# PERIODONTAL CONSIDERATIONS IN ELDERLY

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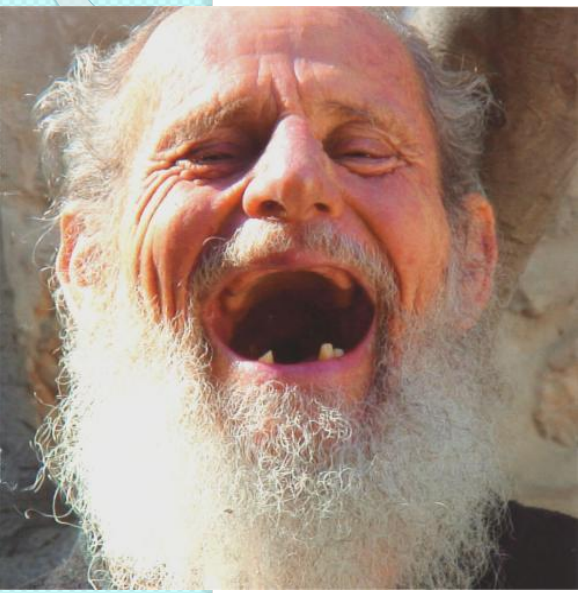
# Introduction

- Improvement in social living conditions and health care has increased the life span for people across the globe.

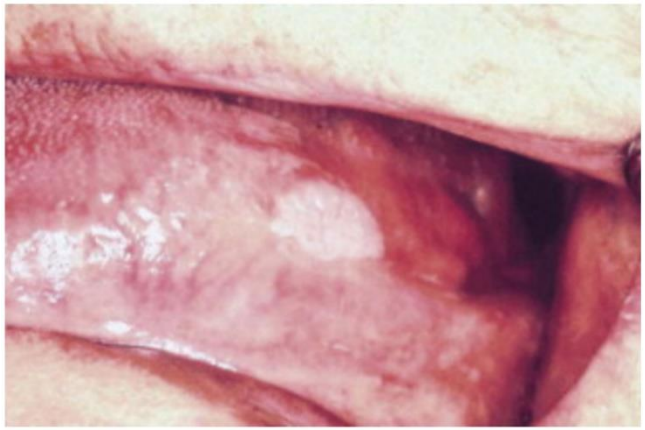
- From 2010 to 2050, the number of people 65 years of age and older is expected to increase from 560 million, or 8% of the world's population, to 1.5 billion, which is projected to be 16% of the world's population.

- One of the major problems facing the dental profession is the provision of care to the elderly

# Common oral health problems in elderly



- Xerostomia
- Edentulousness
- Oral, pharyngeal cancers
- Dental caries
- Periodontal diseases



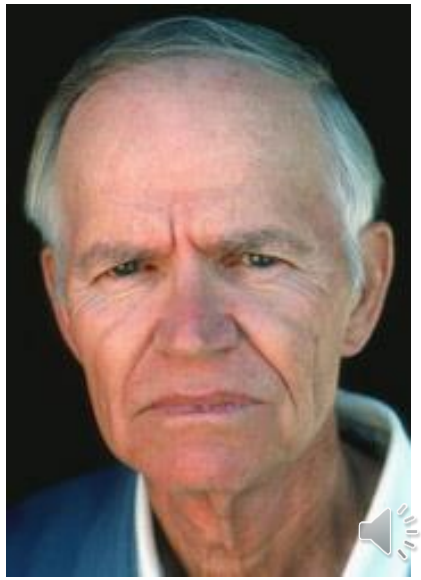
Early carcinoma in situ

# The oral cavity of elderly

Many older adults don't use dental services available.

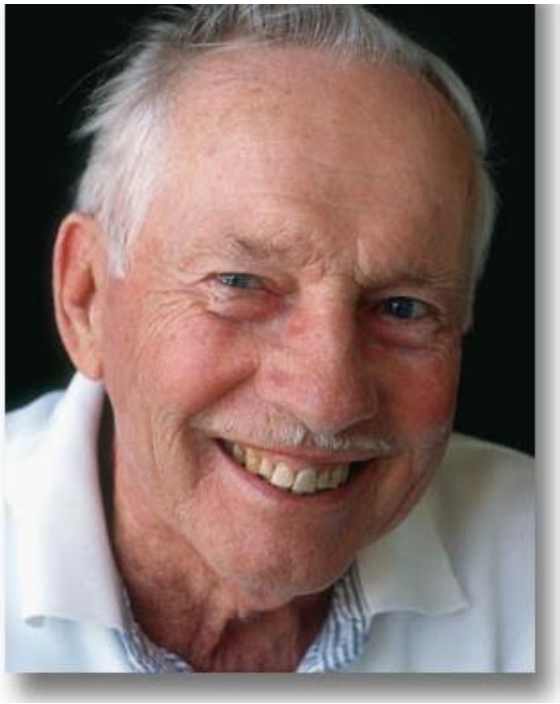
Reasons:

- Fear of pain
- "I will die soon, I don't need dental care" attitude
- Cost: Low fixed income of elderly



# The oral cavity of elderly

- The rate of edentulousness has been decreasing due to:
  -Advances in restorative dentistry
  -Preventive dentistry
  -Changing attitudes of patients and dentists
- Periodontal disease found in most elderly in varying degrees



# The oral cavity of elderly

- Age is not a risk factor for periodontal disease, as we get older we don't get more periodontal disease.
- Periodontal disease is cumulative as we get older, if periodontal health not maintained it will slowly get worse because it accumulates over a period of years, but susceptibility to periodontitis does not increase over time.

# Clinical Changes in Elderly

- Gingival recession and reductions in bone height
- Attrition
- Reduction in "overjet" of the teeth and an increase in the edge- to-edge contact of the anterior teeth.
- Increase in the food table area, with loss of "sluiceways," and increase in mesial migration.
- Functional changes are associated with reduced efficiency of mastication because of missing teeth, loose teeth, poorly fitting prostheses, or noncompliance of the patient, who may refuse to wear prosthetic appliances.

# Effects of aging on periodontal tissues

**Gingiva:**

- In the aging process, cell renewal takes place at a slower rate

and with fewer cells, so the effect is to slow down the

regenerative processes. As the progenitor cells wear out and

die, there are fewer and fewer of these cells to renew the

dead ones. This affects the oral epithelium in that the tissue

becomes thin, with reduced keratinization.

- Flattening of retepegs

- Number of cellular elements in gingival connective tissue decreases as age increases.
- At a cellular level there are functional and structural alterations in fibroblasts which influence healing
- Increasing age results in coarser and denser gingival connective tissues. Qualitative and quantitative changes in collagen have been reported. These changes include an increased rate of conversion of soluble to insoluble collagen, increased mechanical strength.

# Effects of aging on periodontal tissues

## Periodontal ligament

- Fiber and cellular content of periodontal ligament decreases with age.
- Aging may induce significant reduction in chemotaxis, motility and proliferation rates of PDL cells.
- As a result of these changes the fibers and cells within the periodontal ligament become more unpredictable
- With cellular changes the ability for the periodontal ligament to defend itself against the ingress of inflammatory responses decreases with age

# Effects of aging on periodontal tissues

## Cementum

- Cementum formation is a continuous process that occurs throughout the life
- Cementum increases in width with age
- Greater cemental apposition in apical and lingual region of teeth
- Increase in resorption and apposition of cementum with age may be responsible for increased irregularity of the cemental surface

# Effects of aging on periodontal tissues

## Alveolar bone

- Bone formation steadily declines with age resulting in significant loss of bone mass
- This may be due to a decrease in osteoblast proliferating precursors or to decreased synthesis of essential bone matrix proteins
- Dysfunction of bone matrix with aging.
- Oxygen free radicals which play an important role in aging damage fibronectin resulting in less bone formation(fibronectin plays an important role in osteoblast activity.)

# Effects of aging on periodontal tissues

- Female patients with osteoporosis have greater levels of alveolar bone loss.
- Estrogen therapy may reduce gingival inflammation and alveolar bone loss but increases risk of breast cancer and myocardial infarction
- Calcium and vitamin D supplements in elderly with osteoporosis may reduce tooth loss

# Effects of aging on periodontal tissues

## Immune aging :

- Differences between young and older individuals can be demonstrated for T and B cells, cytokines, and natural killer cells but not for polymorphonuclear cells.
- Same amount of plaque causes more gingivitis in elderly when compared to younger subjects because of the changes at the cellular level and immune responses

