CRANIOFACIAL MALIGNANT NEOPLASMS

MBCHB 6

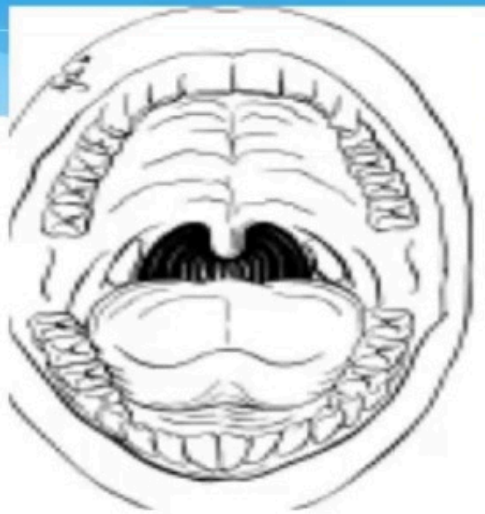
29TH MARCH 2021

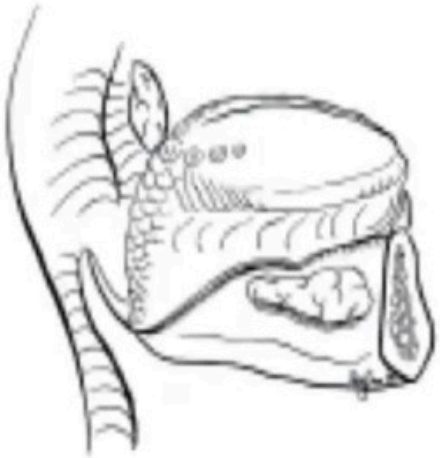
GOOGLE MEET

DR. A.W. NJIRU

Oral Cancer

Description of site	ICD-10
Lips	C00
Base of tongue	C01
Other unspecified parts of tongue	C02
Gums	C03
Floor of the mouth	C04
Palate	C05
Other parts of the mouth	C06

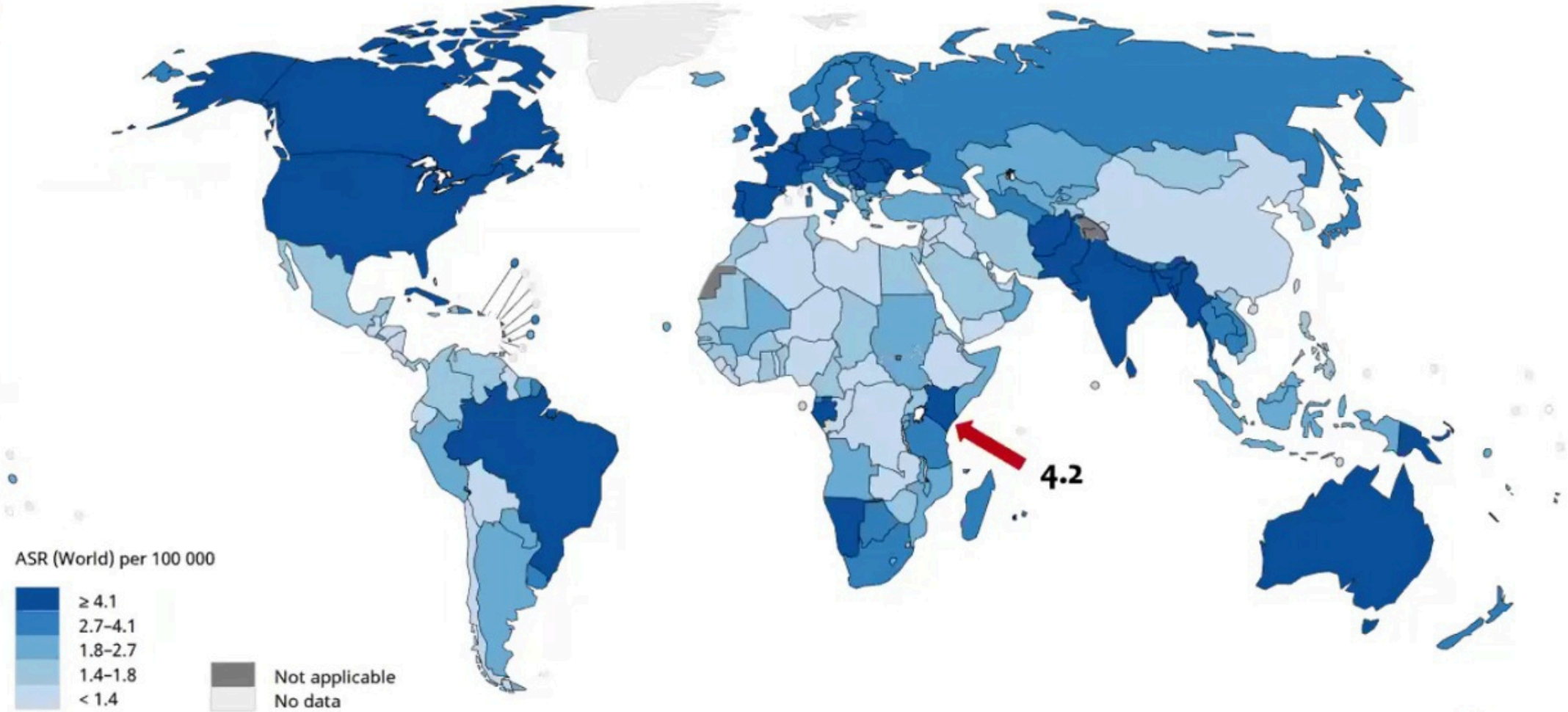




Epidemiology

- 2 -3% of all malignancies
- Higher incidence in LMIC/LIC than VHI/HI countries
- Highest incidence in India, South America, Oceania
- 5^{th} to 6^{th} decade (Younger in LMIC/LIC)
- M>F*

Estimated age-standardized incidence rates (World) in 2018, lip, oral cavity, both sexes, all ages

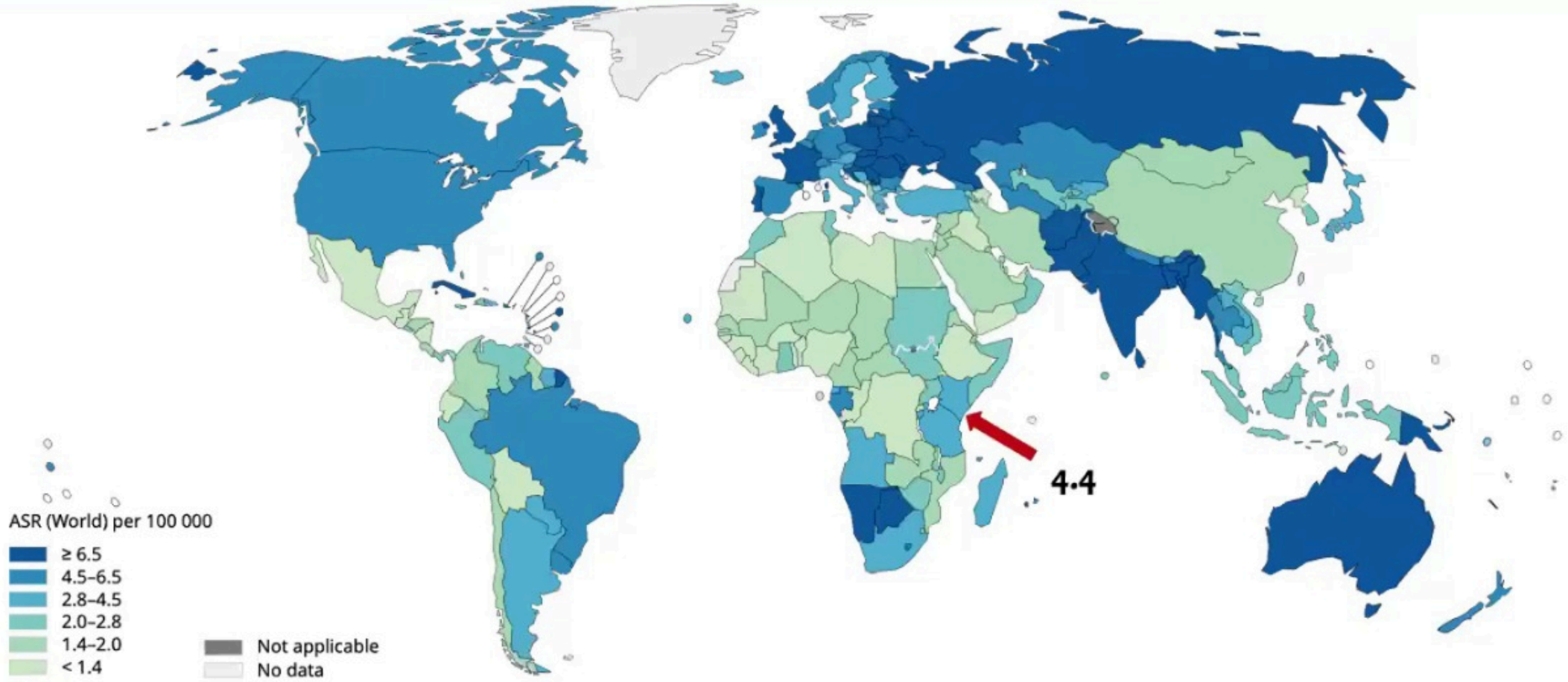


Data source: GLOBOCAN 2018
Graph production: IARC
(http://gco.iarc.fr/today)
World Health Organization

