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An Overview on Non -Surgical Periodontal Therapy

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ABSTRACT

Periodontal therapy entails both surgical and nonsurgical procedures aimed at restoring periodontal health and preventing tooth loss. Treatment in early stages of gum disease includes extensive cleaning, scaling, root planning. Periodontal disease is a chronic inflammatory disorder caused by a complicated interaction between pathogenic microorganisms, the environment, acquired factors, and host related variables. The goal of a nonsurgical periodontal treatment is to eradicate active bacteria solidified biofilm microorganism and microbial bacterial spores from the teeth surface and surrounding smooth tissues.

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Introduction

Non-surgical periodontal therapy is the cornerstone of periodontal therapy and the first recommended approach of the control of periodontal infection. It is also known as cause related therapy, phase 1 therapy or etiotrophic phase, and initial therapy. It is often comprised of periodontal treatment like as plaque removal, plaque control, supragingival and subgingival scaling root planning, and use of chemical agent [1].

Periodontal diseases, which are produced by biofilms and are primary reason of tooth loss in today's globe, are chronic infectious diseases. According to WHO data, gingival bleeding and calculus are the most frequent in grown people from all regions of the globe, while modern periodontal illness having deep periodontal pockets [1].

Initial Therapy

The phase of initial, cause related therapy is aimed at bringing caries and gingivitis under control and at arresting the further progression of periodontal tissue destruction. It is also known as etiotrophic phase and initial therapy, cause-related therapy [1].

Rationale For Non-Surgical Periodontal Treatment

Phase 1 therapy is defined by the evidence –based American association of Periodontology practice guidelines as the initiation of a comprehensive daily plaque or biofilm control regimen, management of periodontal-systemic interrelationships as needed, and thorough removal of supragingival and subgingival bacterial plaque or biofilm and calculus. In many cases, only phase I therapy is required to restore periodontal health, or it constitutes the preparatory phase for surgical therapy. Cause-related phase I periodontal therapy has been succinctly stated as the approach aimed at removal of pathogenic biofilms, toxins, and calculus and the reestablishment of a biologically acceptable root surface.

Objectives Of Initial Cause-Related Periodontal Therapy

The measures used in initial, cause related periodontal therapy aim at the elimination and the prevention of their recurrence of supra and subgingival located bacterial deposits from the tooth surface. This accomplishes -

- Motivate the patient to understand dental disease.
- Giving the patient instruction on how to properly clean his/her teeth.
- Removal of additional retention factor for plaque such as overhanging margin of restoration, ill-fitting crowns etc. [2]

Effect Of Phase-1:

Change in gingival inflammation

Several investigations have demonstrated higher probability of periodontal breakdown and range of reduction of the occurrence of bleeding after probing after 1 month was 6-64% and 12-80% at 3-month post-treatment [3].

Change in probing pocket depth and clinical attachment level

For non-molar sites with initial PD between 1 and 3mm, the amount of gingival recession was approximately 1mm and with moderately deep 4-6mm or deep 7mm PD at baseline [3].

Change in alveolar bone structure

Probing bone level increased by 0.6mm after surgery and there was virtually no bone full after root planning [3].

Treatments Under Phase-1:

Patient education and motivation

Patient education and motivation are critical components in the success of non-surgical periodontal therapy (NSPT). Educating patients and motivating them to adhere to recommended treatments is essential for achieving long-term periodontal health [4].

Educating about the Disease Process:

Explanation of Periodontal Disease: Patients often need help

understanding the significance of their condition. Explain that periodontal disease is an infection of the gums and bone that can lead to tooth loss if left untreated.

Stages of the Disease: Describe how periodontal disease progresses from gingivitis (inflammation of the gums) to more severe forms like periodontitis (bone loss and deeper tissue involvement).

Consequences of Untreated Disease: Emphasize the long-term consequences of untreated periodontal disease, including tooth mobility, pain, and the risk of systemic issues like heart disease or diabetes.

Educational Tools

Visual Aids: Use models, charts, or digital images to demonstrate how plaque, tartar, and bacteria affect the gums and teeth. This visual representation can make the condition and the importance of treatment more tangible for the patient.

Before-and-After Photos: Show examples of patients before and after treatment to highlight the positive results of effective periodontal therapy.

