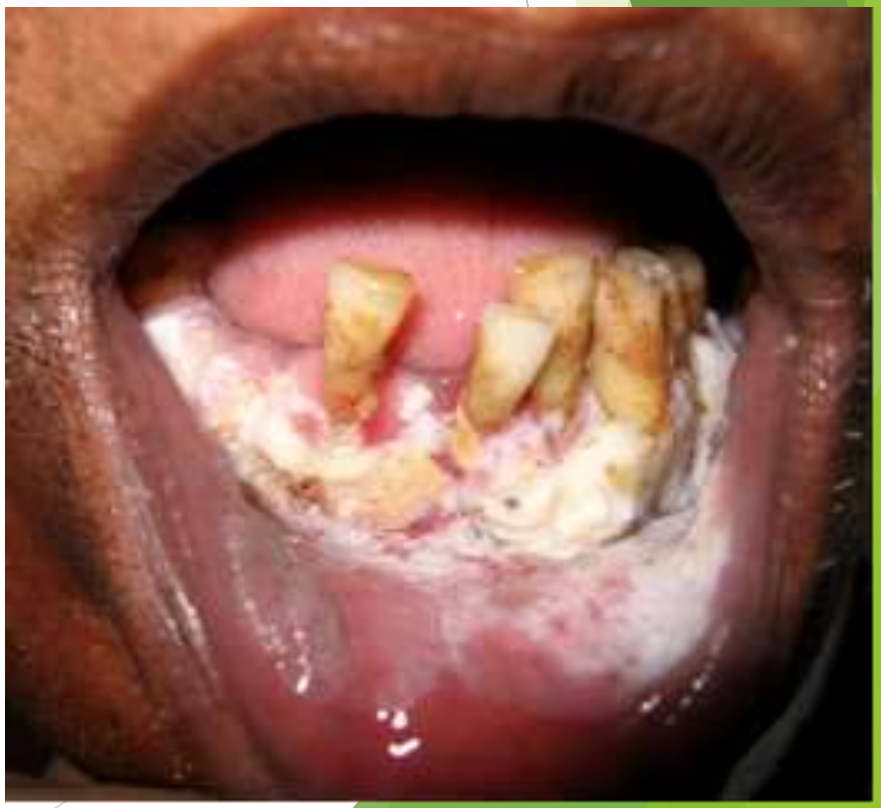
- Bidi
- Cigarette
- Hukka
- Chutta
- Cigar
- Pipe

Smokeless/Chewable

- Tobacco lime mixture
- Kharra
- Khaini
- Gutkha
- Paan masala
- Kimam
- Jarda



Tobacco pouch keratosis




Tobacco
Alcohol
Chronic irritation
Radiation Exposure
Tobacco & alcohol
Risk Factors
Oral Infections
Betel quid chewing
Nutritional deficiencies
Personal history of head &neck cancer

2) Alcohol

Alcoholics tend to prioritize drinking over eating

↓

Poor eating habit leads to Nutritional Deficiencies

↓

Predisposition to chronic stomatitis

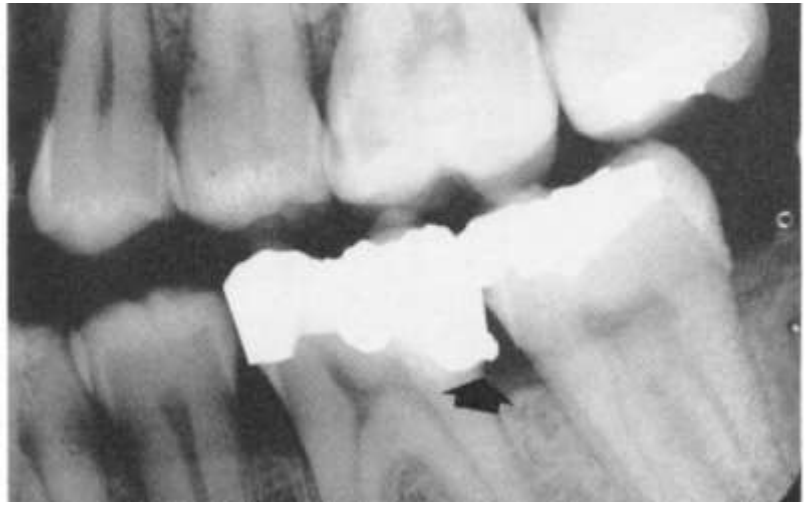
↓

Alcohol also increases carcinogenesis

↓

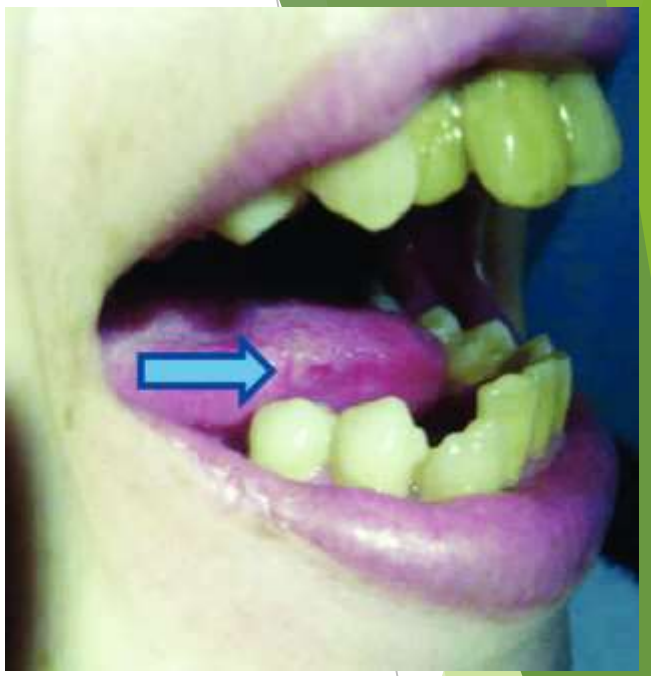
Probability of SCC

3) Chronic irritation

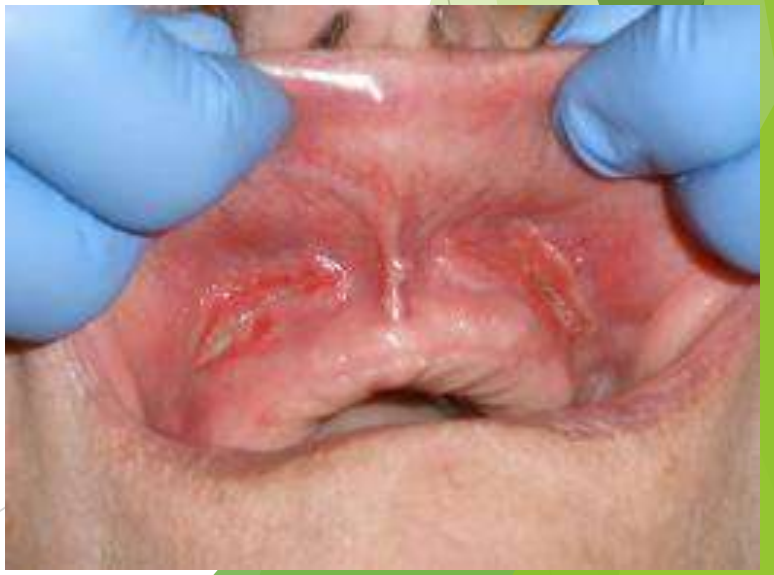


Overhanging restorations

Sharp malposed teeth



Ill fitting dentures



4)Nutritional deficiencies

Mal-nourishment, secondary to…

Poor intake,

Lack of balanced diet,

Malabsorption syndromes,

Chronic GI infections due to parasites such as worm infestations, amoebiasis/ giardiasis

Chronic blood loss due to…

Menorrhagia,

Piles and hemorrhoids

leads to iron deficiency anemia, siderophenic dysphagia, Plummer-Vinson's syndrome.

The deficiency of vitamins especially the **vitamin A, B complex and iron** lead to **inflammatory changes, dysplasia and transformation in t malignancy**.