World Health Organization

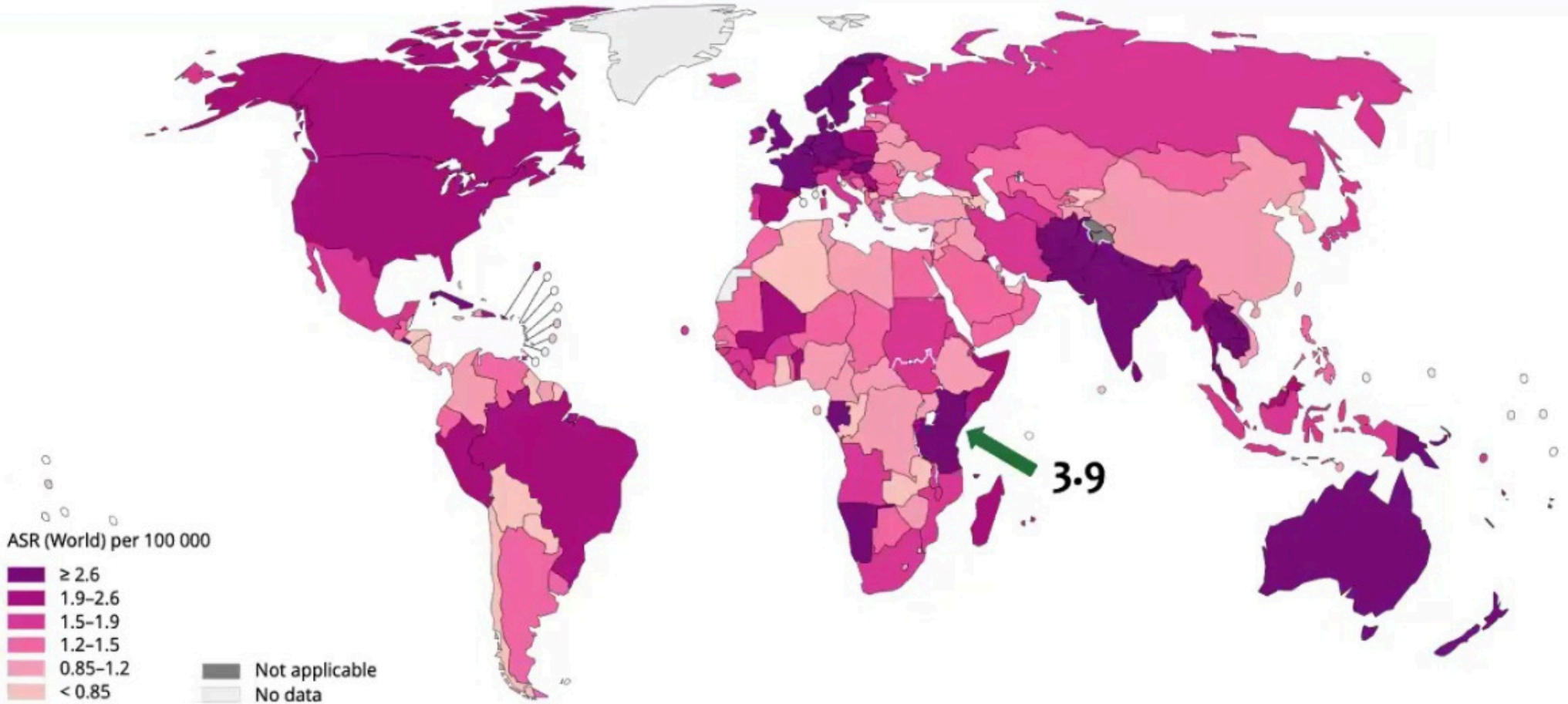
MALE ASR

Age standardized (World) incidence rates, lip, oral cavity, males, all ages



FEMALE ASR

Age standardized (World) incidence rates, lip, oral cavity, females, all ages

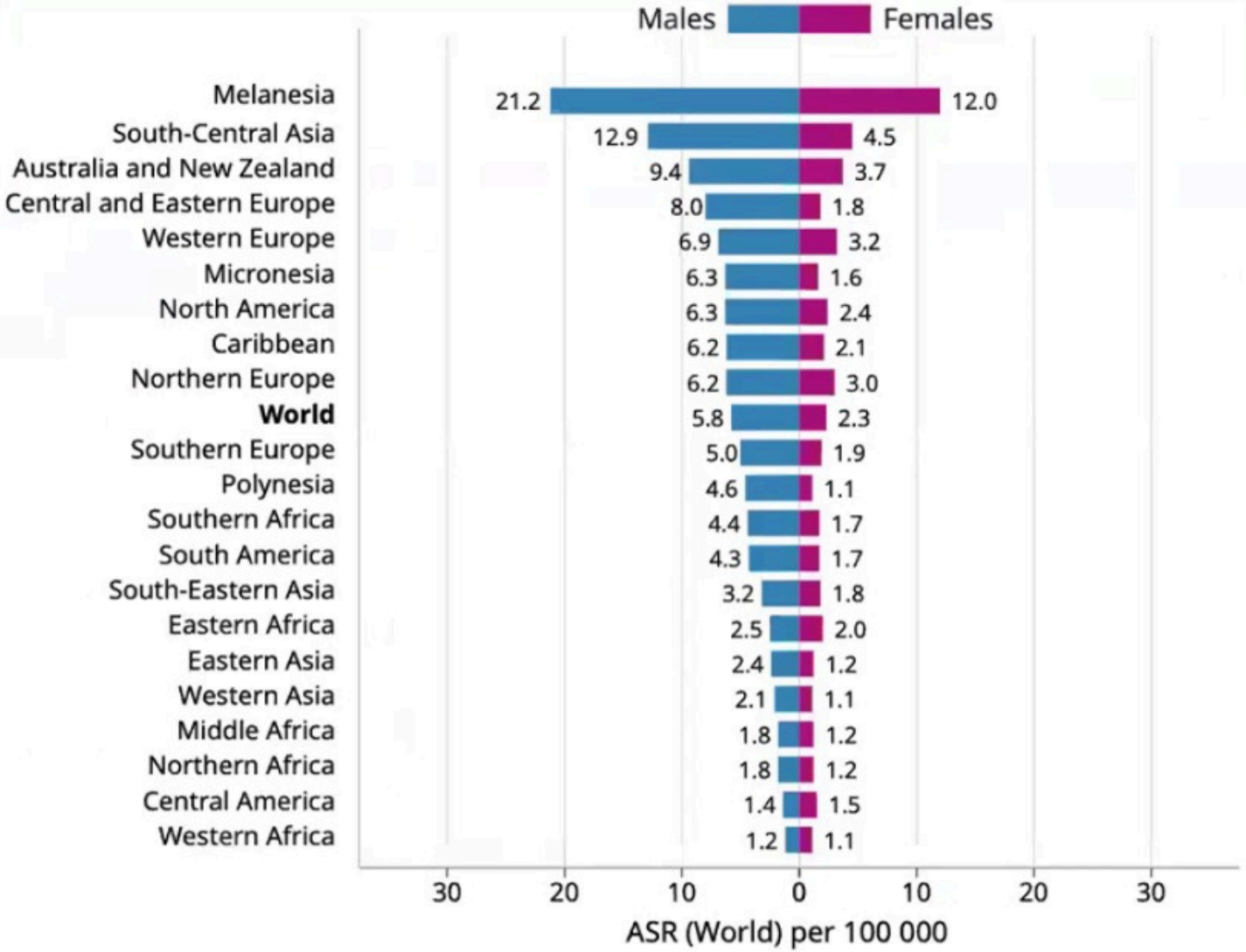


Data source: GLOBOCAN 2018

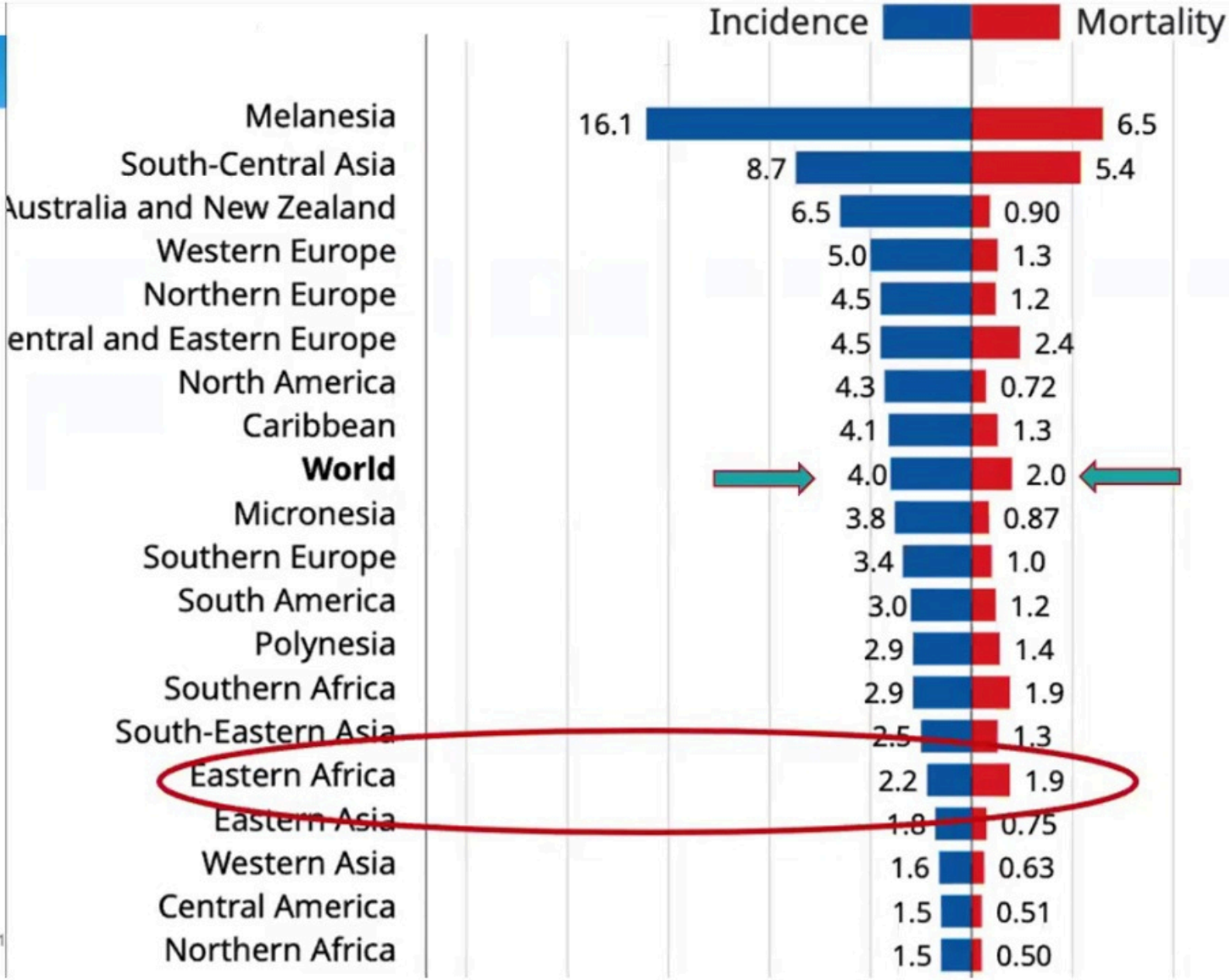
Graph production: IARC (http://gco.iarc.fr/today)

World Health Organization

Age standardized (World) incidence rates, lip, oral cavity, by sex



Age standardized (World) incidence rates, lip, oral cavity, by sex


Incidence
Mortality
Melanesia 16.1 6.5
South-Central Asia 8.7 5.4
Australia and New Zealand 6.5 0.90
Western Europe 5.0 1.3
Northern Europe 4.5 1.2
Central and Eastern Europe 4.5 2.4
North America 4.3 0.72
Caribbean 4.1 1.3
World 4.0 2.0
Micronesia 3.8 0.87
Southern Europe 3.4 1.0
South America 3.0 1.2
Polynesia 2.9 1.4
Southern Africa 2.9 1.9
South-Eastern Asia 2.5 1.3
Eastern Africa 2.2 1.9
Eastern Asia 1.8 0.75
Western Asia 1.6 0.63
Central America 1.5 0.51
Northern Africa 1.5 0.50

RISK FACTORS

- Tobacco
- Alcohol
- Tobacco and alcohol
- Betel quid ± tobacco
- Potentially Malignant Conditions
- History of Cancer of the Head &Neck region
- Human Papillomavirus 16

Other Factors

- Previous oral cancer
- Family h/o HNSCC
- Sun exposure*
- Weakened immune system
- Poor oral health

Other Factors

- Inherited conditions
- Diet low in fruit and vegetables
- Obesity
- Chronic inflammation

Risk Factors: Tobacco

- Tenfold risk for smoker compared to NEVER-SMOKER
- Cigarette smokers: RR X10 in men, X5 in women
- Dose dependent
- >75% Oral cancer patients have h/o tobacco use at KNH
- Cigarette, pipe, cigar, smokeless, SHISHA

Risk Factors: Alcohol

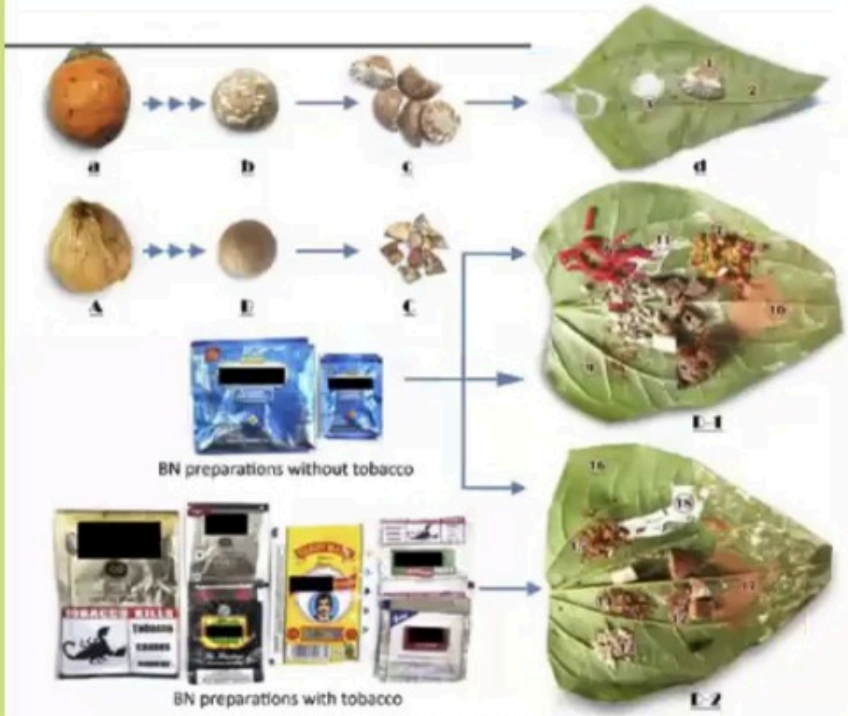
- Less than tobacco
- X5 increased risk for those who drink ≥5 alcoholic beverages/day compared to teetotallers