Oral Hygiene Instructions

Personalized Guidance: Tailor your oral hygiene instructions to the patient's specific needs. For example, if a patient has difficulty cleaning in certain areas of their mouth, provide recommendations for special tools like interdental brushes or water flossers [5].

Demonstration: Physically demonstrate how to properly brush and floss, and encourage the patient to practice during the appointment. This ensures they can replicate the technique at home.

Regular Follow-Up: Encourage patients to return for regular checkups, not just for cleaning but also to monitor their home care progress and provide additional guidance as needed.

Setting Realistic Expectations

Timeline of Treatment: Clearly outline the steps of non-surgical therapy and what the patient can expect during each phase. Let them know that it may take time (months) to see improvements and that regular maintenance will be necessary to keep the disease under control.

Potential Discomfort: Be honest about any discomfort that might occur during or after treatment (e.g., mild gum soreness, tooth sensitivity). This helps the patient understand that these sensations are temporary and not signs of failure.

Motivational Techniques

- **Empathy and Listening:** Show understanding of the patient's concerns, whether it's fear of pain, financial concerns, or just not understanding the need for treatment. Patients are more likely to comply with treatment when they feel heard and understood.
- **Positive Reinforcement:** Acknowledge small improvements. For example, if a patient has reduced bleeding or improved plaque control, praise them for their efforts. Positive reinforcement can encourage continued compliance.
- **Goal Setting:** Work with the patient to set short-term and long-term goals. A short-term goal might be reducing gum bleeding or improving plaque control, while a long-term goal could be maintaining healthy gums and avoiding surgery.
- **Incentives:** Some practices use incentives to motivate patients to stay on track.

Addressing Fears and Misconceptions

- **Fear of Pain:** Many patients avoid treatment because they fear it will be painful. It's important to reassure them that modern techniques in non-surgical periodontal therapy, including local anaesthetics, make the process much more comfortable than in the past.
- **Cost Concerns:** If financial concerns are preventing a patient from completing therapy, discuss potential payment plans or options for financing. Offering a clear breakdown of costs can also help patients feel more in control.

Misconceptions about Periodontal Disease: Many patients believe that as long as their teeth don't hurt, there's no issue. Reinforce that periodontal disease is often painless in its early stages and that catching it early can prevent more serious problems down the road.

Incorporating Technology

- **Digital Records:** Show patients their digital X-rays or intraoral camera images to visualize the extent of the disease. This can help them understand why treatment is necessary.
- **Smartphone Apps:** Some dental practices offer apps or digital tools that remind patients of their treatment schedule, help them track their oral hygiene habits, and offer educational content. Using technology this way can reinforce the importance of at-home care.

Ongoing Support

- **Regular Checkups:** Follow-up visits are essential for monitoring the patient's progress. Continued education and motivation are needed during these visits to reinforce the treatment plan.
- **Maintain Open Communication:** Encourage patients to contact your office if they have any concerns, questions, or if something doesn't feel right during the healing process. Open lines of communication can prevent problems from escalating.

Habit Counselling

Addresses detrimental habits like smoking, teeth grinding (bruxism), and tongue thrusting through strategies such as patient education, psychological interventions, behaviour modification techniques (including rewards and gradual reduction), and the use of dental appliances [5].

Common Habits Addressed

- **Smoking:** Considered the most significant risk factor for periodontitis, it negatively affects the immune system and the outcomes of periodontal treatment. Thumb and Finger Sucking: Especially problematic for children, it can lead to changes in teeth alignment and jaw development. Tongue Thrusting: Involves improper tongue posture and swallowing, potentially causing anterior open bites.
- **Lip and Nail Biting:** Habits that can cause dental and facial issues if they become persistent. Bruxism (Teeth Grinding): Can result from stress or anxiety and may require psychological counselling, bite guards, or other treatments [5].

One of the most common habits is Smoking

Marc Manley and Thomas Glynn (1989) from the National Cancer Institute proposed the "5 A's" approach for tobacco cessation: Ask, Advise, Assess, Assist, and Arrange.

- **Ask:** Inquire about the duration and frequency of tobacco use, previous quit attempts, and the patient's willingness to stop.
- **Advise:** Encourage the patient to quit. Highlight the link between tobacco use and their health problems, and provide

motivational material.

