ORAL CANCER AWARENESS

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CANCER

- A “neoplasm” is defined as an abnormal mass of tissue, the growth of which exceeds and is uncoordinated with the normal tissues and persists in the same excessive manner even after cessation of the stimuli which evoked the change
- Any malignant tumour
- 4 characteristic features:
  - →Clonality
  - →Autonomy
  - →Anaplasia
  - →Metastasis

ORAL CANCER

- One of the ten leading cancers in the world
- Any malignancy that arises from oral tissues
- 90-95%→ Squamous cell carcinoma
- Annually
  - 7% of all cancer death in males
  - 4% of all cancer death in females

Oral precancerous lesion

- **WHO Definition:**

  Morphologically altered tissue in which cancer is more likely to develop than in its apparently normal counterpart

  E.g.: Leukoplakia, Erythroplakia, Palatal changes associated with reverse smoking

- Intermediate clinical state with increased cancer risk, which can be recognized and treated, obviously with a much better prognosis than a full-blown malignancy

Prevalence and incidence

- Max. prevalence- **5th to 6th decades** of life because:

  →prolonged duration of exposure to initiators and promoters of cancer

  →cellular aging

  →decreased immunological response

- In highly industrialised countries-3-5%

  In developing countries-40%

- About 2.5 lak new cases occur every year in India, Pakistan, Bangladesh e

- **Indian Oral Cancer** – Buccal mucosa(65%), lower alveolus(30%) and retromolar trigone(5%) : as these constitute more than 60% of all cancers

Indian Cancer Register

Etiology of oral cancers

1. Tobacco
2. lime preparations (eg CHUNA)
3. Forms of powdered tobacco

1. Smoking

tobacco

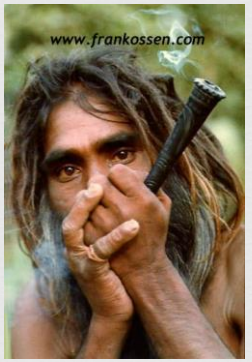
- According to WHO(1984)---90%---directly attributable to chewing and tobacco smoking

HISTORY

- Tobago/Tobacca
- Hookah
- Dental Snuff—relieve tooth ache, bleeding gums, preserve and whiten teeth, prevent decay
- In India, 70%- beedi; 10%- cigarettes; 20%- smokeless tobacco

TOBACCO PREPARATIONS PREVALENT IN INDIA

- **Beedi:**
  - -most popular
  - -1.7-3 mg nicotine; 40-50 mg tar



- **Chillum:**

- **Chutta:** cured tobacco wrapped in dry tobacco leaf

- **Cigarettes:** 1-1.4 mg nicotine; 19-27 mg tar

- **Dhumti:**

  -rolled leaf tobacco inside leaf of jack fruit tree/dried leaf of banana plant

  -for reverse smoking among women

- **Gudakhu:**

  -paste of powdered tobacco, molasses and other ingredients (to clean the tooth)

  -used among women in Bihar

- **Hookah:**

  -also called water pipe/hubble bubble

- Hookli:

  -Clay pipe with mouth piece and bowl

  -In Bhavnagar district of Gujarat

- Khaini:

  -Powdered sun-dried tobacco, slaked lime[$Ca(OH)_2$] paste mixture used with areca

  -Placed in mouth/chewed

- Mainpuri tobacco:

  -tobacco, slaked lime, finely cut arecanut, camphor & cloves

- Mawa:

  -thin shavings of arecanut, tobacco, slaked lime

- Mishri/Masheri:

  -roasting tobacco(on hot metal plate)→until uniformly black → powdered → with/without catechu

- Paan:

  -betel leaf & quid contains arecanut

  -also aniseed, catechu, cardamom, cinnamon, coconut, cloves, sugar and tobacco

- Snuff:

  -finely powdered air-cured and fire-cured tobacco leaves

  -dry/moist, used plain/with ingredients, orally/nasally

- Zarda:

  -tobacco leaf boiled with lime & spices until evaporation → residue dried →coloured with dye → chewed