- Beer, hard liquor > wine
- Dose related

Risk Factors: Alcohol + Tobacco

- Two to three times Greater than the multiplicative effect of smoking and drinking;
- X35 risk in heavy smokers (≥2 packs of cigarettes/day) and heavy drinkers (>4 drinks/day) compared to never-smoked, never-drink people

Betel Quid

- What is betel nut?
- Fruit of the Areca tree (Areca catechu) Also referred to as Areca nut
- What is betel *QUID*?
- It is a product made from betel nut and other substances
- How is it used?
- There are many different preparations *This paper* summaries it very well.



https://www.researchgate.net/publication/230716358_Association_of_Betel_Nut_with_Carcinogenesis_Revisit_with_a_Clinical_Perspective/figures

..betel nut

- Many different preparations, BUT contains:
  - Betel nut
  - Betel leaf
  - Slaked lime
- May also contain:
  - Tobacco (*flakes, powder, paste: ± processed*)
  - Spices (*cardamom, cloves, anise*)
  - Sweetener

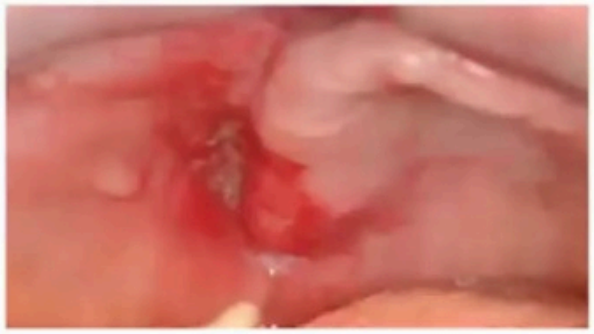
https://d36zfg4d500s0g.cloudfront.net/cache/images/DT/up/dt/2017/11/betel-quid-780-1-1188x668-.jpg

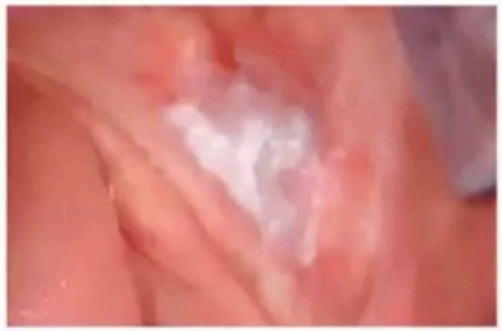
Human Papillomavirus

- Greatest Risk for oropharyngeal carcinoma
- Type 16 > 18
- Independent of tobacco/alcohol risk
- Odds ratio of 2 in oral cancer, x16 in oropharyngeal

POTENTIALLY MALIGNANT LESIONS

- Oral lichen planus –Erosive type
- Oral leukoplakia
- Erythroplakia





Interventions with Decreased Risk

1. Tobacco cessation:
- Moderate/larger magnitude in risk
- decreased risk compared to never smoker in 20yrs or more after cessation
- 50% decrease in risk within 5 to 10yrs
2. Alcohol cessation: Moderate reduction. ~ Evidence
3. HPV vaccination… ..?
   - >90% reduction in infection 4 yrs after vaccination
   - Effect on incidence of oral cancer still unknown