- **Assess:** Evaluate the patient's readiness and potential for successful cessation.
- **Assist:** Offer support with FDA-approved nicotine replacement therapies such as patches, gum, nasal sprays, or inhalers. Bupropion hydrochloride, a non-nicotine medication, may also be prescribed.
- **Arrange:** Schedule follow-up visits, as continued monitoring can increase long-term abstinence rates by 3–4 times.

Scaling and Root Planing

Scaling is the removal of plaque and calculus from both supragingival and subgingival tooth surfaces [4].

Ultrasonic and Sonic Scaling

Technologic advances and new design of ultrasonic and sonic power scalers have transformed the role of power – driven oscillating instruments in periodontal therapy. It can be used for removing plaque and stain, scaling, root planning, curetting, and surgical debridement.

Root Planning involves removing residual calculus and altered cementum from root surfaces to create a smooth, hard, and clean surface.

The primary objective is to regain gingival health by completely removing element that are responsible for gingival inflammation in oral environmental. Both hand instrument and ultra sonic instrument are capable of dramatically reducing the number of subgingival microorganisms

Thus, root planning is an essential step in periodontal therapy where pockets are present.

In periodontal pockets, bacteria and their toxins penetrate the cementum, causing necrotic areas that cannot be managed by scaling alone.

Root planning eliminates this diseased cementum, promoting regeneration.

Indications

Recommended in sites with periodontal pockets.

Pockets of 4–5 mm often resolve after root planning.

In deeper pockets, it reduces inflammation and firms up tissues, making flap surgery easier if required.

Oral Hygiene Instruction

Methods of Brushing

Bass Technique

The bass technique is efficient and can be recommended for any patient without or without periodontal involvement.

Modified Stillman Method

The modified stillman method may be recommended for cleaning in areas with progressing gingival recession and root exposure to minimize abrasive tissue destruction.

Chaters Method

This technique can be recommended for cleaning in areas of healing wounds after periodontal surgery.

Fones Method

The Fones method is recommended for children or individuals with limited dexterity.

Mechanical Plaque Control (Oral Physiotherapy)

Patients with poor oral hygiene or cervical abrasion should be instructed in proper brushing techniques.

Instructions

Avoid aggressive brushing; use a soft or medium-bristled toothbrush.

Adopt the Bass technique twice daily.

For patients with gingival recession, the Modified Stillman technique is recommended.

Select appropriate inter-dental aids according to the type of embrasure.

Encourage tongue cleaning using either a tongue scraper or toothbrush.

Plaque control performed consistently by the patient is more effective in preventing recurrence of periodontal disease than professional care alone [5].

Diet Counselling

Patient diagnosed with specific deficiencies (like vitamin deficiency) should be advised for appropriate supplementation along with general physician cheek up.

Patient who are prone to caries should be advised to limit their intake of refined carbohydrates

Excavation of Caries and Temporary Restoration

Shallow carious lesion can be directly restored in phase III. However, teeth with extensive carious lesion may cause pain and sensitivity, promote plaque accumulation and are difficult to maintain in clean state. In such cases, caries should be excavated and a temporary restoration placed in phase I to assist the patient in maintaining oral hygiene. Final restoration can then be completed in phase III.

Antimicrobial Therapy

Antimicrobial therapy includes the use of mouthwashes and antibiotics, which may be administered both systemically and locally [6].

Mouthwashes

Antimicrobial agents: Exhibit bacteriostatic or bactericidal effects when tested in vitro.

Plaque-reducing or inhibitory agents: Influence the amount or composition of dental plaque, though this effect may not always be sufficient to impact gingivitis or dental caries.

Antiplaque agents: Modify plaque enough to provide measurable benefits in controlling gingivitis and/or dental caries.

Anti-gingivitis agents: Reduce inflammation of the gums without necessarily affecting plaque levels; this category includes anti-inflammatory medications.

Systemic Antibiotic

Periodontal disease is caused by periodontal patients with complex biofilm structure. This biofilm provides significant resistance to antibiotics for the following reasons:

- Bacteria within the biofilm grow at a slower rate, making them less sensitive to antibiotics.
- The biofilm matrix hinders the diffusion of certain highly charged molecules, thereby reducing the amount of antibiotic that reaches the deeper layers of the biofilm.
- Extracellular enzymes, such as β – lactamase, can accumulate within the matrix and inactivate certain antibiotics.

