Prevention and Management of Periodontal Disease

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Objectives of this lecture

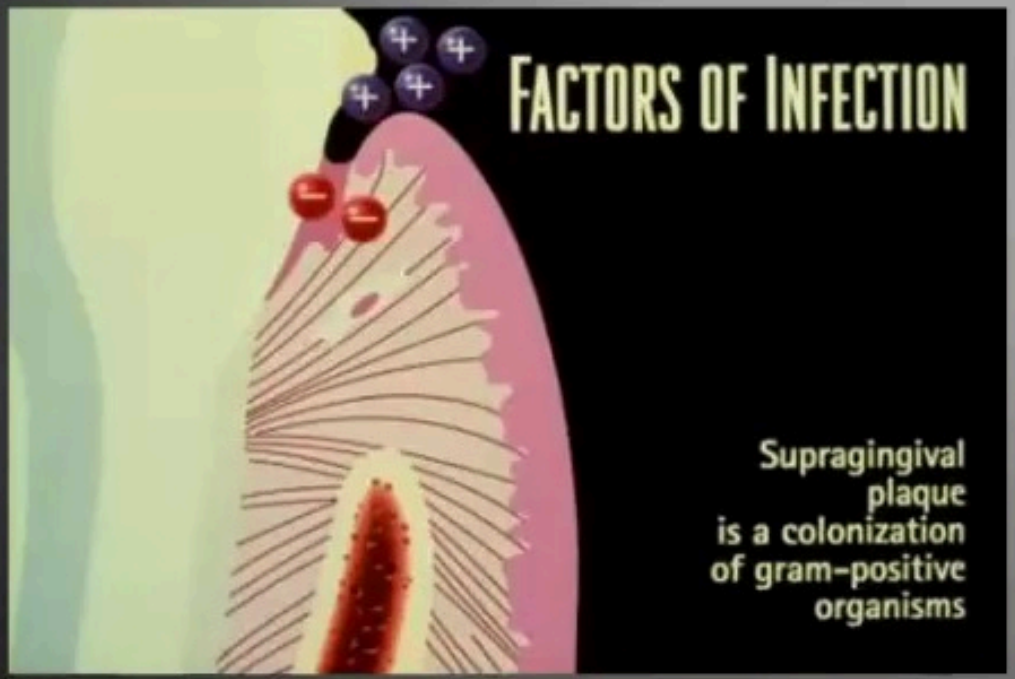
1. To highlight the aetiology of periodontal disease
2. To highlight periodontal disease prevention measures
3. To demonstrate non surgical periodontal management procedures
4. To highlight several surgical periodontal therapy procedures