Interventions: Tobacco Cessation

- Tobacco cessation:
  - Counselling - odds ratio 1.56
  - Physician advice – 1.66
  - Nicotine replacement Therapy (NRT) over 6 months RR 1.58
  - Buproprion
  - Varenicline

Effectiveness of Treatments for tobacco dependence

Intervention (source)	Comparator	Odds Ratio (95% C.I.)
Self-help	**No intervention**	**1.24(1.07-1.45)**
Physician advice	**Brief advice vs. no advice**	**1.66(1.42-1.94)**
	Intensive advice vs. no advice	**1.84(1.60-2.13)**
Nursing intervention	**Usual care**	**1.28(1.18 to 1.38)**
Individual counselling	**Minimal behavioural intervention**	**1.39(1.24 to 1.57)**
Group therapy	**Self-help programme**	**1.98(1.60-2.46)**
Quit and Win contests	**Baseline community rate**	

Source: Cochrane reviews

Effectiveness of pharmacological treatments for tobacco dependence

Intervention (source)	Comparator	Odd ratio (95% C.I.)
Nicotine replacement therapy	Placebo or non-NRT	1.58(1.50-1.66)
Bupropion	Placebo	1.69(1.53 to 1.85)
Varenicline	Placebo	2.27 (2.02 to 2.55)
Cytisine	Placebo	3.98 (2.01 to 7.87)
Clonidine	Placebo	1.63 (1.22 to 2.18)
Nortriptyline	Placebo	2.03 (1.48 to 2.78)

Tobacco Cessation: What should you do?

- Document smoking status
- Evaluate willingness to quit, assist set quit date
- Provide Brief cessation intervention (5 As)
  - ***(Ask, Advise, Assess, Assist, Arrange)***
  - Social support from you
  - Skills training/ coping mechanisms
  - Pharmacotherapy

SCREENING

Visual Examination

- You are more likely to offer counselling, but less likely to examine the mouth
- You see the mouth more often than the dentists
- You are more likely to see high-risk patients

Toluidine Blue, Brush cytology

- Inconclusive

Scalpel Biopsy

- Gold Standard
- Invasive

Harm:

- Over-diagnosis
- Psychological effects of false +ve
- Misdiagnosis

Clinical Presentation

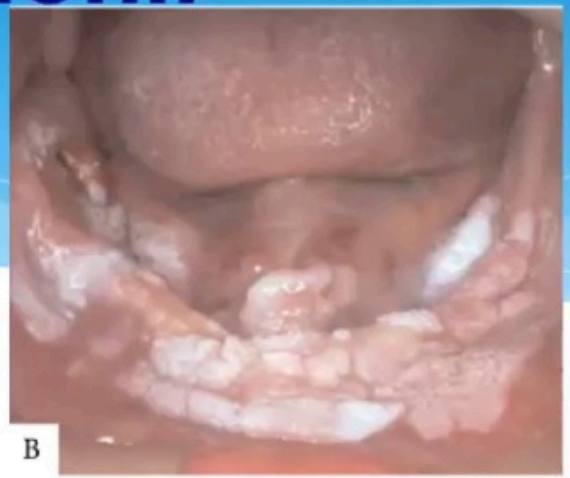
- Depends on:
  - Location
  - Extent of tumour
  - Stage at presentation

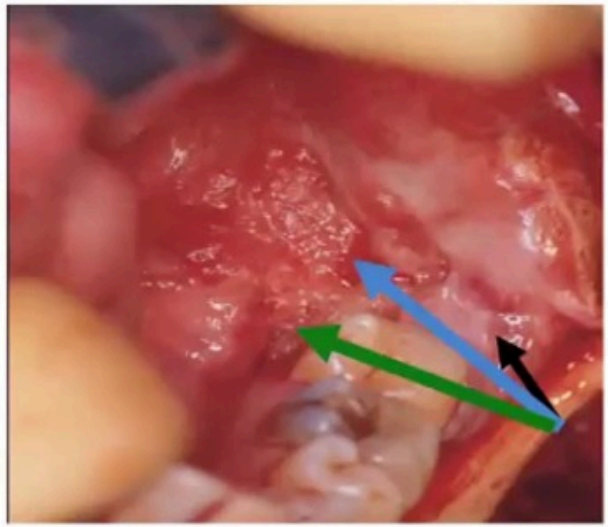
PRESENTATION

- Asymptomatic
- Potentially malignant lesion
- Early stage lesion
- More advanced
- **Site**: tongue>FOM>alveolus>other sites

Clinical presentation..

- Oral mucosa:
  - Ulcerative.
  - Exophytic.
  - Endophytic. Red,velvety
  - Proliferative.

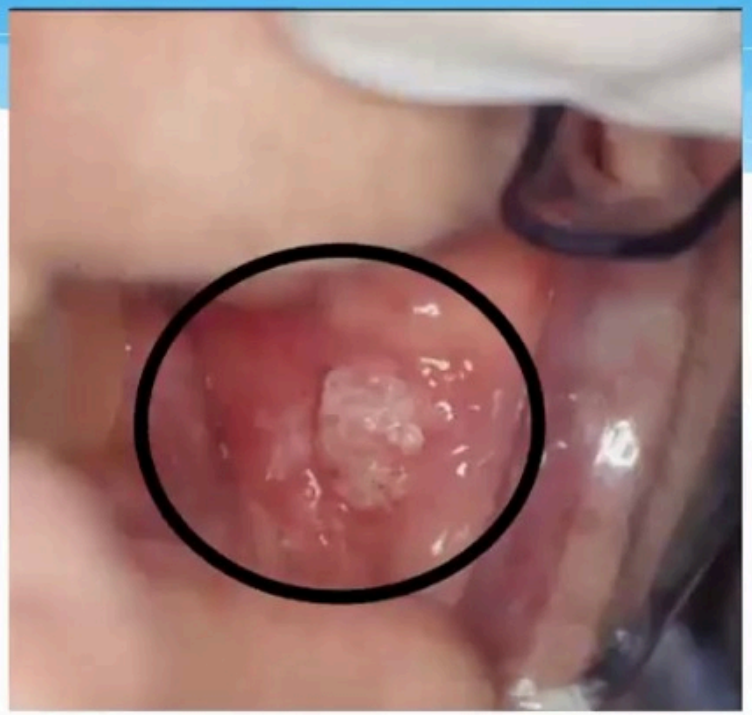


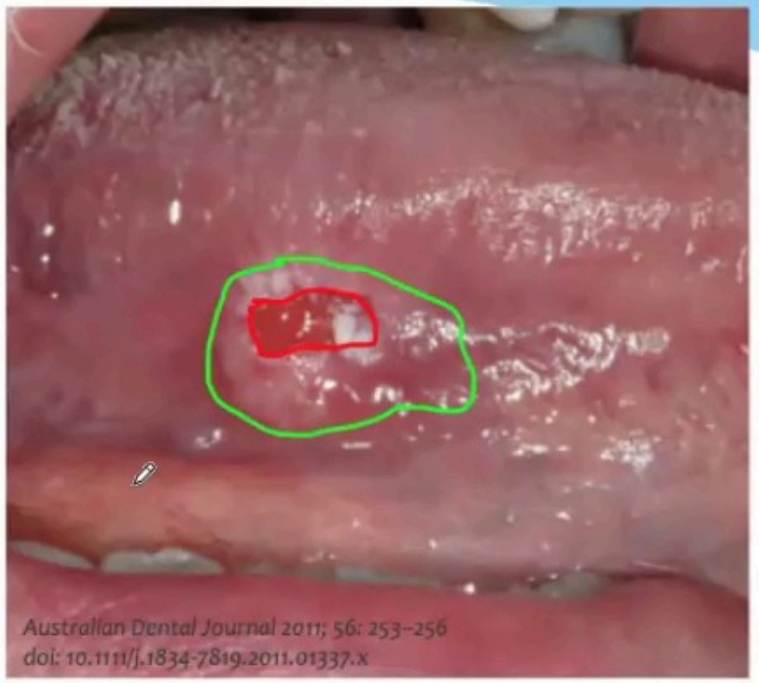


Stage at presentation

Early lesion

- Routine finding
- Non-healing ulcers
- ±pain, bleeding
- Easily confused for non-neoplastic lesions