Therefore, it is more logical to eliminate plaque and calculus through mechanical instrumentation. In systemically healthy patients, the immune system can manage bacteria present in the tissues.

For this reason, antibiotics play a very limited and specific role in periodontal therapy. They are mainly indicated in cases such as aggressive periodontitis and acute necrotizing ulcerative gingivitis (ANUG), where bacteria (e.g., Aggregatibacteractinomycetemcomitans in aggressive periodontitis and spirochetes in ANUG) invade tissues and the host immune response is compromised. Antibiotics are also prescribed in patients with infective endocarditis, who are highly vulnerable to bacteraemia. However, they have no role in routine periodontal treatment.

	REGIMEN	DOSAGE/DURATION
SINGLE AGENT		
Amoxicillin	500mg	Three times daily for 8 days
Azithromycin	500mg	Once daily 4-7 days
Ciprofloxacin	500mg	Twice daily for 8 days
Clindamycin	300mg	Three times daily for 10 days
Doxycycline or minocycline	100-200mg	Once daily for 21 days
Metronidazole	500mg	Three times daily for 8 days

In aggressive periodontitis, tetracycline was once the drug of choice, but due to increasing resistance, combinations such as metronidazole with amoxicillin or metronidazole with ciprofloxacin are now preferred. Metronidazole is effective against obligate anaerobes, while ciprofloxacin targets facultative anaerobes, making the combination effective against mixed infections. Ciprofloxacin also supports the re-establishment of beneficial species linked to periodontal health [6].

- In ANUG, metronidazole is the drug of choice due to its effectiveness against anaerobes like spirochetes.
- Amoxicillin is often used prophylactically in patients with infective endocarditis and after abscess drainage.
- For patients allergic to penicillin, alternatives such as clindamycin, clarithromycin, or azithromycin may be prescribed.

Inappropriate or unnecessary use of antibiotics contributes to the development of resistance. Additionally, many antibiotics are associated with adverse effects, including renal and hepatic toxicity or hypersensitivity reactions. Hence, their use should be restricted to situations where there is a clear clinical justification.

Local Drug Delivery (LDD)

It refers to treatment approach formulation, technologies and system for transporting pharmaceutics compound into the body as needed to achieve therapeutic effect.[7]

Indication

Isolated periodontal pockets of 45mm after successful phase 1 therapy
Medically compromised patient where surgical treatment cannot be performed
Recurrent or refractory periodontitis cases
In association with regenerative procedure

Contraindication:

It is contraindicated in hypersensitive reaction
Metronidazole is contraindicated in alcoholic patient
in infective endocarditis patient irrigation devices are contraindicated

Classification

Langer and Peppas (based on mode of act)
Kornman (based on rate controlling system)
Greenstein and Tonetti (based on duration of action)
Rams and 2Slots (based on method of application)

Drug	Commercial Name
• Doxycycline • Minocycline • Chlorhexidine • Metronidazole • Hyaluronic acid	• Aritox and Periostat • Arestin • Perio Chip • Elyzol • Gengigel

Occlusal Therapy

All tissues have a natural "margin of safety" that allows for some variation in occlusion without harming the periodontium. When occlusal forces go beyond the tissues' adaptive capacity, injury occurs. This condition is called trauma from occlusion (also termed traumatism or occlusal trauma).

Importantly, trauma from occlusion refers to the damage to the tissues, not the occlusal force itself. An occlusion that causes such damage is described as a traumatic occlusion. Excessive occlusal forces can also affect the masticatory muscles, leading to painful spasms, damage the temporomandibular joints, or cause abnormal tooth wear. Nevertheless, the term trauma from occlusion is most commonly associated with injury to the periodontium.

The defining factor of a traumatic occlusion is whether it causes periodontal injury, not the way the teeth meet. Any occlusion that damages the periodontium is considered traumatic. Malocclusion is not a prerequisite for trauma—periodontal injury can occur even when the occlusion appears normal. In such cases, the dentition may look anatomically correct and aesthetically pleasing, yet still function in a harmful way. Conversely, not every malocclusion necessarily harms the periodontium.