# Periodontal diseases in older adults

- Evidence is limited on whether the risk factors for periodontal disease differ with age.
- Factors that might modify the relationship between periodontal disease and age are:

-general health status,
- immune status,
-diabetes,
-nutrition,
-smoking,
-genetics

- medications
- mental health status
- salivary flow
- functional deficits
-finances

# Risk factors for susceptibility to periodontal disease in older adults

**Systemic diseases:**

- Diabetes decreases the body's ability to fight infection and can result in more severe periodontal disease
- Cardiovascular disease
- Pneumonia is a common cause of morbidity and mortality in the older adults. Improvements in oral care may greatly reduce the incidence of pneumonia in elderly. Cough reflex can be improved by reducing the oropharyngeal microbial pathogens present.
- Providing oral therapy for intensive care patients to reduce bacterial colonization in the mouth and teeth can reduce mortality and morbidity by 42%.

# Risk factors for susceptibility to periodontal disease in older adults

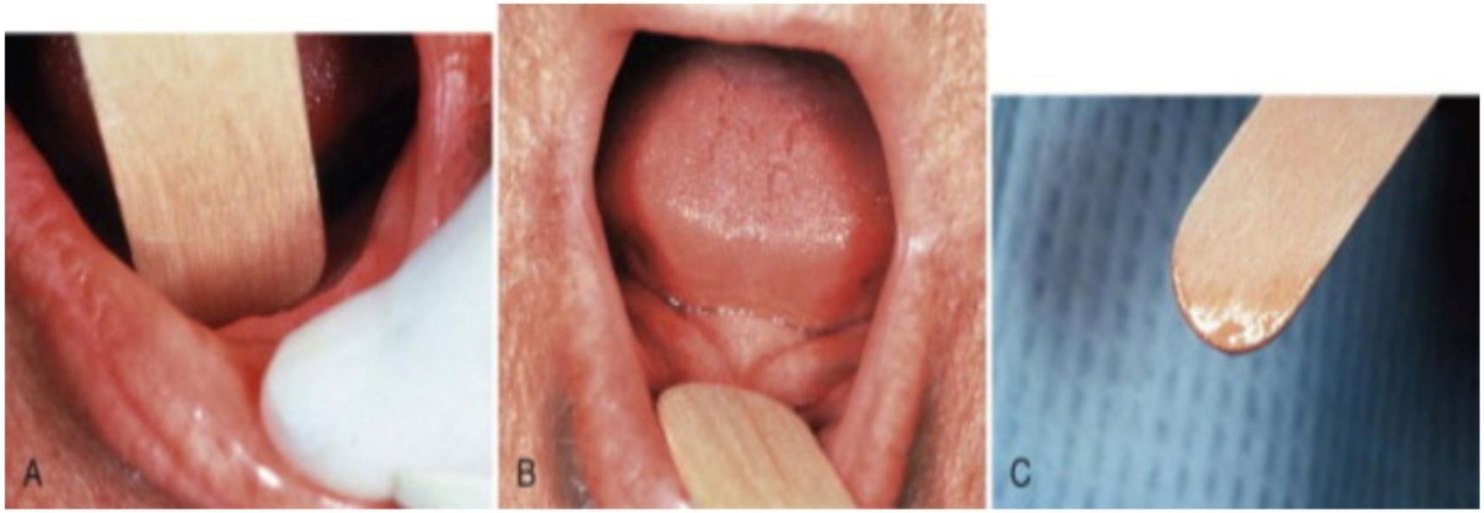
- Medications
  - Calcium channel blockers, phenytoin and cyclosporine can cause gingival hyperplasia
  - Antidepressants, anticholinergics, antihypertensives may create dry mouth and reduce saliva's ability to neutralize plaque
  - Immunosupressants reduce body's ability to fight infections

# Risk factors for susceptibility to periodontal disease in older adults

- Xerostomia:
  - may be caused by medications, illness, low fluid intake
  - More cavities and periodontal disease

Signs of xerostomia

- Intraoral dryness
- Burning sensations
- Altered tongue surface
- Dysphagia
- Cheilosis
- Alterations in taste
- Difficulty with speech
- Root caries




Tongue blade screen for saliva testing. **A,** Screening begins by placing the tongue blade in the sublingual area at the mandibular anterior quadrant. **B,** For the saliva screen, wet the tongue blade for about 5 seconds. **C,** Tongue blade screen showing minimal wetness, an indication of xerostomia.