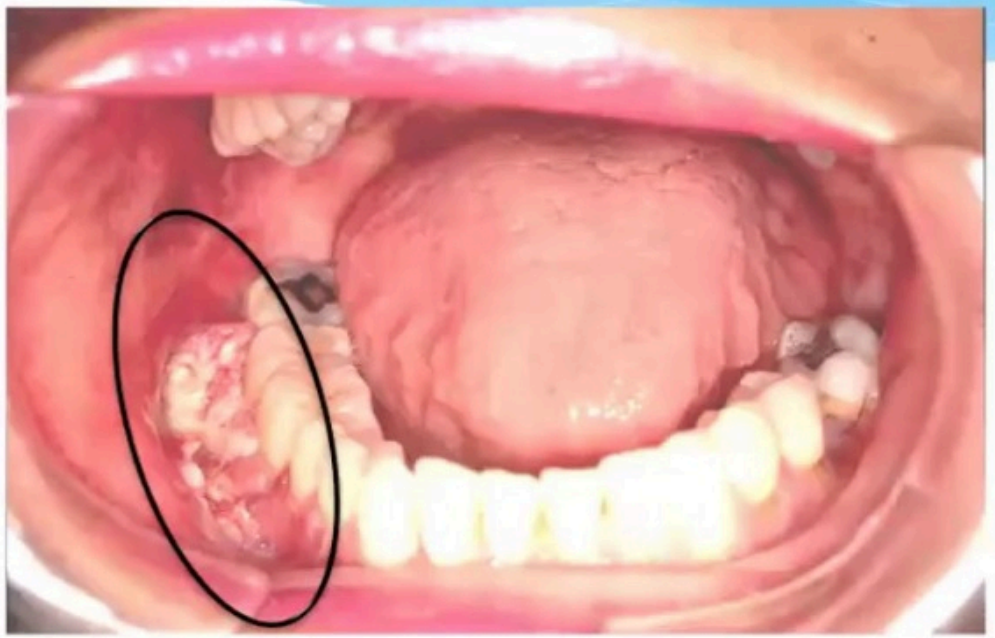
Early cancer on lateral border of tongue

Early Presentation

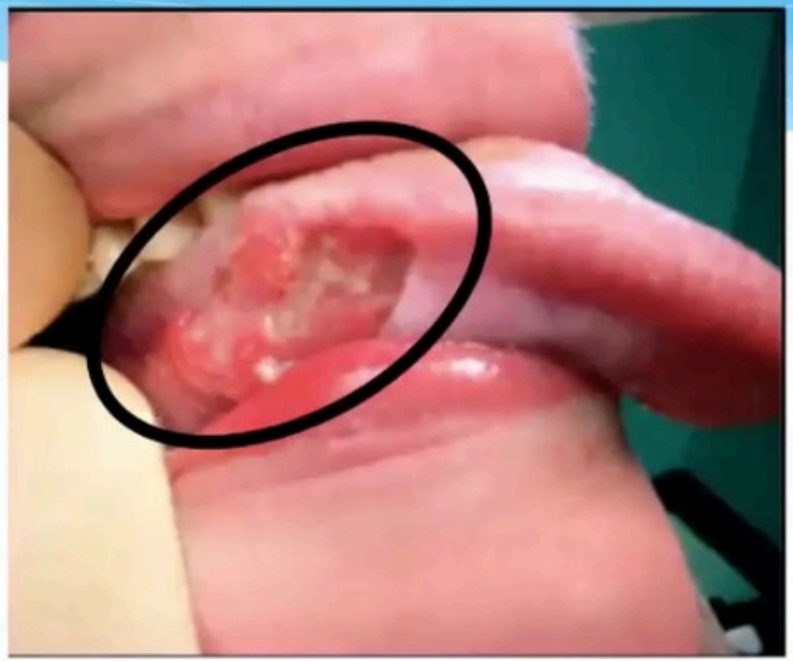
- What else could it be?
  - Infection
  - Aphthous ulcer
  - Ill-fitting denture
  - Non-healing extraction site
  - Trauma

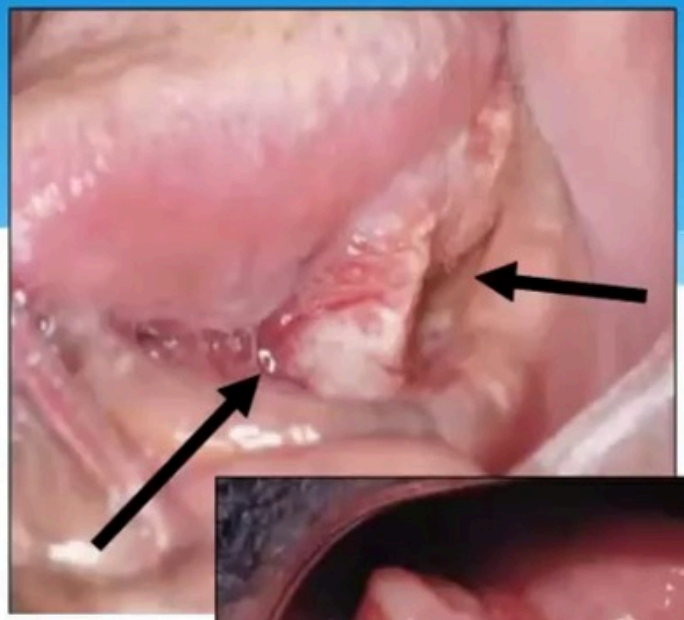
Late Presentation

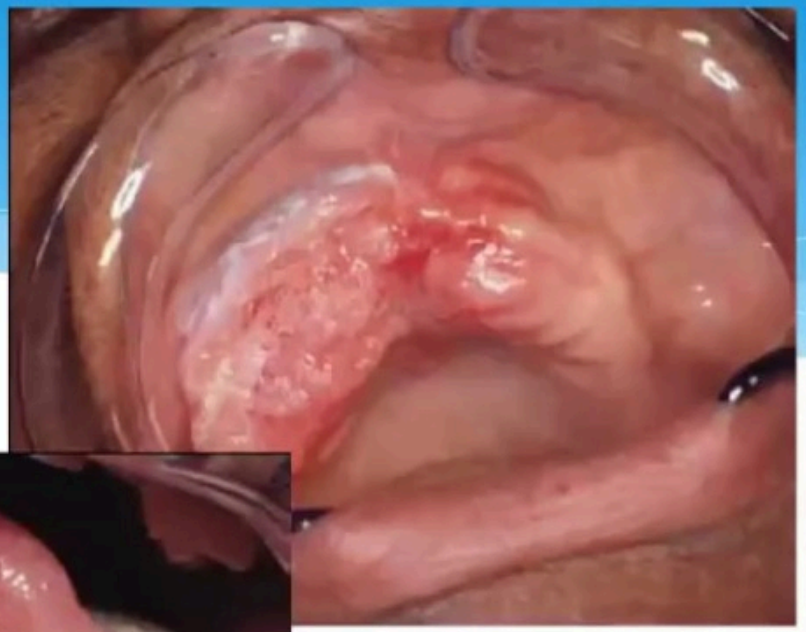
- Difficulty chewing, swallowing
- ++pain, otalgia,
- Progressive trismus
- Halitosis