Traumatic occlusal conditions are often described using terms like occlusal disharmony, functional imbalance, or occlusal dystrophy. These terms highlight the effect on the periodontium rather than the exact alignment of the teeth. Because trauma from occlusion refers specifically to tissue damage and not just the occlusal force, an increased force does not become traumatic if the periodontium can successfully adapt to it.

Acute And Chronic Trauma from Occlusion

Trauma from occlusion can be classified as acute or chronic.
Acute trauma occurs due to a sudden occlusal impact, such as biting on a hard object (e.g., an olive pit). It may also result from restorations or prosthetic appliances that interfere with normal occlusal contacts or alter the direction of occlusal forces. Acute trauma commonly presents with tooth pain, sensitivity to percussion, and increased mobility. If the excessive force is relieved—either by slight tooth movement, natural wear, or correction of the restoration—the injury can heal, and symptoms resolve. If not, the damage may progress, leading to necrosis with periodontal abscess formation, or it may persist as a chronic, symptom-free condition. In some cases, acute trauma can also cause cementum tears.

Primary and Secondary Trauma from Occlusion

Trauma from occlusion can occur either due to changes in occlusal forces, a reduced ability of the periodontium to withstand those forces, or a combination of both. When the injury arises from increased or altered occlusal forces acting on a healthy periodontium, it is termed primary trauma from occlusion. When it develops because the periodontium has a reduced capacity to resist even normal occlusal forces, it is called secondary trauma from occlusion.

Clinical and Radiographic Signs of Trauma from Occlusion

The most common clinical sign of trauma to the periodontium is progressive tooth mobility.

During the injury phase, the destruction of periodontal fibres increases tooth mobility.

In the adaptive phase, the periodontium accommodates the increased occlusal forces by widening the periodontal ligament, which also contributes to greater mobility.

Although this mobility exceeds the so-called normal range, it is not considered pathologic, since it represents an adaptive response rather than a disease process. However, if mobility continues to worsen, it may then be regarded as pathologic.

Other possible causes of increased tooth mobility include:

Advanced bone loss

Periodontal ligament inflammation of periodontal or periapical origin

Certain systemic conditions (e.g., pregnancy)

Destruction of supporting alveolar bone due to osteomyelitis or jaw tumours

Radiographic signs of trauma from occlusion may include:

1. Widening of the periodontal ligament space, often with thickening of the lamina dura along the lateral root surfaces, apical region, or furcation areas. These changes may not necessarily indicate tissue destruction, as they can reflect strengthening of the ligament and alveolar bone in response to increased occlusal forces.
2. A vertical (rather than horizontal) bone loss pattern in the interdental septum.
3. Radiolucency or condensation of the alveolar bone.
4. Root resorption in some cases.

Summary

Trauma from occlusion does not initiate gingivitis or periodontal pocket formation. However, it may act as an additional factor that influences the progression and severity of periodontal disease. Understanding its effects on the periodontium is essential for proper clinical management of periodontal problems.

Physiologic Occlusion

The occlusion is normal, with no signs of dysfunction or disease; hence, no treatment is required.

Non-Physiologic / Traumatic Occlusion:

An abnormal occlusion that produces trauma or damage to the supporting periodontal structures.

Occlusal Therapy

Associated with dysfunction or disease resulting from tissue injury, for which treatment may be required.

Therapeutic Occlusion

Refers to the occlusion achieved after specific treatment to correct dysfunction or disease. Occlusal therapy is usually performed after scaling and root planning. In some cases, teeth may show mobility or slight extrusion due to periodontal inflammation, which may resolve without occlusal adjustment.

Indications for Occlusal Correction:

Should be performed only when there are signs of trauma from occlusion, such as:

Tooth mobility

Widened periodontal ligament space

Angular bone loss

It should never be done as a preventive (prophylactic) measure.

Parafunctional Habits (e.g., Bruxism):

Bruxism is a parafunctional activity, occurring during the day or night, and involves clenching, bracing, gnashing, or grinding of the teeth.

Etiology

Emotional factors: anxiety, anger, fear

Occlusal factors: occlusal prematurity

Effects: Bruxism can negatively affect the temporomandibular joint, muscles of mastication, occlusal surfaces, or the periodontium, depending on the weakest component — described as the "Weak Link Theory."