# Risk factors for susceptibility to periodontal disease in older adults

- Dexterity problems:
  - Physical disabilities reduce daily plaque removal
- Estrogen deficiency:
  - may increase the risk for severe periodontal disease and tooth loss in older woman
- Smoking:
  - Smokers have 7 times the risk for periodontal disease compared with nonsmokers
- Alcohol:
  - Excessive consumption is risk for oral cancers and may be a risk factor for periodontal disease

- Diet:
  - Soft and sticky diet increase the plaque formation.
  - Recently a negative association between serum folate and periodontitis is suggested (i.e., after controlling for major known confounders, lower serum folate in dentate adults (>60 years of age) is associated with greater levels of periodontitis). *

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- *Chapple IL: Potential mechanisms underpinning the nutritional modulation of periodontal inflammation. J Am Dent Assoc 2009; 140:178-184.28.*
- *Yu YH, Kuo HK, Lai YL: The association between serum folate levels and periodontal disease in older adults: data from the National Health and Nutrition Examination Survey 2001/02. J Am Geriatr Soc 2007; 55:108-113.*

Periodontal disease in older adults usually is long-standing chronic disease and not a rapidly progressive disease. Because periodontal disease has periods of exacerbation
and remission, understanding and documenting periods of active disease compared with quiescent periods is essential to the formulation of the treatment plan and prognosis.
Periodontal disease must be diagnosed regardless of age. The goal of periodontal treatment for young and old patients is to preserve function and eliminate or prevent the progression of inflammatory disease.

# Management of periodontal disease in elderly

- The goal of clinically managing periodontal disease in older adults is based on specific, individualized care.
- The major consideration is improving or maintaining function, with an emphasis on quality-of-life issues. Emphasizing care over cure is the cornerstone of any proposed treatment plan
- Prevention, comfort, function, esthetics, and ease of maintenance are the criteria for successful management of an older adult

# Management of periodontal disease in elderly

- Factors that influence periodontal treatment, outcome, or progression of disease in the older patient are:
  - medical and mental health status
  - medications
  - functional status
  - lifestyle behaviors
  - Periodontal disease severity
  - ability to perform oral hygiene procedures
  - ability to tolerate treatment
  - individual patient preferences

# Management of periodontal disease in elderly

- A common goal for all older adults is to decrease bacteria through oral hygiene and mechanical debridement.
- For certain patients, topical antibiotic therapy may complement repeated subgingival instrumentation during supportive care.
- Oral hygiene maintenance should also focus on root surfaces susceptible to caries.

# Management of periodontal disease in elderly

Root tips remain after coronal portion of the tooth is lost as a result of root caries, leaving a pathway for infection

- Brushing, flossing
- rinsing with mouth wash (may irritate the mucosa and dry tissues; so dilute the mw with water)
- Wiping with gauze

# Management of periodontal disease in elderly

- Fluoride

1. Reduces enamel solubility.
2. Promotes remineralization of early carious lesions.
3. Is bactericidal to bacterial plaque.

# Management of periodontal disease in elderly

- Scaling, root planing
- *Sub-antimicrobial tetracycline* (Periostat)
- surgery

- **Dental aids**
  - Electric toothbrushes
  - Water irrigators
  - Interdental brushes
  - Oral lubricants for dry mouth:

    -Glycerin flavored with lemon

    -Saliva substitutes, saliva stimulants




- **Saliva stimulants**: sugarless candies and sugarless gum
- Medicated chewing gum with xylitol and chlorhexidine or xylitol alone has the added benefits of reducing oral plaque scores and gingivitis in elderly persons who live in residential facilities.
- Acupuncture therapy: improvements in xerostomia lasting up to 3 years

- **Saliva substitutes:** Match the chemical and physical traits of saliva to relieve the symptoms of dry mouth.