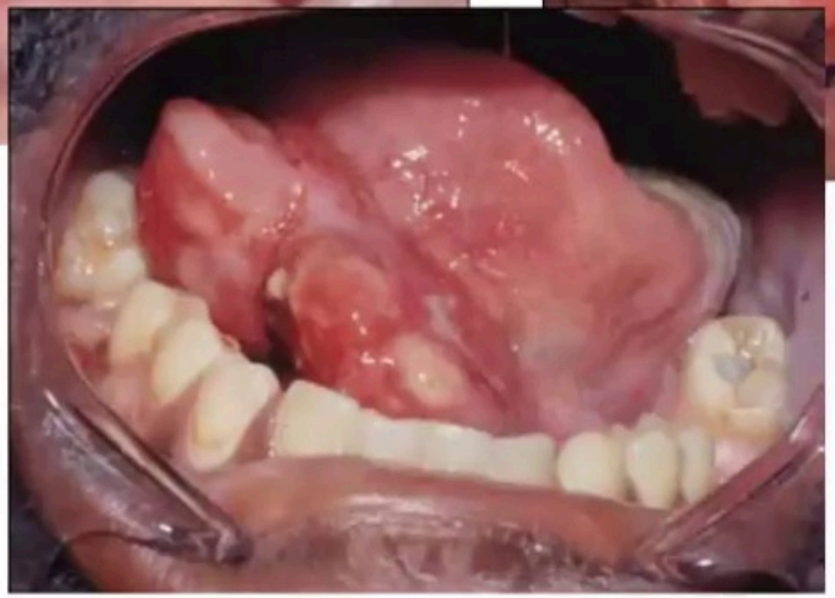


- Restricted tongue movement,
- Paraesthesia/anaesthesia
- Speech changes





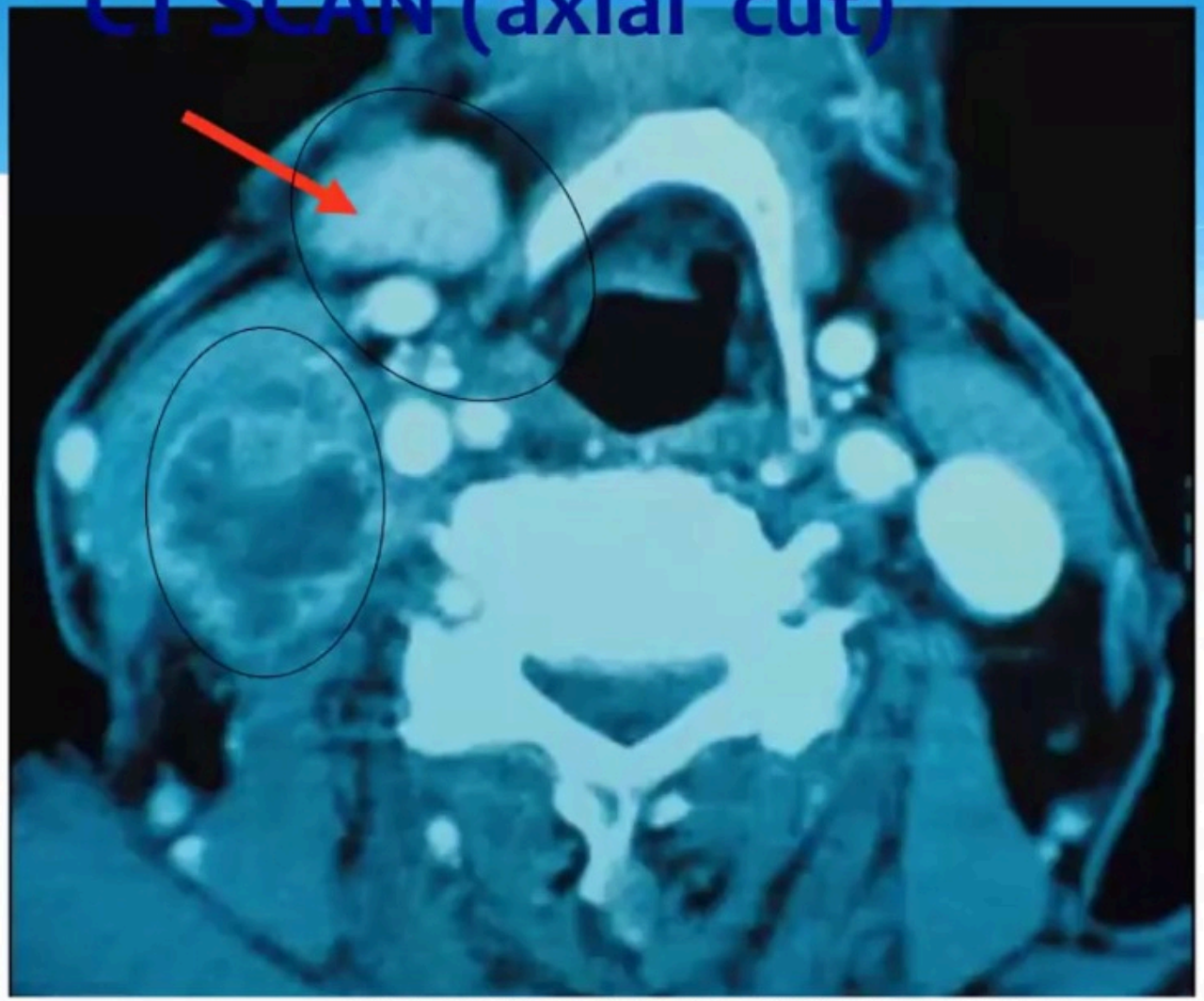




DIAGNOSIS

- **Stage At Diagnosis** is ***single most important prognostic factor***
- **DIAGNOSIS**:
  - Clinical examination
  - Imaging
  - Histopathological diagnosis

CT SCAN (axial cut)



CT

- 3- to 5-mm slices from the skull base to clavicles
- Radiographic markers
- lymph node size, shape, and central necrosis
- abnormal when > 1.5 cm in the jugulo-digastric region or > 1 cm in other regions

Ultrasound

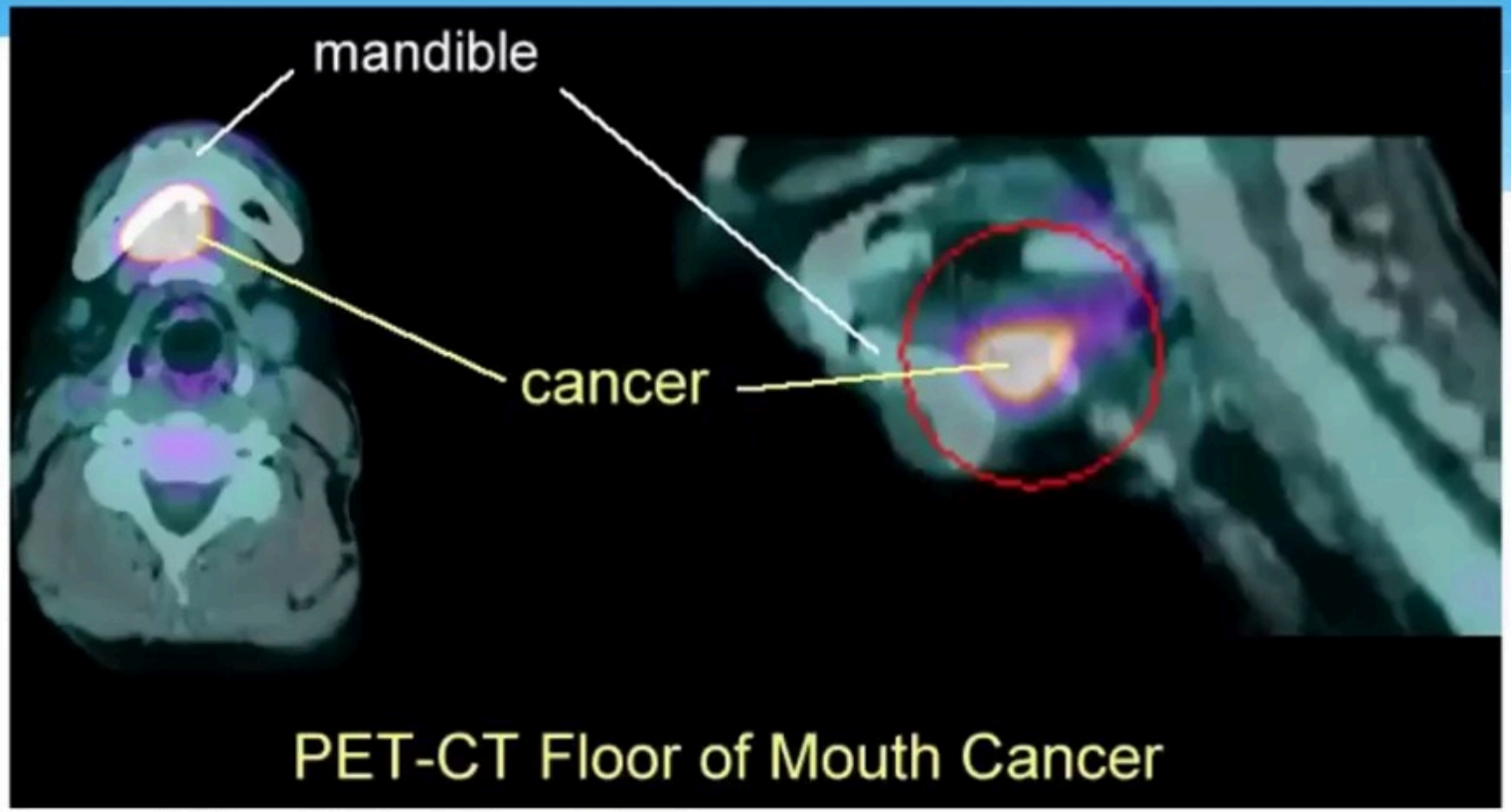
- Inexpensive
- Well tolerated
- High sensitivity and specificity
- N_0
- Good **initial guide**

MRI

- Advantage: viewing the neck and 1^0 tumour in planes not available by CT
- Difficulty: time and motionlessness required

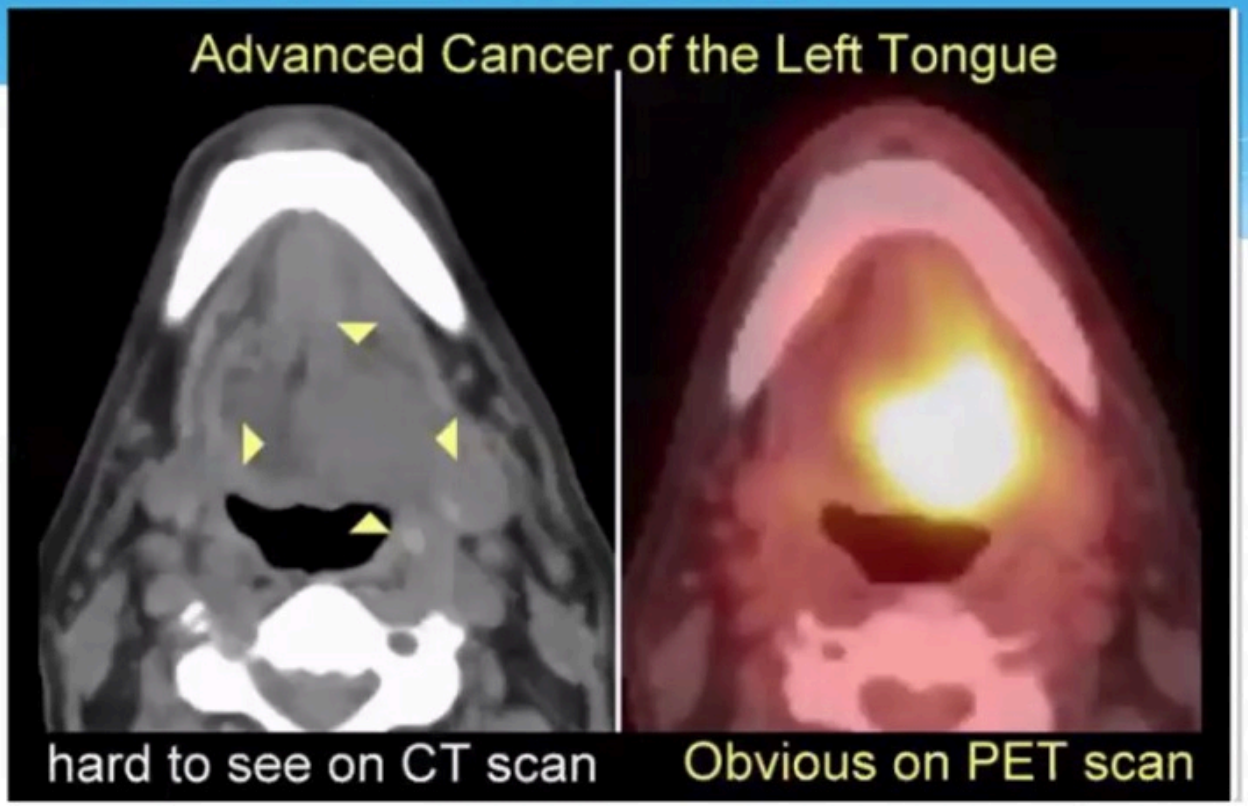
PET

- Relies on enhanced metabolic activity of abnormal tissue
- High S&S
- N_0
- ?cancerous vs reactive inflammatory lesions