Aetiology – Dental plaque

Aetiology – Dental calculus

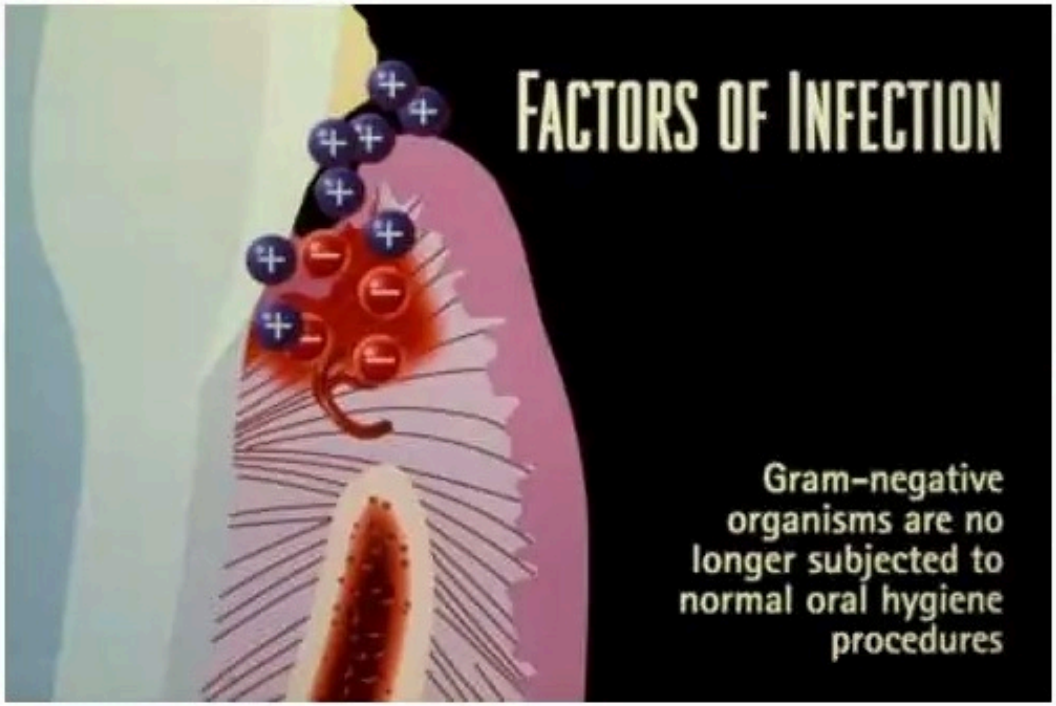
- Mineralized dental plaque

Aetiopathogenesis of periodontal disease



- The first bacteria that form a biofilm on cleaned tooth surfaces are Streptococci species (Gram positive cocci)

Pathogenesis of periodontal disease



- Within two days Gram negative bacteria also appear in the subgingival biofilm and gingival inflammation begins

- Established Gingivitis present in lower incisor region
- Signs of acute inflammation, redness, and swelling

Clinical example of established Gingivitis with emphasis on the acute inflammatory reaction

Aetiopathogenesis of periodontal disease

- Progression from gingivitis to periodontitis is dependent on how the host immune system responds to presence of bacterial plaque.

Prevention of periodontal disease

- Home care, oral hygiene, oral physiotherapy, personal oral hygiene, and personal plaque control are terms that have been used to describe those methods used by the patient to remove plaque
- Personal oral hygiene – performed by the patient
- Professional debridement – performed by the dentist or hygienist
- Effective removal of dental plaque is essential to gingival and periodontal health throughout life

- Daily removal of dental plaque leads to resolution of the gingival inflammation in just a few days
- The dental profession relies on mechanical plaque control as the most dependable way of achieving oral health benefits for all dental patients including periodontal patients.
- Plaque growth occurs within hours and must be completely removed at the very least every 48 hours in periodontally healthy subjects to prevent inflammation.

- Plaque control by tooth brushing alone is not sufficient to control gingival and periodontal diseases because periodontal lesions are predominantly interdental

- It is reasonable to expect periodontal patients to completely remove plaque from the teeth at least once every 24 hours due to patient susceptibility to disease and complexity of the task

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Tooth brushes

- Conventional
- Powered
- Chewing stick

Dentifrices

Dentifrices

- They aid in cleaning and polishing tooth surfaces.
- They are used mostly in the form of pastes, although tooth powders and gels are also available.
- Dentifrices are made up of abrasives such as silicon oxides, aluminum oxides, and granular polyvinyl chlorides; water; humectants; soap or detergent; flavoring and sweetening agents; therapeutic agents such as fluorides and pyrophosphates; and coloring agents and preservatives.

Dentifrices

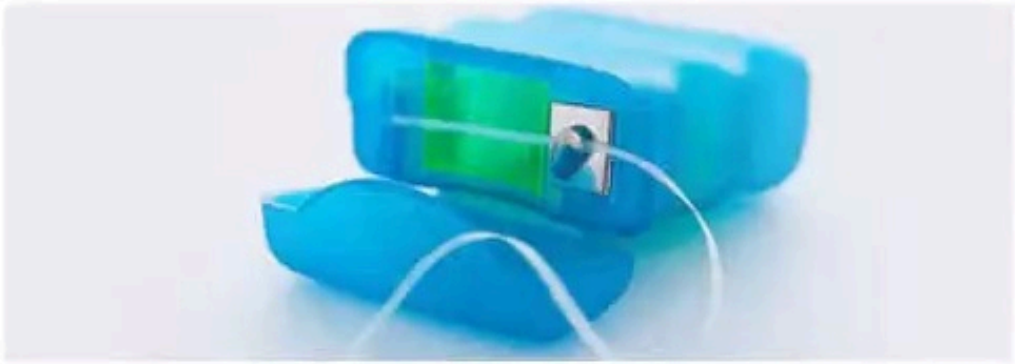
- Dentifrices should be sufficiently abrasive for satisfactory cleansing and polishing but should provide a margin of safety to protect the aggressive tooth brusher from wearing away root structure and soft restorative materials.