Bruxism

It refers to the habitual grinding or clenching of teeth, often unconsciously, especially during sleep (sleep bruxism) but also during wakefulness (awake bruxism). It's a common condition, affecting both children and adults, and it can have a significant impact on oral health, causing tooth wear, jaw pain, headaches, and other issues.

It classified into two main types:

1. Nocturnal Bruxism
2. Diurnal Bruxism

Sleep bruxism occurs during sleep and is typically unconscious. It's often identified by its nocturnal nature, where the person is unaware of the grinding until they wake up with discomfort or until a partner notices the sounds. Characteristics:

- Unconscious Behaviour: Since it occurs during sleep, the person is unaware of it and has no control over it.
- Grinding or Clenching: It can involve either grinding the teeth together or clenching them tightly, often in the middle of the night.
- Noisy: People with sleep bruxism may make loud grinding sounds that can disturb their sleep or their partner's sleep.
- Episodes: It tends to occur in episodes, with patients grinding intermittently during their sleep.
- Higher Risk of Tooth Wear: This form of bruxism often leads to significant tooth wear, damage, or fractures over time.
- Sleep Disruptions: Sleep bruxism can disrupt the quality of sleep for both the person grinding their teeth and their bed partner.

Causes of Sleep Bruxism

- Sleep Disorders: Conditions like sleep apnoea, snoring, and restless leg syndrome are often linked with sleep bruxism.
- Stress or Anxiety: Psychological stress and anxiety can cause or exacerbate grinding, even during sleep.
- Neurological Factors: Some studies suggest that bruxism could be related to abnormal functioning of neurotransmitters or brain activity during sleep.
- Genetics: There is evidence that sleep bruxism can run in families, suggesting a genetic predisposition.
- Medications: Certain medications, particularly antidepressants (SSRIs), have been linked to increased grinding.

Diurnal Bruxism

Awake bruxism, also known as awake clenching or awake grinding, occurs when the person is conscious and awake. It typically involves clenching the jaw or grinding the teeth during periods of stress, concentration, or frustration.

Characteristics

- **Conscious Behaviour:** Unlike sleep bruxism, awake bruxism is usually done consciously, and the person may be aware of it but may not realize how much or how often it happens.
- **Clenching:** While grinding can occur, awake bruxism more commonly involves clenching the teeth together, particularly during times of stress or focus.
- **Occasional Grinding:** Grinding during waking hours may be less frequent or intense than during sleep but can still cause significant damage over time.
- **Tension in the Jaw or Face:** Individuals may notice tightness in the jaw, facial muscles, or even ear pain from excessive clenching or grinding during the day.
- **Stress or Anxiety:** Awake bruxism is often triggered by emotional states such as stress, anxiety, anger, or frustration. It can happen while working, driving, or even during moments of intense concentration.

Causes of Awake Bruxism

- **Emotional Stress:** The most common cause of awake bruxism is stress, anxiety, or emotional tension.
- **Concentration or Focus:** Some people clench or grind their teeth while focusing intensely on a task, such as working or driving.
- **Habits:** Sometimes, awake bruxism is a learned behaviour, especially when a person experiences stress frequently or has a history of clenching or grinding as a way to release tension.
- **Personality Type:** People who have Type A personalities (competitive, ambitious, and high-strung) may be more prone to awake bruxism.
- **Misaligned Bite (Malocclusion):** People with poorly aligned teeth may subconsciously clench or grind to compensate for an uneven bite.

Management of Traumatic Occlusion

Traumatic occlusion (occlusion that produces injury to the supporting structures) is commonly managed with night guards or coronoplasty. Occlusal prematurity can be corrected through coronoplasty or selective reshaping of the occlusal surfaces, with the objective of achieving a stable and non-traumatic occlusion.

Coronoplasty

Coronoplasty is the selective reshaping of occlusal surfaces, primarily aimed at modifying mechanical contact relationships and altering the neural pattern of sensory input. It serves as a direct method to adjust occlusal conditions.

1. Eliminate retrusive prematurities and interferences along the retrusive path from RCP to ICP.
2. Adjust ICP to achieve stable, simultaneous, and widely distributed contacts.
3. Check for excessive contacts (trauma) on the incisors.
4. Remove posterior protrusive supracontacts and establish bilaterally balanced anterior contacts.
5. Remove or reduce mediotrusive (balancing) interferences.
6. Reduce excessive cusp steepness on laterotrusive (working) contacts.
7. Correct gross occlusal disharmonies.
8. Recheck overall tooth contact relationships.
9. Polish all rough tooth surfaces.