5) Exposure to UV radiation

- Common in farmers, labourers who continuously work under the sun
- More common in Caucasians due to lack of Melanin pigment in the skin
- Cause Basal cell carcinoma
- Commonly noted on ala-tragus line region

Carcinogenesis

- Chemical carcinogens – Nicotine, betel nut, tars, arsenic compounds, asbestos, benzenes

- Physical carcinogens – Ionizing radiation

- Viral carcinogens –

  HBV (Human papilloma virus)

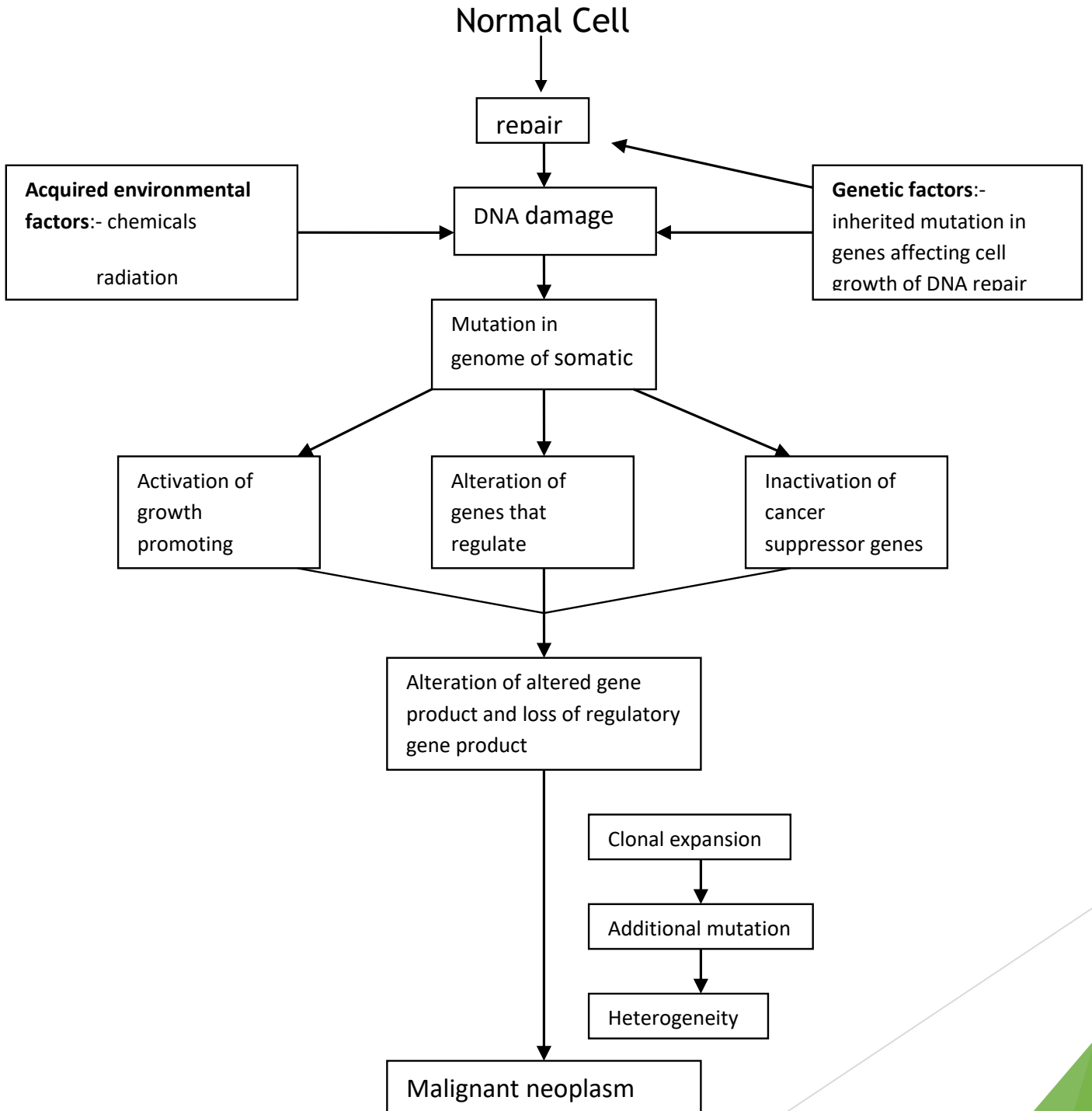
  HTLV1 (Human T lymphotropic virus)

  EBV (Epstein-Barr virus)

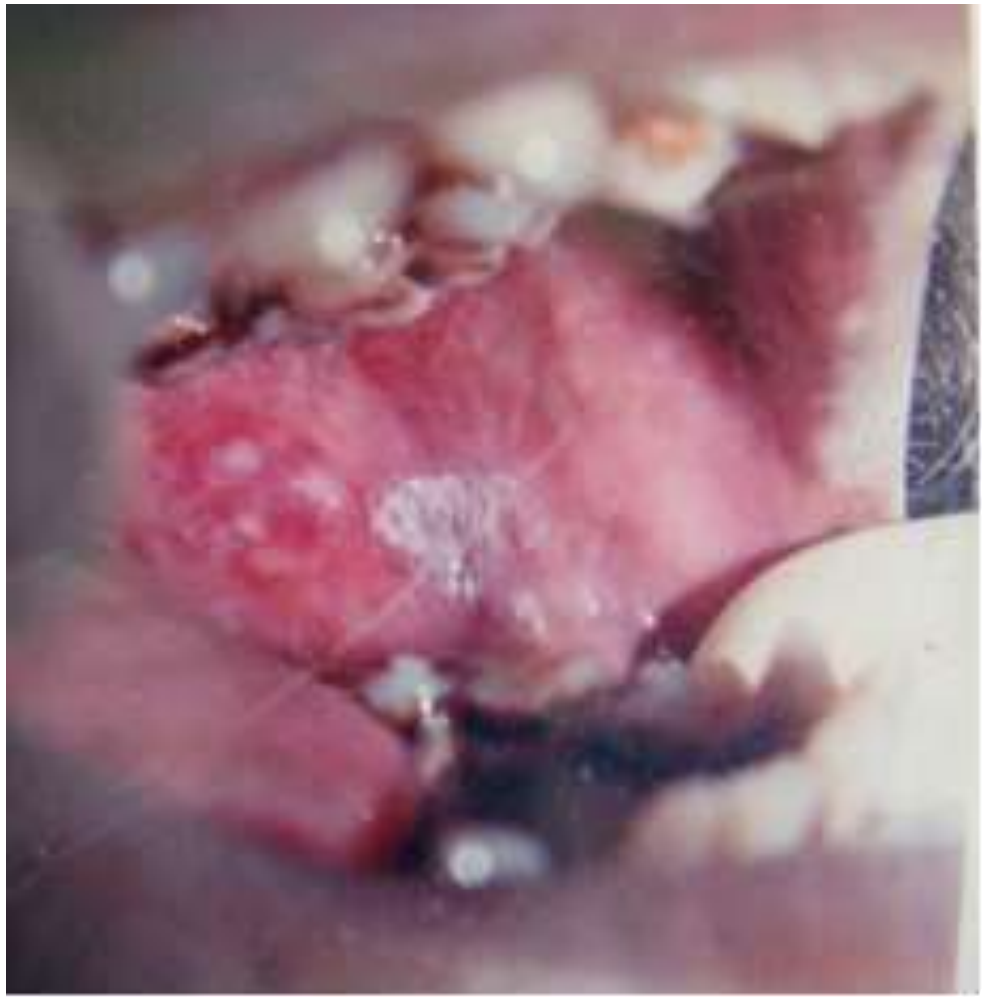
  HBV (Hepatitis B virus)

Fundamental changes in cell physiology Essential for Malignant Transformation

- Self-sufficiency in growth signals [oncogene activation]
- Insensitivity to growth-inhibitory signals [TGF-β, inhibitors of CDK's]
- Evasion of apoptosis [inactivation of p53 and other changes]
- Defects in DNA repair
- Limitless replicative potential
- Sustained angiogenesis [VEGF]
- Ability to invade and metastatize