- Abrasives, commonly in the form of insoluble inorganic salts, make up 20% to 40% of a dentifrice. The proper use of a dentifrice can enhance the abrasive action of a toothbrush as much as 40 times

Interdental cleaning aids

- Any toothbrush, regardless of the brushing method used, does not completely remove interdental plaque.
- Interdental plaque removal is crucial to augment the effects of tooth brushing because, the majority of dental and periodontal disease originates in interproximal areas.
- Interdental cleaning should occur every day for the same rationale as brushing daily.

Dental floss



Dental Floss

- It is the most widely recommended tool for removing plaque from proximal tooth surfaces.
- Floss is available as a multifilament nylon yarn that is twisted or non-twisted, bonded or non-bonded, waxed or un-waxed, and thick or thin.
- Monofilament flosses made of a Teflon-type material are preferred by some individuals because they are slick and do not fray.

Interdental brushes

Classification of periodontal disease

I. Gingival Diseases
II. Chronic Periodontitis
III. Aggressive Periodontitis
IV. Periodontitis as a Manifestation of Systemic Diseases
V. Necrotizing Periodontal Diseases
VI. Abscesses of the Periodontium
VII. Periodontitis Associated With Endodontic Lesions
VIII. Developmental or Acquired Deformities and Conditions

Management of periodontal diseases

1. Non-surgical periodontal therapy

2. Surgical periodontal therapy

Non-surgical periodontal therapy

1. Oral hygiene instructions and motivation
2. Scaling and root planing
3. Oral prophylaxis and polishing
4. Use of mouth rinses/mouth gargles
5. Chemotherapeutics agents

Oral hygiene instructions and motivation

- Frequency of tooth brushing – twice a day
- Tooth brushing techniques – should involve accessing all tooth surfaces
- Choice of toothbrush – soft or medium toothbrush bristles
- Benefits of tooth brushing vs consequences of not tooth brushing

Scaling and root planing

- Scaling – removal of mineralized dental calculus on tooth surface
- Root planing – removal of necrotic cementum of the root surface

Scaling

- Manual scaling

- Ultrasonic scaling

Before and after scaling

Oral prophylaxis and polishing

Oral prophylaxis and polishing

- Aims at making the tooth surface smooth
- A smooth surface does not attract plaque formation

Use of mouth rinses/mouth gargles

Use of mouth rinses/mouth gargles

- Should not be used routinely
- Should only be used as adjuncts to tooth brushing – preferably under prescription

Periodontitis as a Manifestation of Systemic Diseases

- Diabetes
- Control the blood sugar

Periodontitis as a Manifestation of Systemic Diseases/conditions

- Gingival overgrowth
- Due to use of antihypertensive, immunosuppressant
- Change of medication may be required