Minor Orthodontic Movements

1. Up righting or erupting a tipped tooth helps in levelling the associated bone defect.
2. Orthodontic treatment can assist in facilitating crown lengthening.
3. Malocclusions such as crossbite or deep bite that cause trauma from occlusion may be corrected with removable orthodontic appliances during Phase I therapy itself.

Provisional Splinting

A splint is an appliance that unites two or more teeth to provide support.

Indication: Primarily used for Grade II mobility.

Grade I mobility usually resolves after therapy or persists without affecting function.

Grade III mobility generally requires extraction.

Principle: Splints provide cross-arch stabilization by distributing occlusal forces across multiple teeth.

Types of Splinting

1. Temporary Splinting
- Purpose: Typically used in situations where temporary stabilization is needed for tooth mobility following active periodontal treatment.
- Indications: Usually recommended for acute mobility caused by severe periodontal disease or after scaling and root planning procedures.
- Material: Temporary splints are made from materials that can be easily removed later, such as resilin, dental wire, or composite resins.
- Duration: The splint is intended to stay in place for a short period, typically from a few days to a few weeks, while the inflammation resolves.

2. Semi-Permanent Splinting
- Purpose: Used when moderate mobility is present, and the teeth need to be stabilized for a longer period.
- Indications: Semi-permanent splinting is often used for teeth that exhibit reduced mobility after the initial periodontal treatment, where the objective is to allow the periodontium to heal while preventing further tooth movement.
- Material: Materials used for semi-permanent splints are typically resin-based composites or Fiber-reinforced materials that can be more durable and provide longer-lasting stability than temporary splints.
- Duration: These splints are usually worn for a few weeks to several months, depending on the healing progress.

3. Permanent (Long-Term) Splinting
- Purpose: Permanent splinting is typically used for severe mobility of teeth, especially in cases of advanced periodontitis or severe bone loss. The primary goal is to stabilize the teeth for long-term retention, preventing tooth loss and supporting the remaining periodontal structures.
- Indications: Usually recommended when teeth exhibit severe mobility and there is significant attachment loss, or in cases where multiple teeth in the same arch are affected.
- Material: The materials used for permanent splints are usually metallic wire or cast metal combined with composite resin for added strength and durability.
- Duration: These splints are intended for long-term use and can remain in place for several years, if necessary, though they may require maintenance or adjustment over time.

Splint:

- Intra coronal splinting
- Extra coronal splinting

Intracoronal Splinting Classification
1. Simple Intracoronal Splints
2. Intracoronal Wire Splint
3. Resin-Based Intracoronal Splints

Extra coronal Splinting Classification
1. Fixed Wire Splinting
2. Fixed Cast Metal Splinting
3. Temporary Crowns or Bridges
4. Orthodontic Splints

Re-Evaluation of Phase I

It takes about 3 to 4 weeks for the epithelium and connective tissue to heal and for inflammation to subside (Cobb CM, 1990). This period also allows the patient sufficient time to establish proper oral hygiene. Therefore, the results of Phase I therapy are usually evaluated after 4 weeks. According to Balderston et al., re-evaluation of Phase I therapy should not be performed earlier than 1 to 3 months

Re-evaluation of Phase I Therapy include assessment of:
Presence of plaque and calculus
Patient compliance with oral hygiene measures
Persistence of gingival inflammation
Periodontal pocket status
Tooth mobility
Occlusal discrepancies

Conclusion

Non-surgical periodontal therapy serves as the foundation for managing periodontal disease and preserving oral health. Through procedures such as scaling and root planning, along with proper patient education and maintenance, NSPT effectively reduces inflammation, controls infection. it may not fully reverse advanced cases, it significantly improves periodontal outcomes and prepares the patient for any necessary surgical interventions. the success of NSPT relies on both professional care and the patient's long-term commitment to oral hygiene and regular follow-up. Laser therapy is used to remove inflamed gum tissue and promote healing and regeneration. Nonsurgical periodontal therapy is often successful in reducing the need for surgery. They efficiently stop infection from spreading and restore the health of young gums without invasive surgery.

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