http://www.aboutcancer.com/fom_pet_sah_0108.jpg

CT VS. PET SCAN



- http://www.aboutcancer.com/tongue_pet_sah_sept_2006.jpg

Histopathology: Tumour Grading

Broder's Cellular Classification:

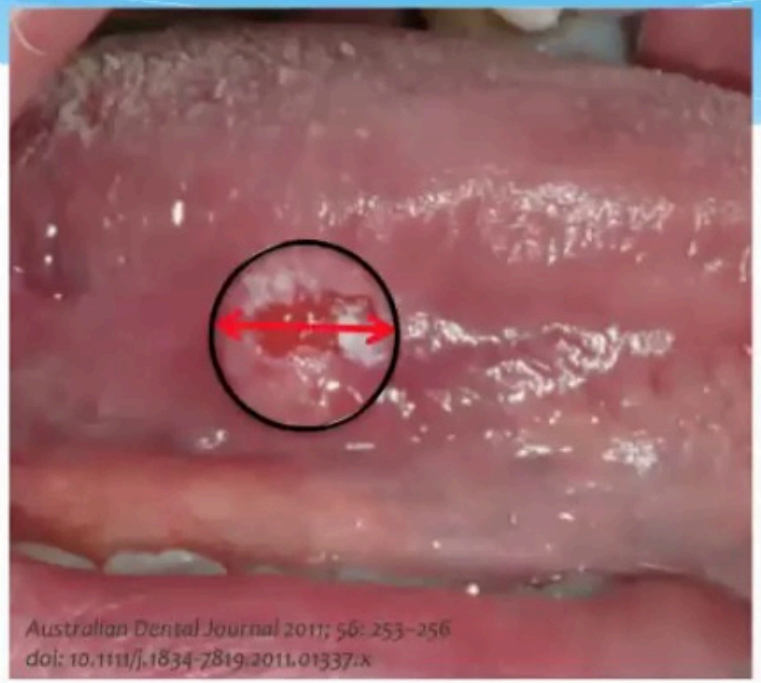
- G1: Well differentiated
- G2: Moderately well differentiated
- G3: Poorly differentiated
- G4: Undifferentiated

CLASSIFICATION

- **UICC/AJCC TNM CLASSIFICATION**

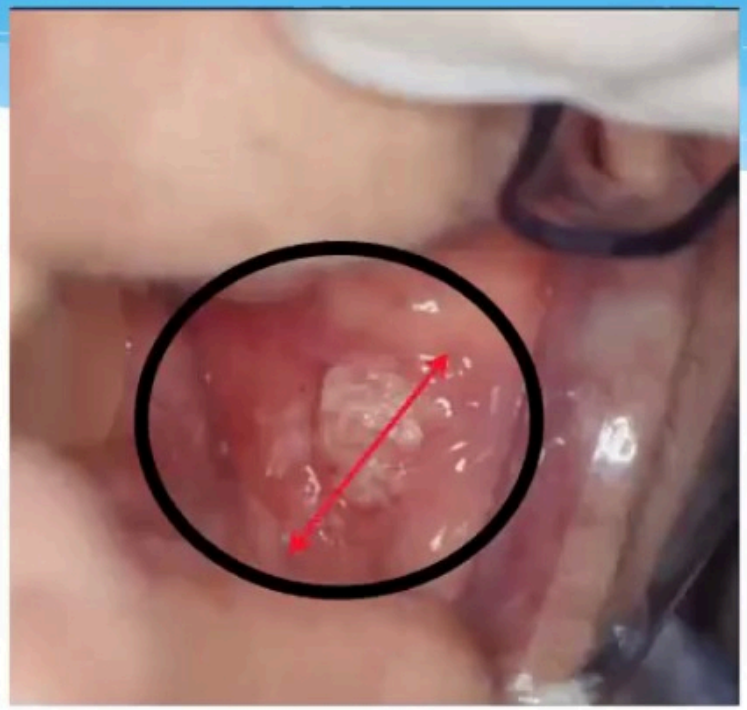
Tumour - T

- TIS Carcinoma in situ
- T1 Tumour 2cm or less in greatest dimension



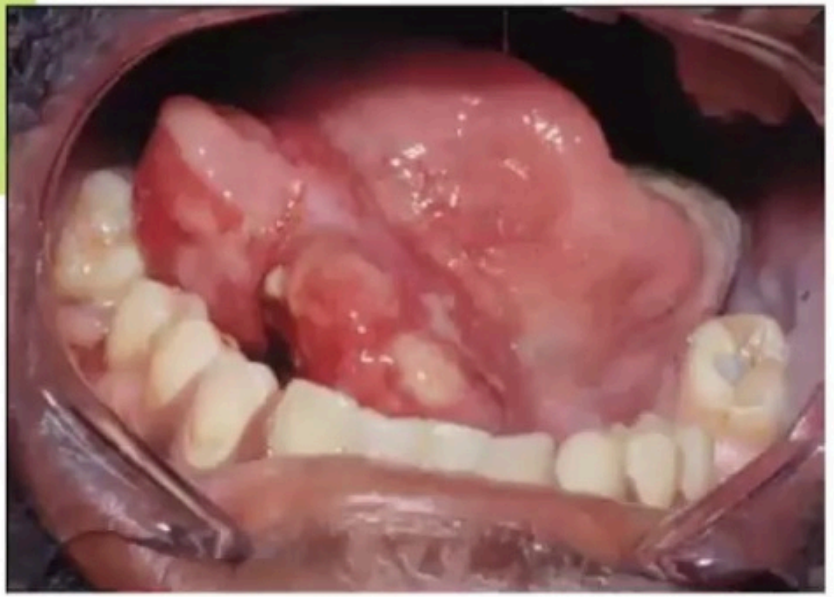
Tumour - T

T2: Tumour > 2cm but no more than 4cm in greatest dimension



Tumour - T

- T3 Tumour > 4cm in greatest dimension
- T4 Tumour with direct extension



Nodes - N

- **N0:**
- **No evidence of regional lymph node involvement**

N1

- Metastasis to ipsilateral lymph node no more than 3cm diameter

N2

- **N2a** Metastasis to single ipsilateral lymph node >3 cm & < 6 cm diameter
- **N2b** Metastases in multiple ipsilateral lymph nodes, none > 6 cm
- **N2c** Metastases in bilateral or contralateral lymph nodes, none > 6 cm

N3

- **N3 Metastases in lymph nodes > 6 cm diameter**

Tumour Node Metastases Stage

T	N	M	STAGE
T1	No	Mo	1
T2	No	Mo	2
T3	No	Mo	3
T1-3	N1	Mo	3
T4	No	Mo	4
T (any)	N2	Mo	4
T (any)	N3	Mo	4
T (any)	N (any)	M1	4

Incidence and Prognosis

Stage	Incidence (%)	5 yr survival (%)
1	17.7	77
2	12.9	76
3	61.3	44
4	8.1	20

Treatment Aims

- Curative
- Palliative

R_x Aims

Curative intent:

- To remove all disease
- To remove all known risk factors
- To improve survival
- To prevent recurrence
- To maximise quality of life

Treatment Aims

Palliative intent:

- To remove all known risk factors
- To reduce tumour size
- To prevent continued increase in size
- To maximise quality of life

Factors Affecting Outcomes

- Stage at presentation
- Presence of nodal & distant metastases

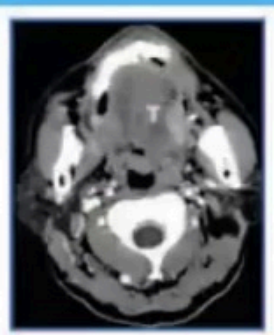
Histopath. Factors:

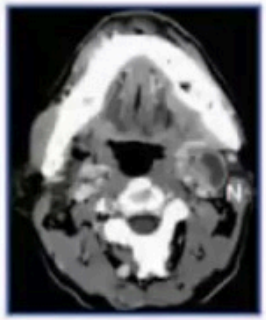
- Tumour depth
- Tumour grade
- Surgical margin status
- Pattern of invasion
- Perineural or lymphovascular invasion

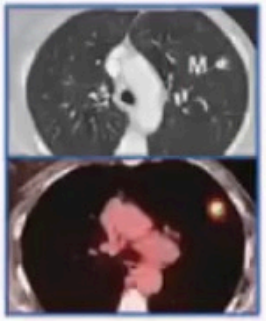
Std Treatment

- Stage 1 Surgery and/or radiotherapy
- Stage 2 1^0 surgery and radiotherapy
- Stage 3 1^0 surgery and post-op RT
- Stage 4 1^0 surgery and post-op RT Or chemorad.