SURGICAL PERIODONTAL MANAGEMENT

Gingivectomy

- Surgical resection of excess gingival display

Gingivectomy

Gingivectomy

- Using gingivectomy knife

Gingivectomy

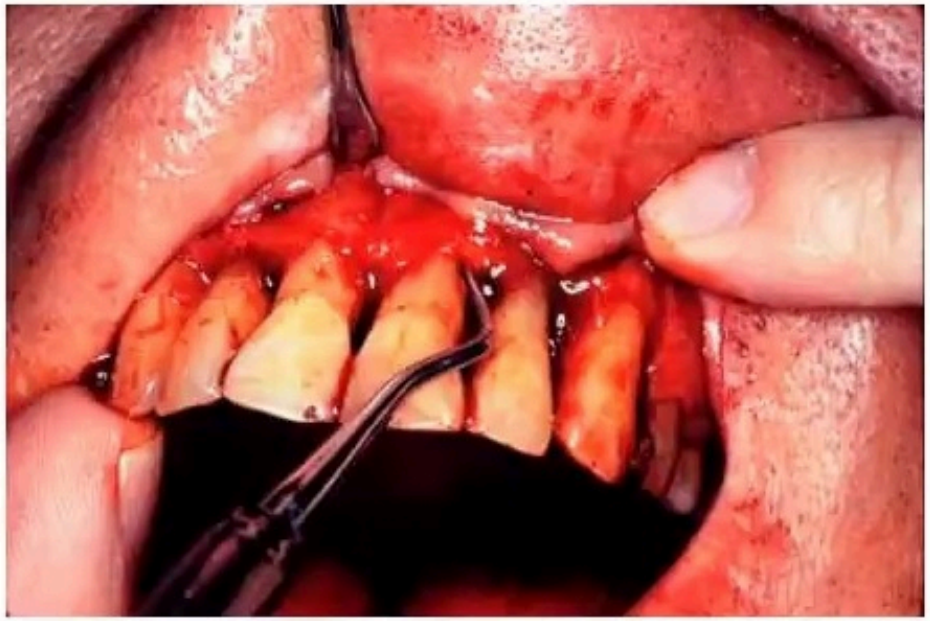
- Using diode laser

Open flap debridement

Fig 5 *Coronally advanced flap sutured into place.*

Open flap debridement

- Clinical example of Periodontitis with emphasis on chronic inflammatory changes



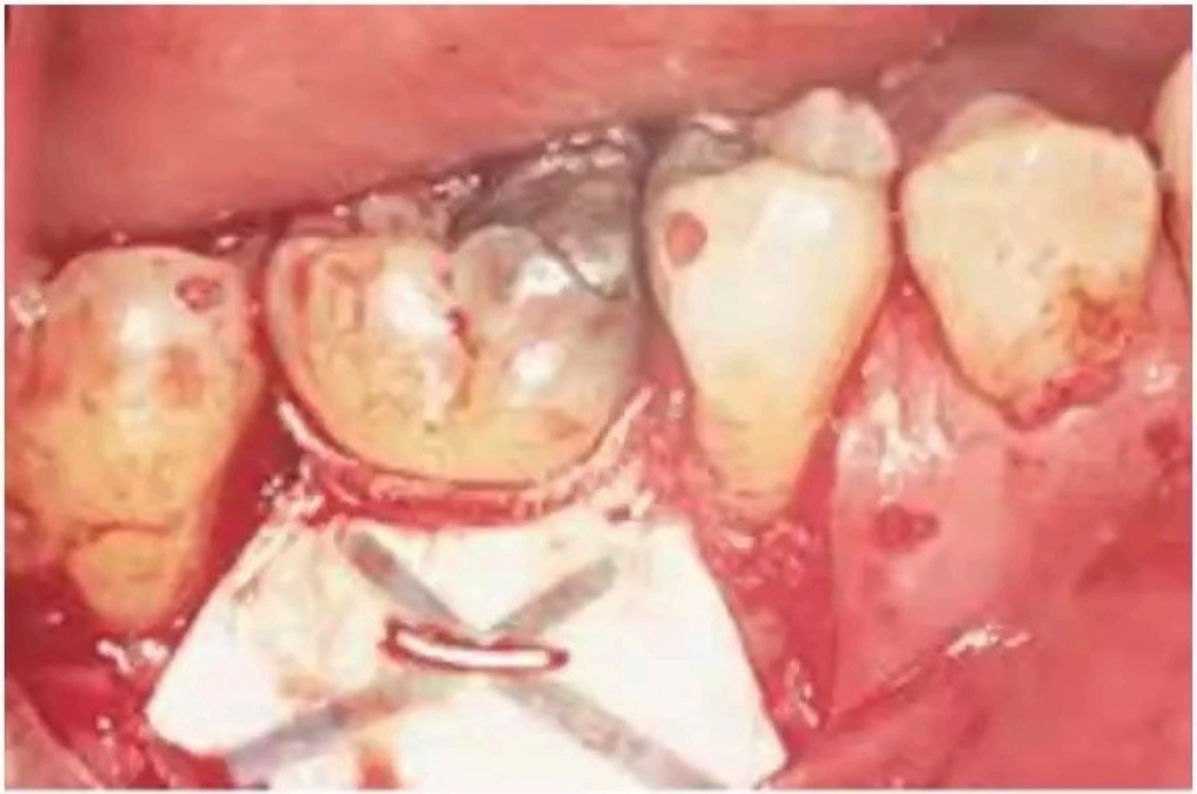
- Same case being treated with flap surgery. Note bone loss.