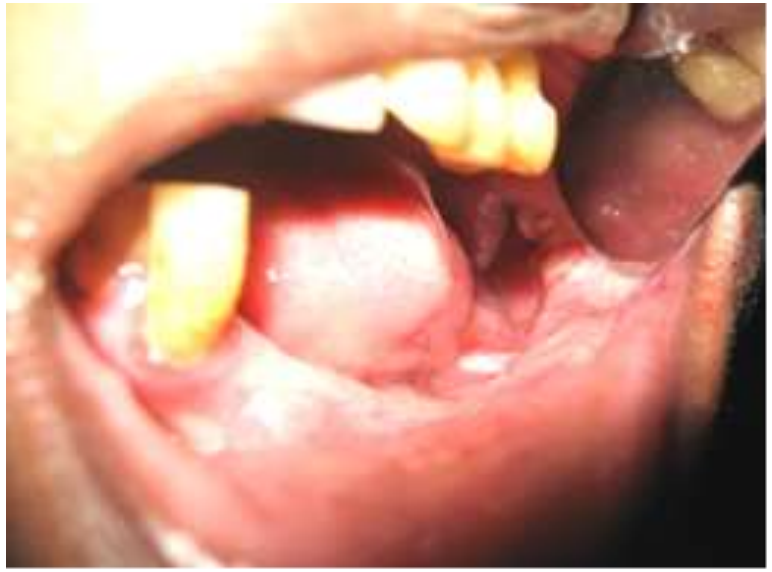

Normal Cell
repair
Acquired environmental factors:- chemicals
radiation
DNA damage
Genetic factors:- inherited mutation in genes affecting cell growth of DNA repair
Mutation in genome of somatic
Activation of growth promoting
Alteration of genes that regulate
Inactivation of cancer suppressor genes
Alteration of altered gene product and loss of regulatory gene product
Clonal expansion
Additional mutation
Heterogeneity
Malignant neoplasm

Clinical presentation of Oral Cancer

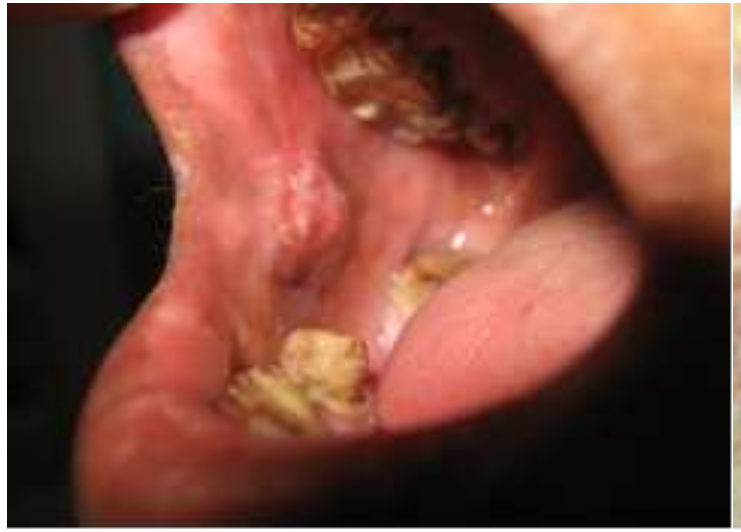


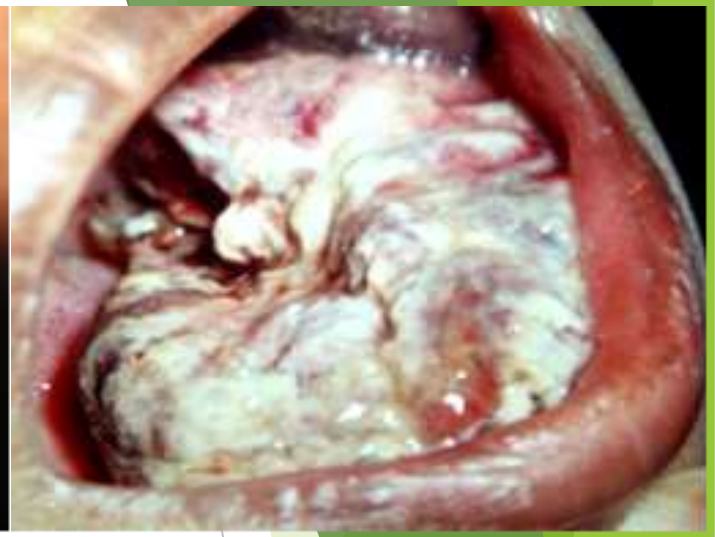
A Red Indurated Patch

Leukoplakia changing to red lesion with fissuring on its surface

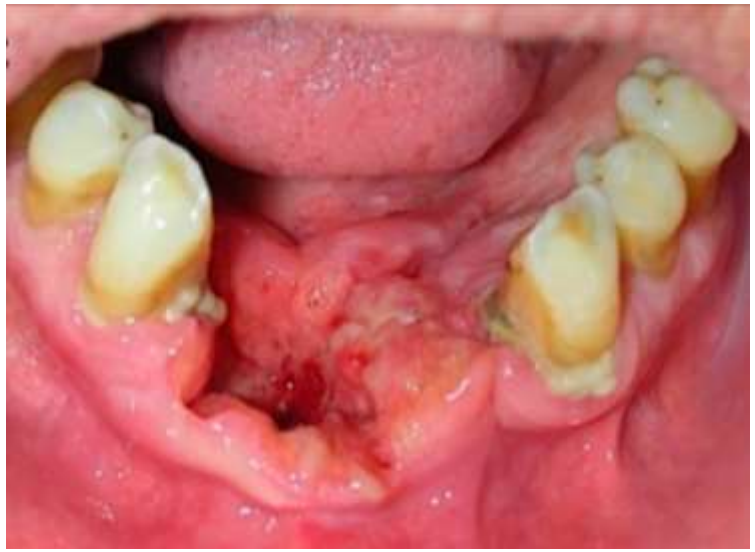


Ulcerative growth





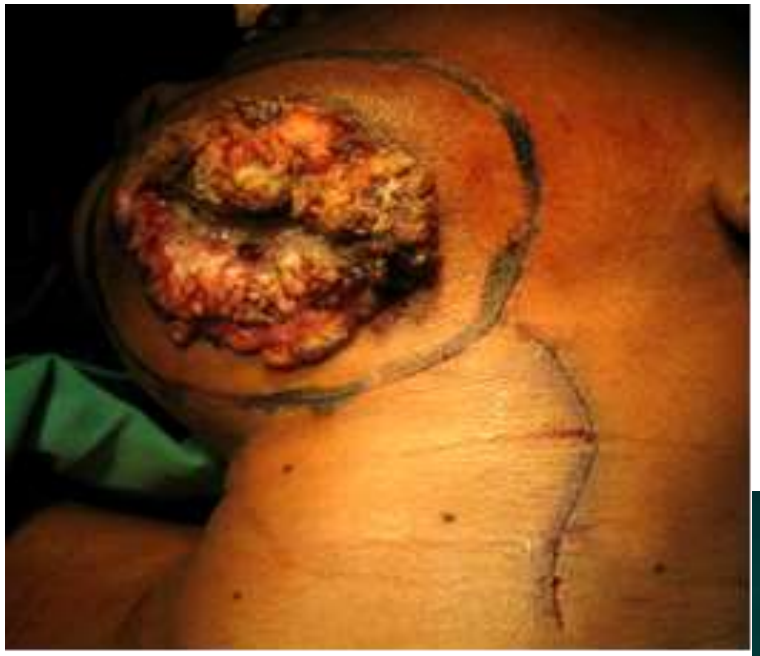
Early and Late Exophytic/Proliferative growth