Constituents of tobacco

CONSTITUENTS	ADVERSE EFFECTS
Polycyclic aromatic hydrocarbon	Carcinogenesis
Nicotine	Carcinogenic
Phenol	Ganglionic stimulation and depression & tumour promotion
Benzopyrene	Tumour promotion & irritation
CO	Impaired O_2 transport and repair
Formaldehyde and oxides of N_2	Toxicity to cilia and irritation
Nitrosamine	Carcinogenic

Classification of lesions in the oral cavity

- Benign tumours of epithelial origin
- Premalignant lesions of epithelial origin
- Malignant tumours of epithelial tissue origin
- Benign tumours of connective tissue origin
- Malignant tumours of connective tissue origin

Benign tumors of epithelial tissue origin

- Papilloma

- Squamous Acanthoma

- Pigmented Cellular Nevus

Premalignant lesions of epithelial origin

- Leukoplakia

- Leukodema
- Erythroplakia

- Intraepithelial Carcinoma

Malignant tumors of epithelial tissue origin

- Squamous cell carcinoma
- Basal cell carcinoma
- Carcinoma of lip, tongue, floor of the mouth, gingiva, buccal mucosa, palate & maxillary sinus
- Verrucous carcinoma
- Malignant melanoma

Benign tumors of connective tissue origin

- Fibroma
- Giant cell fibroma
- Peripheral central ossifying granuloma
- Lipoma
- Hemangioma
- Myxoma
- Chondroma
- Codman's tumor (Benign chondroblastoma)
- Osteomas

Malignant tumors of connective tissue origin

- Fibrosarcoma
- Liposarcoma
- Kaposis sarcoma
- Ewings sarcoma
- Chondro/Osteo sarcoma
- Non- Hodgkins lymphoma
- Burkitts lymphoma (African Jaw lymphoma)
- Multiple myeloma

leukoplakia

- A raised white part of the oral mucosa measuring 5mm or more which cannot be scraped off and which cannot be attributed to any other diagnosable diseases.
- Most common Pre cancerous lesion
- Age- 35 to 54 yrs

ETIOLOGY

- Smoking
- Spirits
- Spices
- Sepsis
- Sharp tooth edge
- Syphilis
- Tobacco chewing
- Vitamin deficiency
- Endocrine disturbances
- Galvanism
- Actinic radiation
- Blood group A
- Viral agents

CLINICAL TYPES OF LEUKOPLAKIA

- Homogenous leukoplakia:

  -raised plaque formation consisting of a plaque or groups of plaque varying in size with irregular edges

- Ulcerated leukoplakia:

  -a red area which at times exhibits yellowish areas of fibrin

  -may appear as a small red area with or without pigmentation on the periphery

  -narrow rectangular ulceration consisting of a few whitish areas

- Nodular leukoplakia:

  -small white specks or nodules on an erythematous base

  -very fine pin head size or even larger

MALIGNANT TRANSFORMATION OF LEUKOPLAKIA

- When a lesion develops cracks, bleeding or areas of redness and erosion------>malignant transformation

- 3-6%---malignant over 10 yr period
- Highest risk---lesions over 1 cm
- Nodular lesions have highest risk of malignant transformation

Oral submucous fibrosis

- It is a precancerous condition
- Defined as a chronic mucosal condition affecting any part of the oral mucosa characterised by mucosal rigidity of varying intensity due to fibroelastic transformation of the juxta epithelial connective tissue layer
- Max. incidence- 30-50 yrs
- Female predeliction
- Most common presenting symptom- inability to fully open the mouth
- Increase in cashew workers in Kerala

etiology

- Betel nut chewing
- Nutritional deficiency
- Genetic susceptibility
- Autoimmunity
- Collagen disorders
- Blood group A

Clinical features

- Presence of palpable fibrous bands in the buccal mucosa, retromolar areas and rima oris
- Initial symptoms:
  - Burning sensation of oral mucosa
  - Blanching of oral mucosa
  - Tongue becomes devoid of papilla
- Later symptoms:
  - Opening of mouth is restricted
  - Pt cannot protrude tongue beyond the incisal edges