Periodontal osseous surgery

Guided bone regeneration

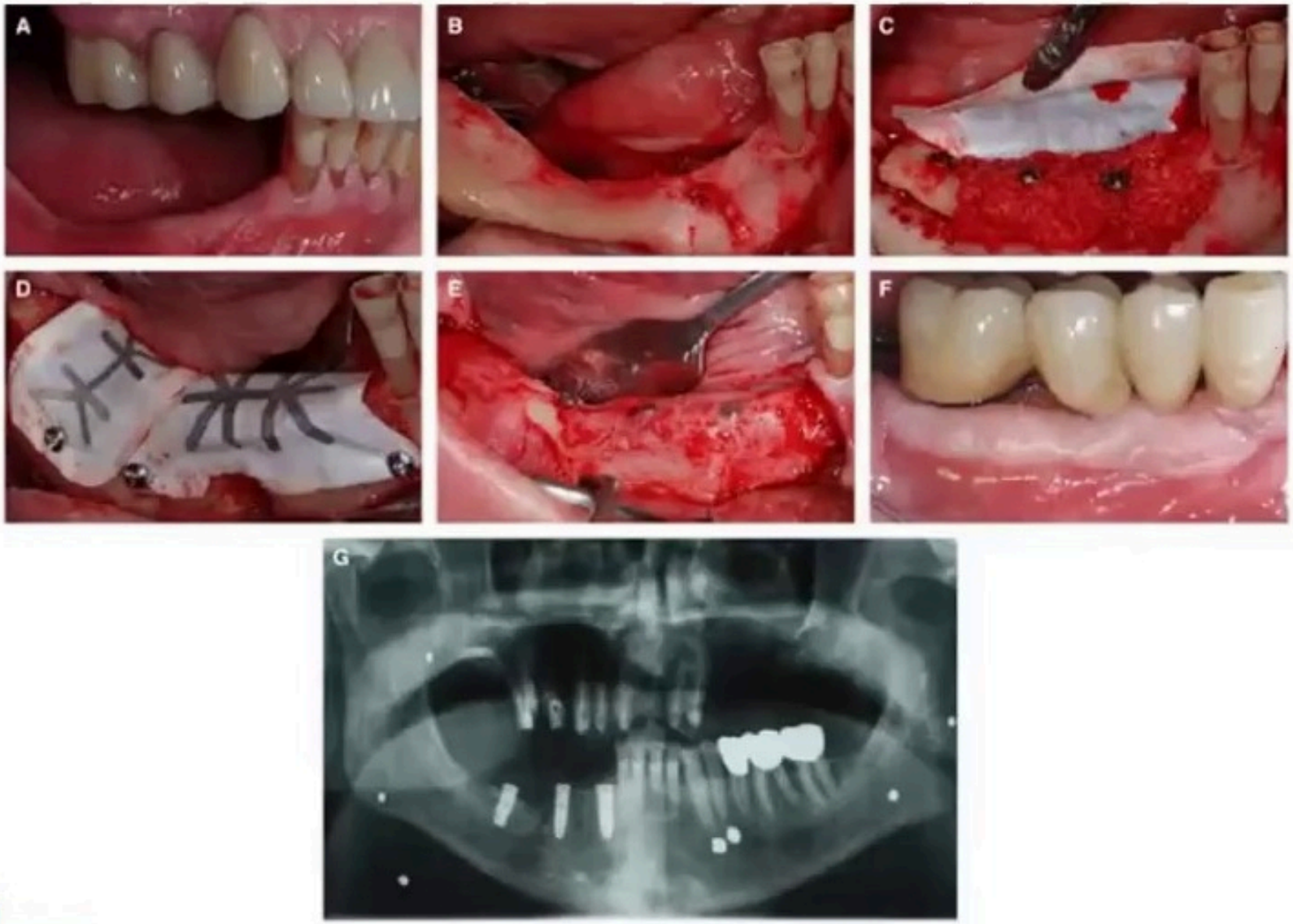
- **Guided bone regeneration** (GBR) and **guided tissue regeneration** (GTR) are dental surgical procedures that use barrier membranes to direct the growth of new **bone** and gingival **tissue** at sites with insufficient volumes or dimensions of **bone** or gingiva for proper function, esthetics or prosthetic restoration.

Guided bone regeneration



Severe loss of bone between
the roots of a lower first molar

Guided bone regeneration



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