A mixed Ulcero-proliferative growth

Nodular growth

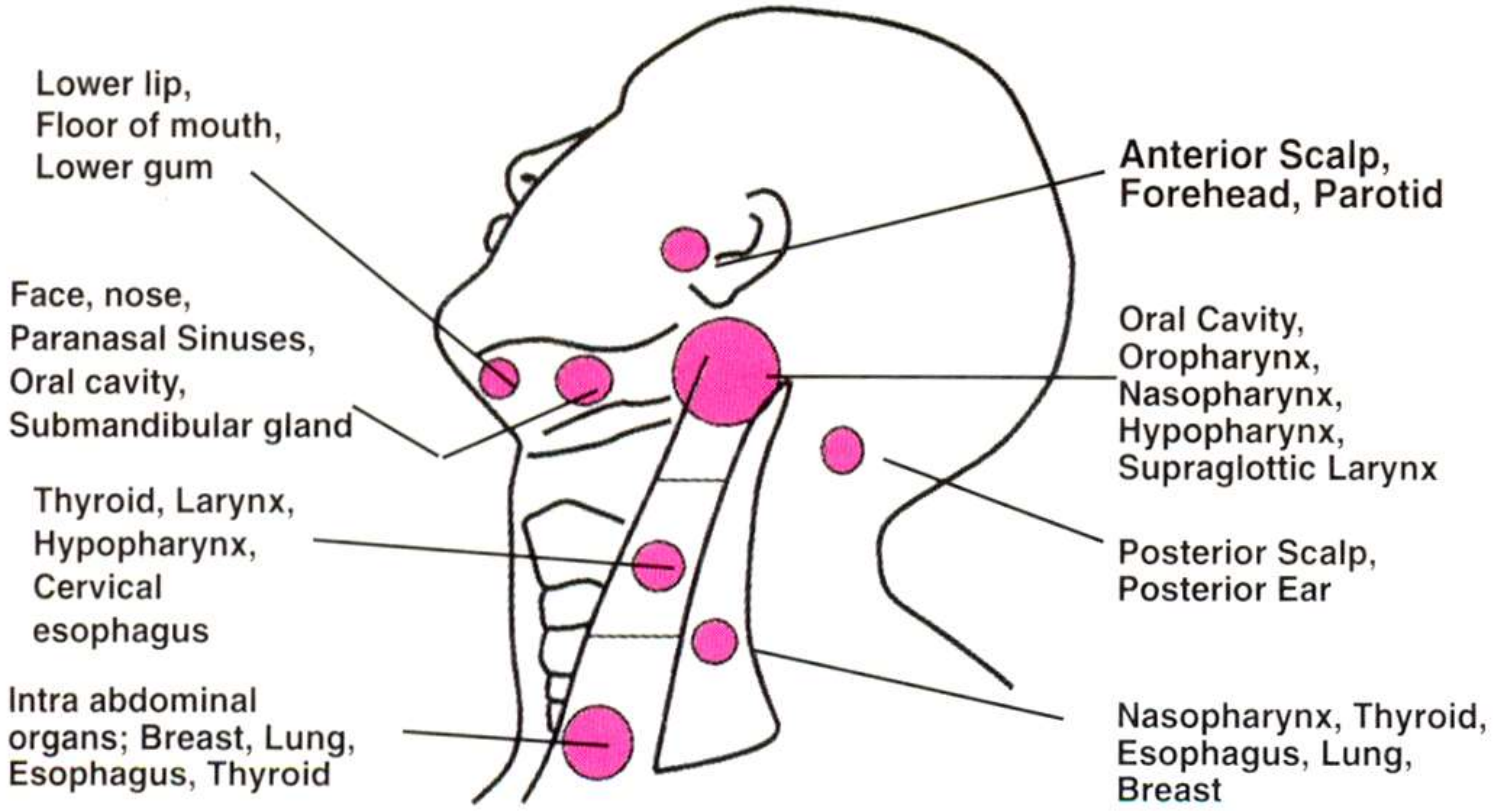
Extraoral Fungation

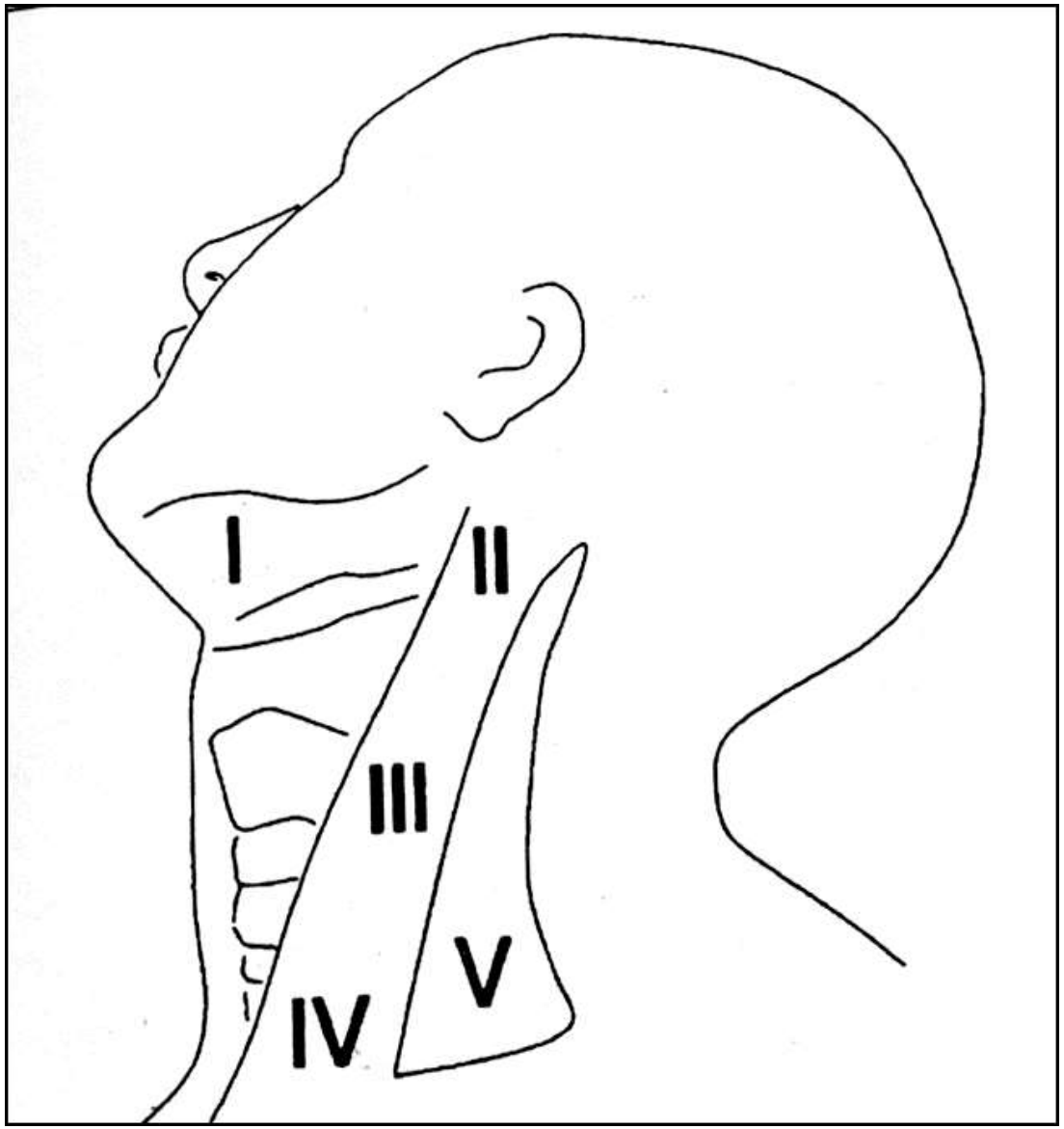


Modalities of spread of tumor

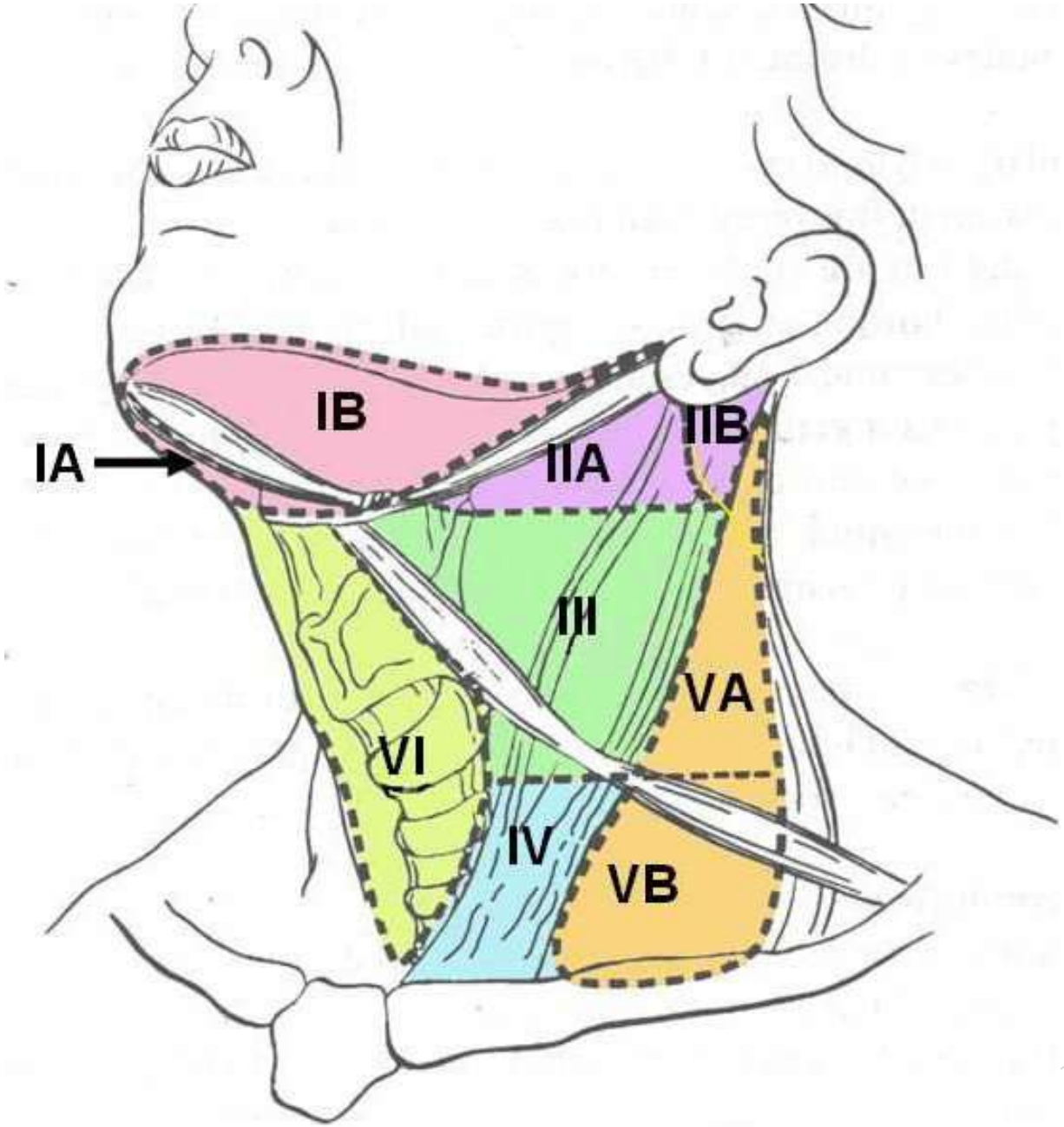
- Local spread / infiltration
- Regional lymph nodes
- Hematogenous spread
- Contact spread

The regional lymph node groups draining a specific primary site as **first echelon** lymph nodes





Levels of lymph nodes in the neck


IA
IB
IIA
IIB
III
IV
VA
VB
VI

Staging of Oral Cancer…