Erythroplakia

- Any area of reddened velvety-texture mucosa that cannot be identified on the basis of clinical and histopathologic examination as being caused by inflammation or any other disease process
- Rare but severe precancerous lesion
- To distinguish from benign inflammatory lesions : 1% toluidine blue solution applied topically with a swab/oral rinse

TYPES OF ERYTHROPLAKIA

- Homogenous erythroplakia

- Granular erythroplakia

MALIGNANT TRANSFORMATION OF ERYTHROPLAKIA

- Higher potential of malignant transformation
- Microscopically, 91% show squamous cell carcinoma

Figure 10

Figure 11

Figure 12

Squamous cell carcinoma (epidermoid carcinoma)

- Most malignant neoplasm in the oral cavity
- Can occur as:
  - Carcinoma of lip
  - Carcinoma of tongue
  - Carcinoma of floor of mouth
  - Carcinoma of buccal mucosa
  - Carcinoma of gingiva
  - Carcinoma of palate
  - Carcinoma of maxillary sinus

Carcinoma of lip

ETIOLOGY

- Use of tobacco through pipe smoking
- Syphilis
- Sunlight
- Poor oral hygiene
- leukoplakia

CLINICAL FEATURES

- Depends on duration of lesion and nature of growth
- Starts at vermillion border and progresses to one side of midline
- Commences as small area of induration and ulceration---increase in size---crater like defect
- Slow to metastasize
- Before evidence of regional lymphnode involvement--->massive lesion

Carcinoma of tongue

- Most frequent location after buccal mucosa
- Most important etiology: beedi smoking

CLINICAL FEATURES

- Early lesions - pain and sore throat
- Upto 80% - anterior 2/3rd ;more frequently on its lateral margins and the ventral surface
- Early lesions may appear like a leukoplakia or as a red area interspersed with nodules
- Rare in the dorsum and the tip

Carcinoma of floor of mouth

ETIOLOGY

- Smoking especially pipe
- Consumption of alcohol
- Poor oral hygiene
- leukoplakia

CLINICAL FEATURES

- Initially, reddish area or thickened mucosa--- indurated ulcer situated on one side of the midline
- May or may not be painful
- More frequent in anterior portion
- Pt complains of difficulty in speech , excessive salivation or referred pain in ear
- May invade to deeper tissues (submaxillary and sublingual gland)
- Contralateral metastasis are often present

Carcinoma of buccal mucosa

ETIOLOGY

- Chewing tobacco and retaining the quid in the buccal vestibule for several years
- Leukoplakia
- Chronic trauma and irritation by a sharp tooth

CLINICAL FEATURES

- Painful ulcerative lesion with induration and infiltration into deeper tissues
- Develops along the line opposite the plane of occlusion or inferior to it
- May appear superficial and grow outward
- Metastasis is high

Carcinoma of Alveolus

ETIOLOGY

- Chronic inflammation and irritation due to calculus formation and collection of micro organisms
- Have been reported after extraction of tooth

CLINICAL FEATURES

- Initially an area of ulceration is seen
- May or may not be painful
- Arises more commonly in edentulous areas
- More common in attached gingiva
- Maxillary gingival carcinoma often invades into maxillary sinus
- Mandibular gingival carcinoma infiltrates into floor of mouth/cheek/bone
- In advanced stage, it may progress to pathologic fracture
- Metastasis is common

Carcinoma of palate

- Uncommon location
- Usually seen in reverse smokers common in Andhra Pradesh

CLINICAL FEATURES

- Poorly defined, painful ulcerated lesion either in the centre or on the glandular zone of hard palate
- Exophytic and broad based
- Frequently crosses the midline, may extend to lingual gingiva and tonsillar pillar
- In advanced stages, may invade into bone or nasal cavity

Carcinoma of maxillary sinus

Kaposi's sarcoma

- Indolent tumour with slowly progress growth
- Most affected site in oral cavity - hard palate
- Diagnostic sign for AIDS
- Multifocal with numerous isolated and coalescing plaques
- Increase in size---nodular---involve ent[illegible]---protrude below the plane of occlusion
- More hemosiderin---more brown