  Composition:

  -salt ions

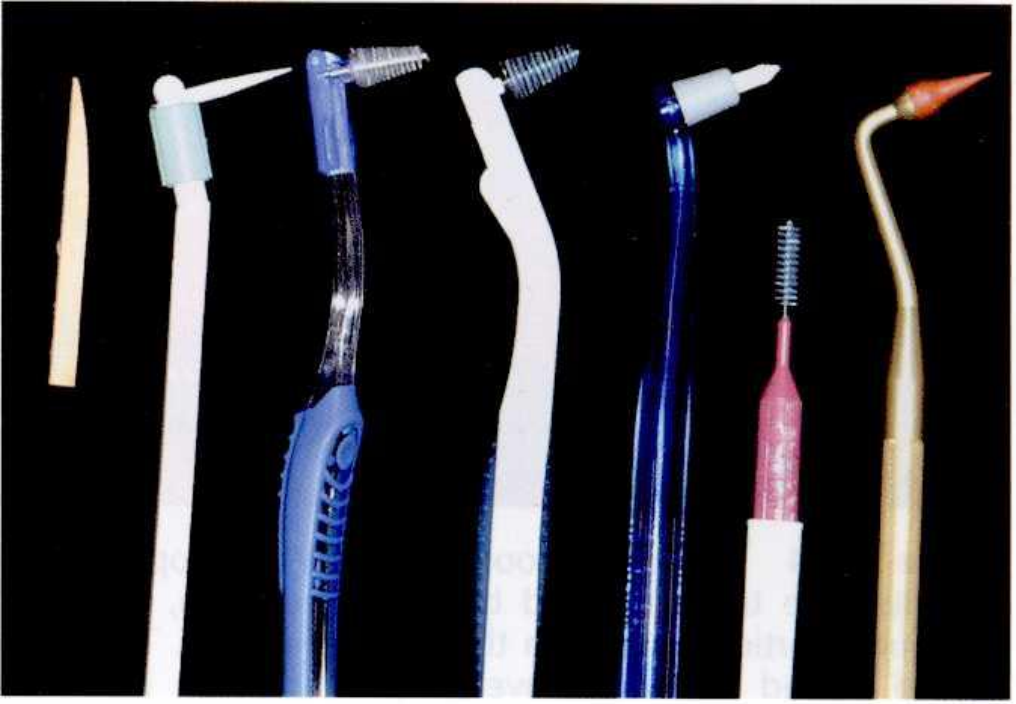
  -a flavoring agent

  -paraben(preservative)

  -cellulose derivative or animal mucin

  - fluoride


Dispensed : spraybottle, rinse/swish bottle, or oral swab stick, dry-mouth toothpastes and moisturizing gels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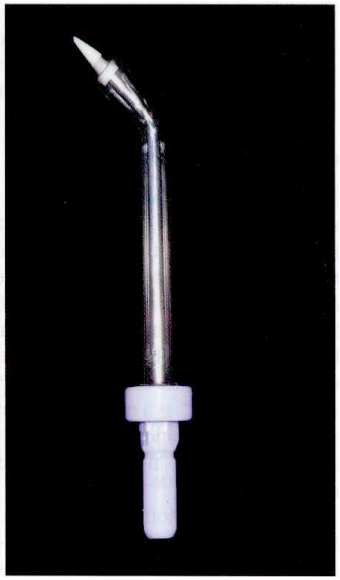

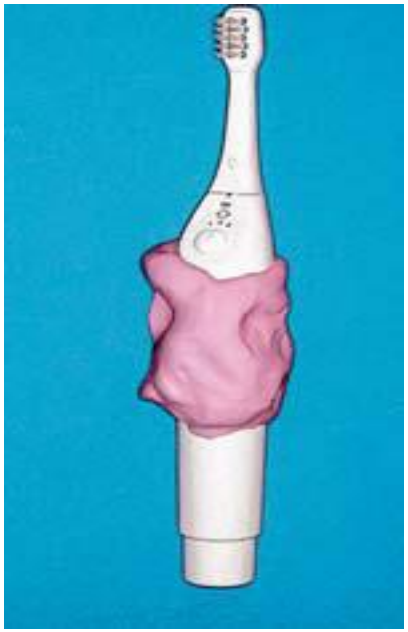

# Conclusion

- Aging alone does not cause a significant loss of periodontal attachment in healthy elderly persons
- The effects of human aging on periodontal tissues are based on biomolecular changes of the cells of periodontium that **exacerbate bone loss in elderly patients with periodontitis**

# Conclusion

- Aim is not to attain perfect mouth in the elderly
- Function, aesthetics and quality of oral health are important
- Goal is increased retention of natural dentition
- Decreased invasive procedures
- Regular care

References:

- Newman and Carranza's Clinical periodontology, 13th edition

  Chapters 4 & 42

# Thank you