TNM Classification

Objectives of classification :

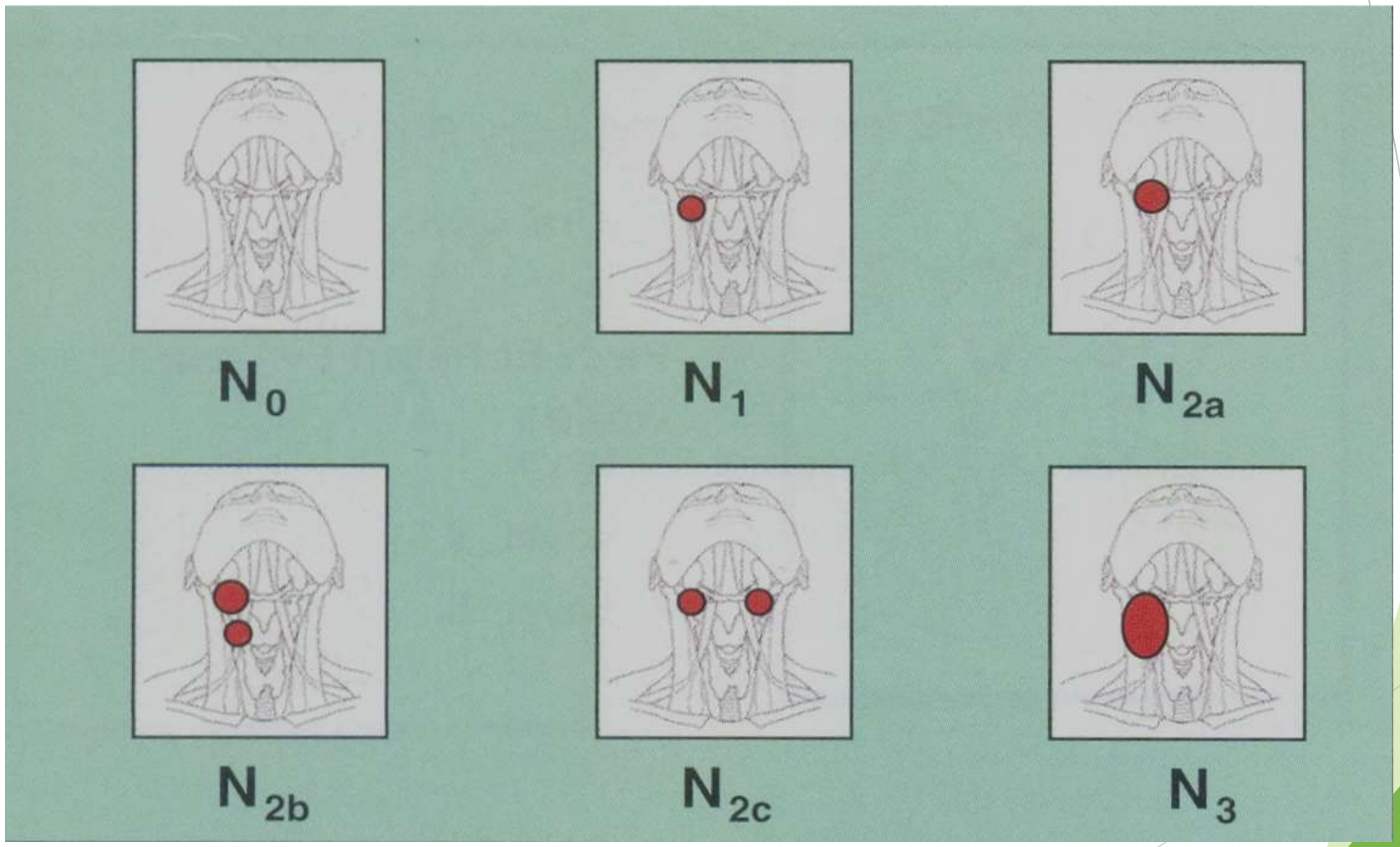
- *To aid the clinician in treatment planning*
- *To provide prognostic value*
- *To evaluate the results of treatment*
- *To facilitate exchange of information between surgical teams*
- *To contribute to the continuing investigation/research of human cancer*

Marx RE, Stern D. Oral and maxillofacial pathology: a rationale for diagnosis and treatment. Hanover Park (IL): Quintessence Publishing; 2003.p. 284–9.