Prevention and control of oral cancer

- 65-80% attributable to lifestyle
- 3 well-known approaches:
  - Regulatory or legal approach
  - Service approach
  - Educational approach

Regulatory approach

- In India, Cigarette act 1975 – printed warnings on cigarette packets
- National Cancer Control Programme, 1985 – health warning displays & banning of advertisements on tobacco products
- In countries like Italy, Norway, Portugal etc – ban on advertising tobacco products

Service approach

- Active search for a disease is important for prevention---screening

- In order to be suitable for screening:
  - Disease is serious, yet treatable in early stages
  - Treatment is usually acceptable to asymptomatic pts and provides better benefit over later treatment
  - Facilities for diagnosis and treatment exists
  - Natural history of disease is known
  - Screening tool is inexpensive and safe

Contd…

- Other than professionals, primary health care workers can also do the screening
- Dentists play an important role in early detection of oral cancers
- Also many are missed because early oral cancers have an extremely variable clinical appearance

Educational approach

- People should be encouraged to give up harmful habits
- Individual with clinical symptoms should be kept under careful observation
- Effective facilities for early diagnosis and treatment

- Local methods used for prevention should be applied only if they have been shown scientifically effective
- The public should be informed about:
- Consequences of oral cancer
- The risk that oral precancer lesions may develop into oral cancer
- Importance of early diagnosis and treatment of oral mucosal lesions

Exfoliative cytology ??

- Quick, simple, painless and bloodless procedure
- Ineffective with lesions that have heavy keratin layer
- Reports:
  - Class I: Normal
  - Class II: Minor atypia with no malignant changes
  - Class III: Wider atypia suggestive of cancer
  - Class IV: Few cells with malignant characteristics. Biopsy is mandatory
  - Class V: Cells are malignant. Biopsy is mandatory

Biopsy

- Punch Biopsy
- More representative
- Wedge biopsy : advantage to compare with normal tissue architecture.

Ajcc Staging

TABLE 3: TNM staging system for cancers of the lips and oral cavity

Primary tumor (T)

Tx	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in situ
T1	Tumor ≤ 2 cm in greatest dimension
T2	Tumor > 2 cm but ≤ 4 cm in greatest dimension
T3	Tumor > 4 cm in greatest dimension
T4	(lip) Tumor invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of face, ie, chin or nose[a]
T4a	(oral cavity) Tumor invades adjacent structures (eg, through cortical bone, into deep [extrinsic] muscle of the tongue, maxillary sinus, or skin of face); resectable lesions
T4b	Tumor involves masticator space, pterygoid plates, or skull base and/or encases internal carotid artery; unresectable lesions

Regional lymph nodes (N)

Nx	Regional nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, ≤ 3 cm in greatest dimension
N2	Metastasis in a single ipsilateral lymph node, > 3 cm ≤ 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 ≤ 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 node, > 6 cm in greatest dimension

Distant metastases (M)

Mx	Distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis

Stage grouping

Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T3	N0	M0
	T1	N1	M0
	T2	N1	M0
	T3	N1	M0
Stage IVA	T4a	N0	M0
	T4a	N1	M0
	T1	N2	M0
	T2	N2	M0
	T3	N2	M0
	T4a	N2	M0
Stage IVB	Any T	N3	M0
	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

From Greene FL, Page DL, Fleming ID, et al (eds): AJCC Cancer Staging Manual, 6th ed. New York, Springer-Verlag, 2002.

[a] Superficial erosion alone of bone/tooth socket by gingival primary is not sufficient to classify a tumor as T4.

Treatment modalities

- Surgery PORT +/- CT
- Induction Chemo >> Surgery>> PORT+ CT
- Definitive CT+ RT
- Surgery as Salvage procedure

Treatment for precancerous lesions

- **Homogenous leukoplakia**:

  cessation of tobacco use+ follow up
- **Non Homogenous leukoplakia**

  surgically excision + cessation of tobacco use + follow up
- **Erythroplakia:**

  surgically removed
- SMF:

  giving up tobacco chewing + systemic corticosteroids + local hydrocortisone

Guidelines

www. jnccn.org


Thank
You