Treatment modalities







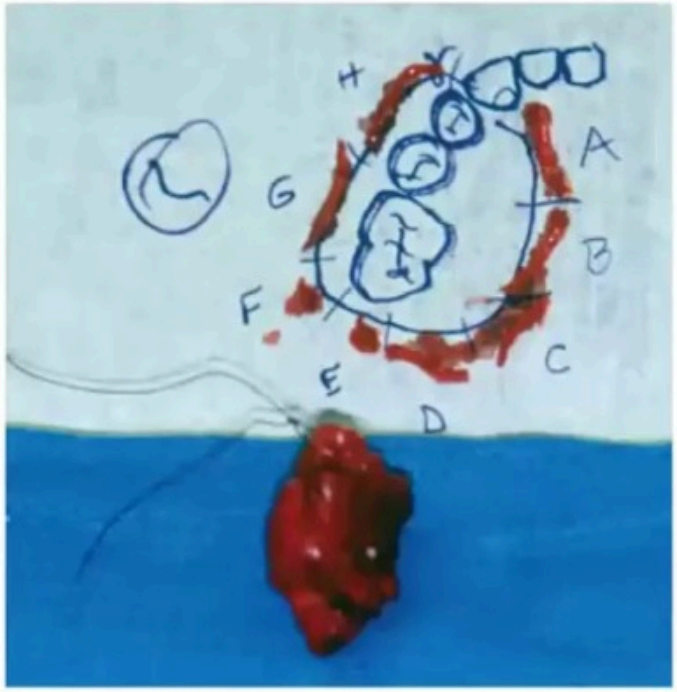
TNM Staging

Early stage (Stage I – II)	Locoregionally advanced (Stage III – IVB)	Metastatic (Stage IVC)
Treatment modality		
Surgery Or Radiotherapy	Surgery Radiotherapy Chemotherapy	Chemotherapy

Surgical Resection

Resect tumour with margin of 1 -1.5cm

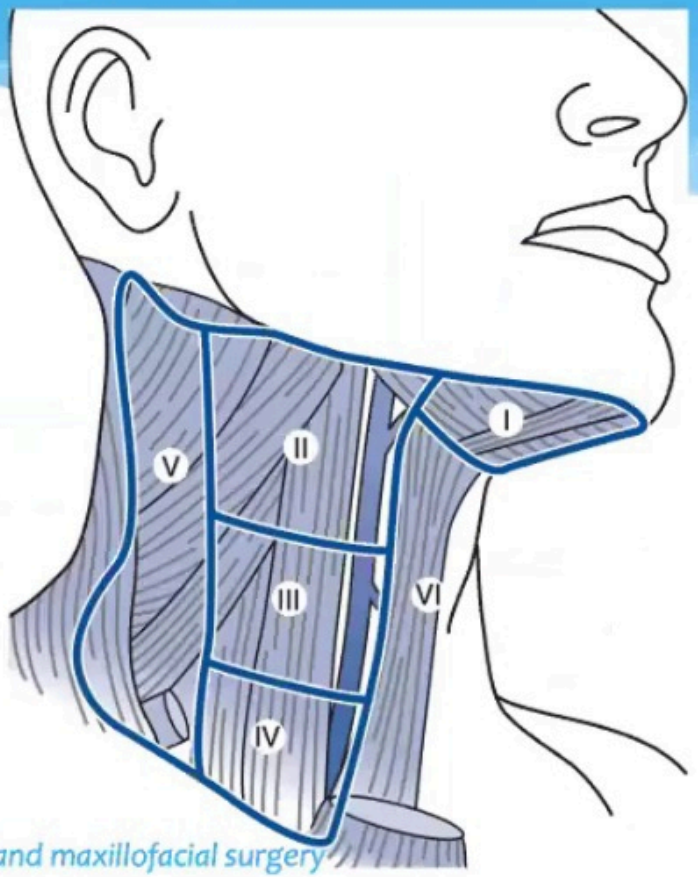
- Obtain margins from specimen **or** wound edge



Mx of Lymph Nodes

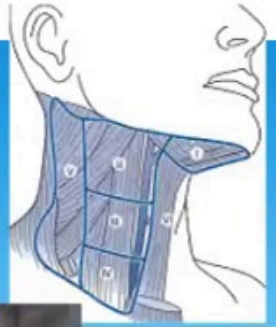
- Objectives:
- Therapeutic Neck Dissection (Removal of gross disease)
- Elective Neck Dissection
- High index of suspicion of occult mets

Lymph node levels



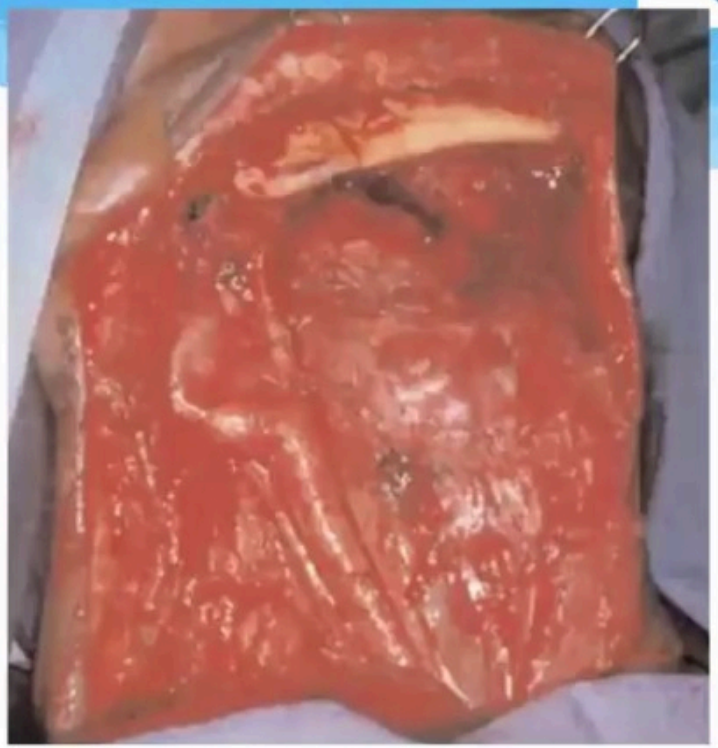
Peterson's textbook of oral and maxillofacial surgery

Neck Dissection



Radical Neck Dissection:

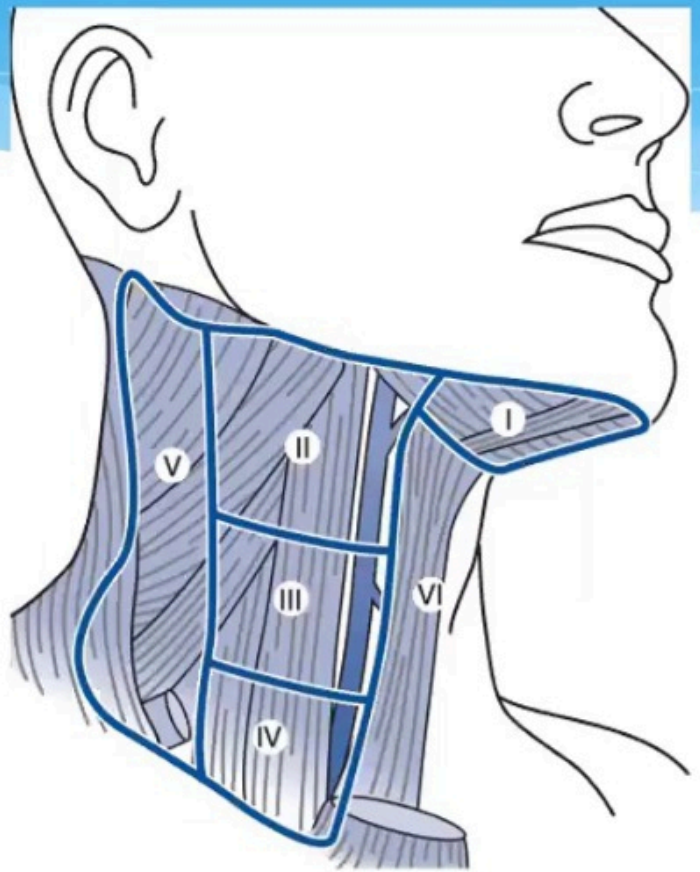
- All ipsilateral nodes levels I to V
- Includes removal of IJV, SCM muscle, spinal accessory nerve



Neck Dissection

Modified Radical Neck Dissection

- Same as RND but preserve IJV, SCM, spinal accessory
- Type I
- Type II
- Type III
- **Extended neck dissection**



Neck Dissection

Selective neck dissection