T staging for tumors of the lip and oral cavity
TX - Primary tumor cannot be assessed
T0- No evidence of primary tumor
Tis - Carcinoma in situ
T1- Tumor 2 cm or less in greatest dimension
T2- Tumor >2 cm but not >4 cm in greatest dimension
T3 - Tumor >4 cm in greatest dimension
T4a- Lip Tumor invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of face (i. e, chin or nose) Oral Tumor invades through cortical bone, into deep [extrinsic] Cavity Muscle of tongue (genioglossus, hyoglossus, palatoglossus, and styloglossus), maxillary sinus, or skin of face
T4b - Tumor involves masticator space, pterygoid plates, or skull base and/or encases internal carotid artery

N staging for all head and neck sites except the nasopharynx and larynx
Nx - Regional lymph nodes cannot be assessed
N0- No regional lymph node metastasis
N1- Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension
N2- Metastasis in a single ipsilateral lymph node, >3 cm but not >6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none >6 cm in greatest dimension; or in bilateral or contralateral lymph nodes, none >6 cm in greatest dimension
N2a- Metastasis in a single ipsilateral lymph node >3 cm but not >6 cm in greatest dimension
N2b Metastasis in multiple ipsilateral lymph nodes, none >6 cm in greatest dimension
N2c- Metastasis in bilateral or contralateral lymph nodes, none >6 cm in greatest dimension
N3- Metastasis in a lymph >6 cm in greatest dimension

AJCC/UICC (2002) Staging system for cervical lymph nodes



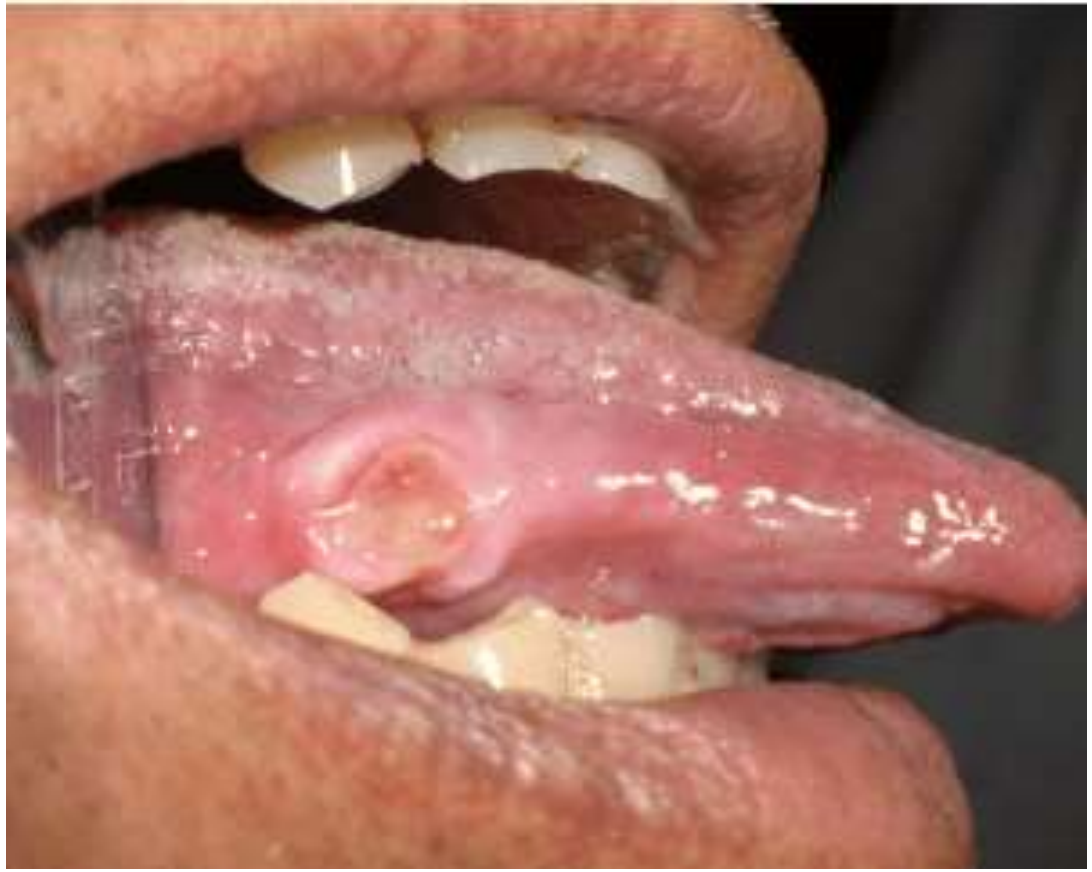
NX – cannot be assessed, N3a – greater than 6cm , N3b-extn into supraclavicular fossa

M staging for head and neck tumors
Mx - Distant metastasis cannot be assessed
M0 - No distant metastasis
M1 - Distant metastasis

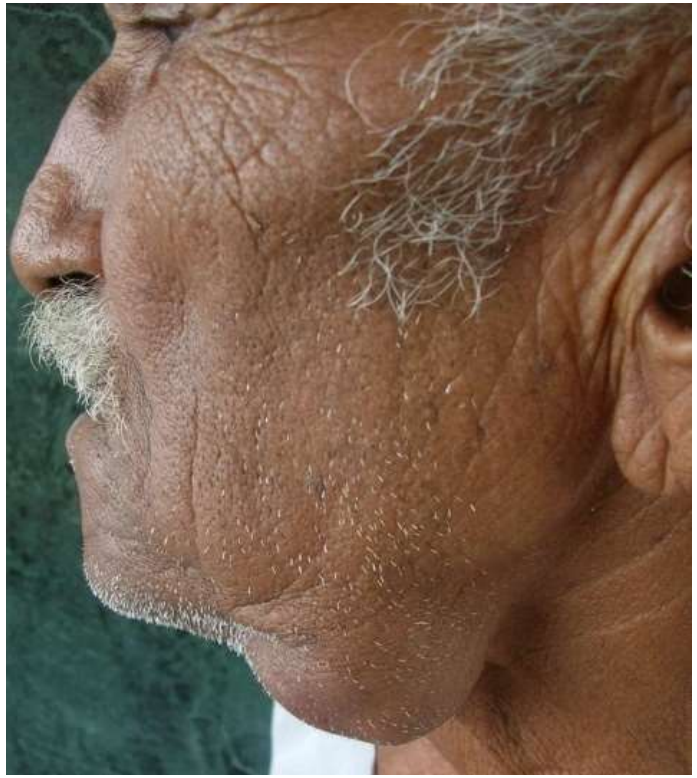
Stage 1	*T 1*	*N 0*	*M 0*
Stage 2	*T2*	*N o*	*M o*
Stage 3	*T 3*	*N o*	*M o*
	T 1/ T 2	*N 1*	*M o*
Stage 4	*T 4*	*N o*	*M o*
	T 4	*N 1*	*M o*
	Any T	*N 2*	*M o*
	Any T	*N 3*	*M o*
	Any T	*N o*	*M 1*

General clinical features

i. An ulcerated growth with rolled out edges or an exophytic growth (cauliflower like)
ii. Rapid growth
iii. Infiltrative nature
iv. Fixity to underlying and overlying tissues.
v. Friability
vi. Tendency to metastasize to cervical lymph nodes.
vii. Metastatic nodes are round, stony hard in consistency and are discrete in the earlier stage but get fixed to adjacent structures in the advanced disease.
viii. Weight loss, cachexia in the advanced stages



Rolled out margins of an oral ulcer



Cervical lymphadenopathy

Site wise clinical features

Ginivobuccal sulcus	• *Loosening of the teeth/exfoliation* • *Inability to masticate* • *Involvement of the bone and inferior alveolar nerve producing numbness*
Tongue	• *Commonly involving the venterolateral surface and rarely the dorsum* • *Salivation* • *Hypomobility of tongue* • *Inability to swallow* • *Fixity of the tongue (ankyloglossia) which is poor prognostic sign* • *Lump in the tongue* • *Bilateral and widespread lymph node metastasis*

Floor of mouth	• *Inability to swallow* • *Involvement of tongue leading to hypomobility* • *Bilateral and widespread lymph node metastasis*
Cheek	*Inability to chew* *Fixity to the skin* *Extraoral fungation*
Posterior one third of the tongue	*Inability to swallow* *Fixity of the tongue, lack of protrusion* *Micro aspiration leading to chest infections* *Spread to adjacent structures like larynx which can lead to change in speech.* *Late detection*

Retromolar trigone	*Trismus due to involvement of muscles of mastication* *Spread to the infratemporal fossa* *Deep cervical lymph node metastasis* *Poor prognosis*
Primary intraosseous carcinoma	*Rare* *Absence of other primary* *Irregular,oesteolytic lesion in the bone,* *Mobility of the teeth* *Involvement of nerve leading to paraesthesia* *Metaststic disease from other sites must be ruled out.*

Investigations

- For Primary lesion and Neck nodes –

  OPG

  CT scans (preferably with contrast)

  MRI (specially for Tongue pathology)

  USG (Ultrasonography)

- For Distant Metastasis –

  PET scan (Positron Emission Tomography)

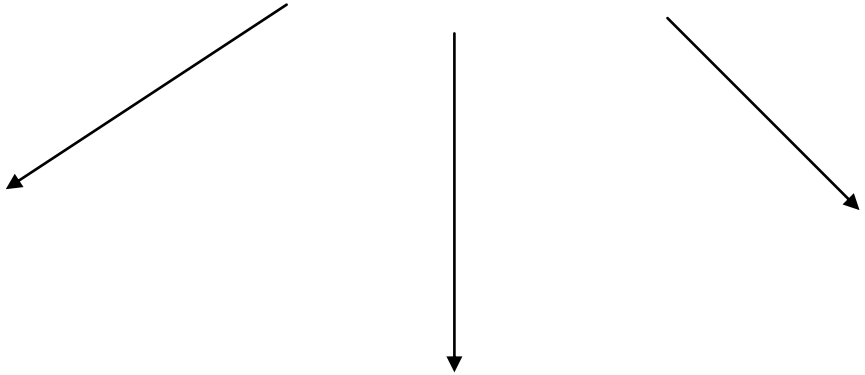
- Gold standard/Confirmatory diagnosis –

  By Histopathological examination (Incisional/Excisional biopsy)

Management…

- Surgery
- Chemotherapy
- Radiotherapy
- Combination of two or more of the above

Surgery

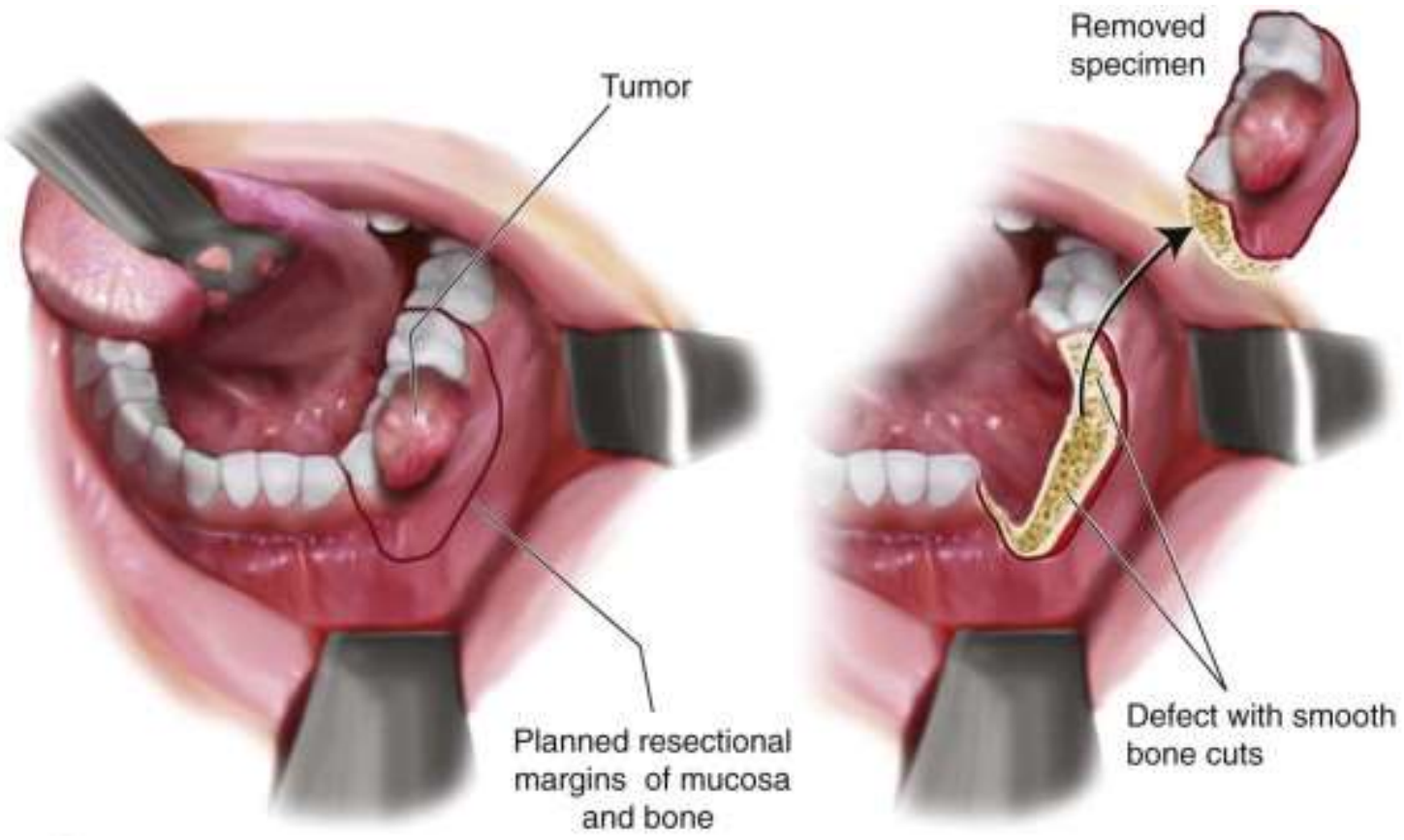


Excision
of
Primary Lesion

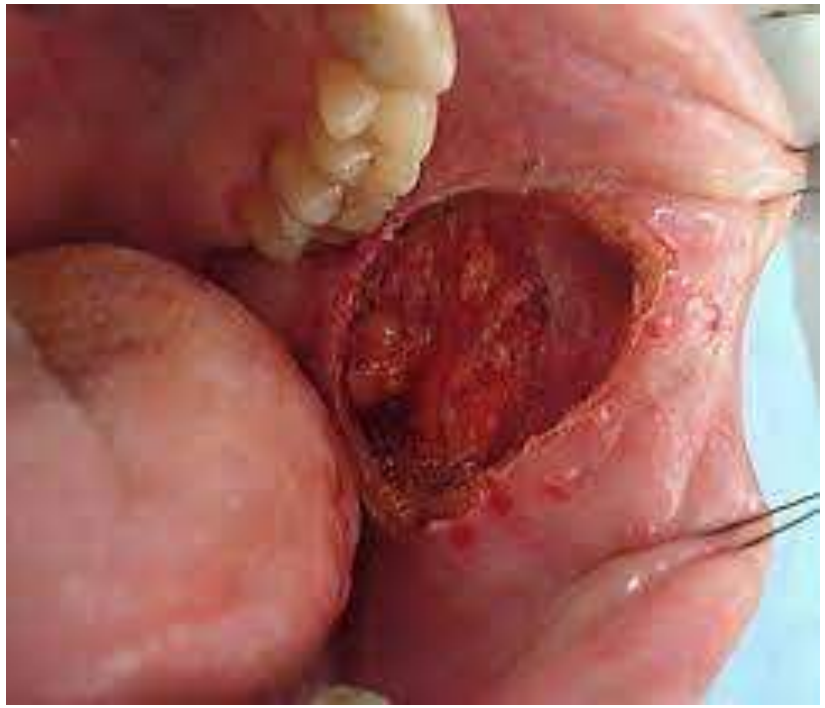
Neck Dissection
For
Management of
Neck Nodes

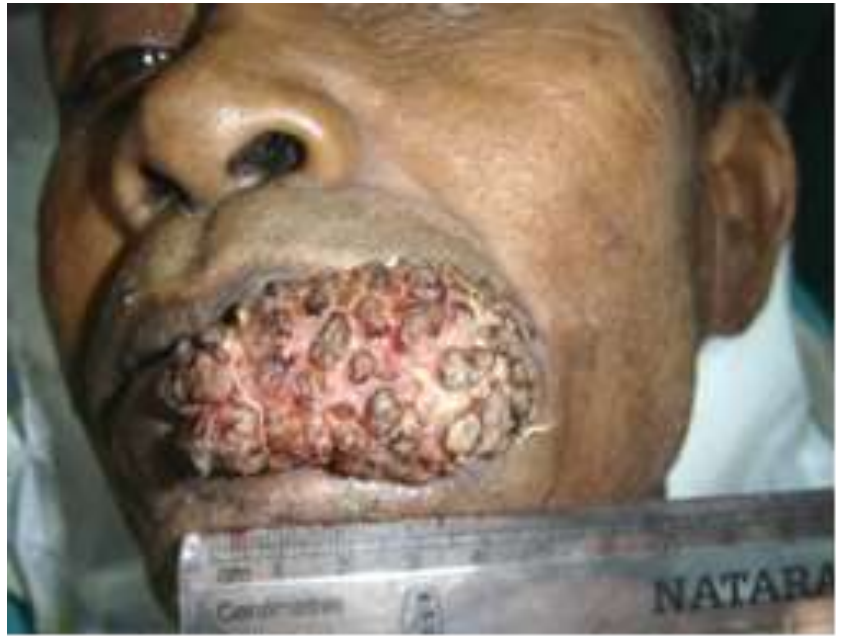
Reconstruction

Surgery

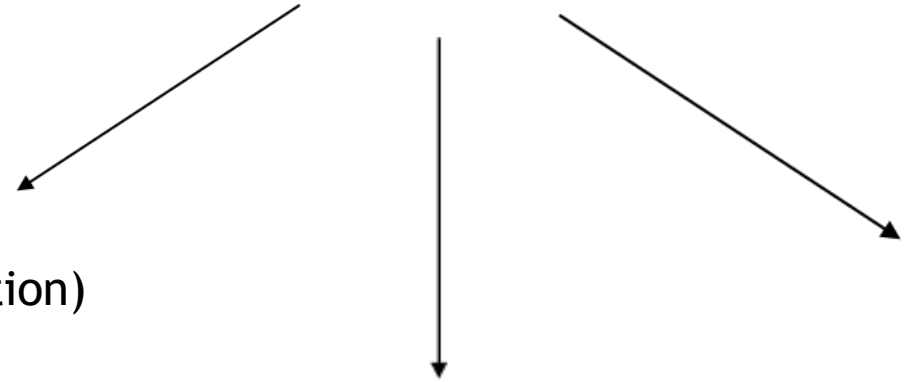


Wide Local Excision of Primary lesion




NATARA

Neck Dissection



RND
(Radical Neck Dissection)

SND
(Selective Neck Dissection)

MRND
(Modified Radical Neck Dissection)
MRND I
MRND II
MRND III

Radical Neck Dissection

- First given by Sir George Crile in 1906

- Involves removal of following structures –

  - Fibrofatty tissue in the lateral part of neck with level I to V Lymph nodes

  - Submandibular gland

  - SAN i.e. Spinal Accessory Nerve

  - SCM i.e. Sternocleidomastoid Muscle

  - IJV i.e. Internal Jugular Vein

- Extensive surgery

Modified Radical Neck Dissection

- Less extensive than RND

- MRND I -

  Similar to RND except that it preserves SAN i.e. Spinal Accessory Nerve

- MRND II –

  It preserves both Spinal Accessory Nerve and Internal Jugular Vein

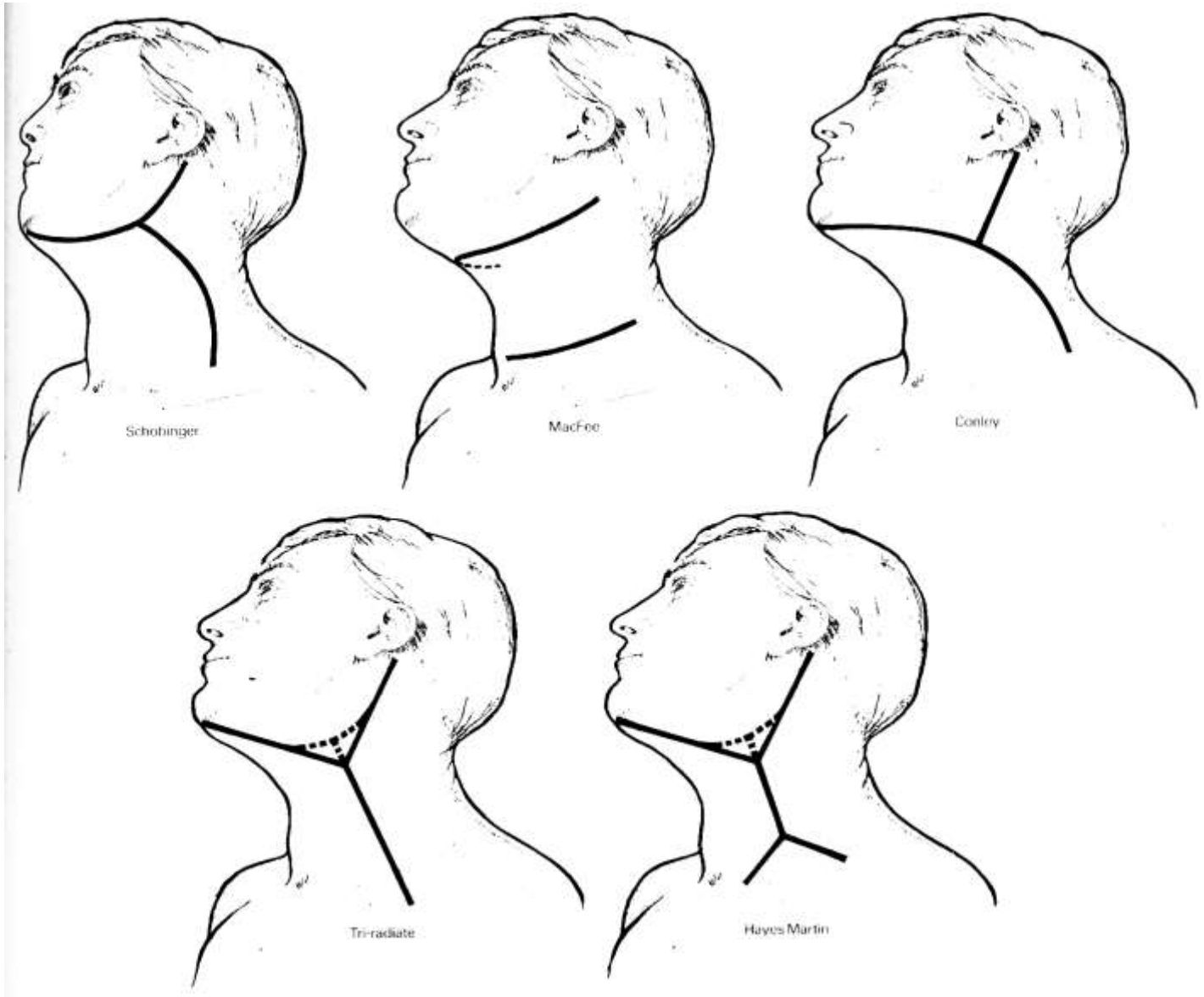
- MRND III -

  It preserves Spinal Accessory Nerve, Internal Jugular Vein and Sternocleidomastoid muscle

Selective Neck Dissection

- Preserves one or more groups of lymph nodes along with SAN, IJV and SCM
- Supra-omohyoid SND : Level I, II and III
- Jugular SND : Level II, III and IV
- Anterior Triangle SND : Level I, II, III and IV
- Postero-lateral SND : Level II, III, IV and V
- Central compartment : Level VI

Incisions for neck dissections



Reconstruction

- Small soft tissue defects can be closed by primary closure i.e. suturing only
- However, bigger defects need to be reconstructed
- Various options are :
  - Local flaps
  - Regional flaps
  - Distant free flaps
  - Bone grafts
  - Reconstruction plates

Chemotherapy

- **Oral or intravenous administration of drugs**
- **Indications** –
  - Nasopharyngeal cancer
  - Unresectable Head and neck cancer
  - Preservation of Larynx
  - As a palliative treatment for Recurrent and distant metastatic disease
- Side effects –
  - Dryness of skin
  - Mucositis
  - Alopecia
  - Conjunctivitis
  - Immunosuppression
  - Leucopenia
  - GI bleeding
  - Superinfections

Radiotherapy

- Ionizing radiation damages DNA and cell membranes of malignant tissues
- Side effects –
  - Xerostomia
  - Dental caries sec. to axerostomia
  - Mucositis
  - Osteoradionecrosis of mandible
  - Alopecia